



# California Regional Water Quality Control Board

## Central Coast Region



Linda S. Adams  
Agency Secretary

Arnold Schwarzenegger  
Governor

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June 1, 2006

Ms. Chris Chang  
City of Santa Cruz  
Public Works Department  
809 Center Street, Room 201  
Santa Cruz, CA 95060

Dear Ms. Chang:

### **ADOPTION OF WASTE DISCHARGE REQUIREMENTS ORDER NUMBER R3-2006-0018 FOR THE CITY OF SANTA CRUZ CLASS III LANDFILL, SANTA CRUZ; SANTA CRUZ COUNTY**

Enclosed is a signed copy of Waste Discharge Requirements Order No. R3-2006-0018, and Monitoring and Reporting Program No. R3-2006-0018 (collectively, "Order") that were adopted by the Central Coast Water Board at its May 11, 2006 Board meeting.

Water Board staff have also posted a copy of the Order for other interested parties to view and print on our Website. The Order is available at the following Web address:

<http://www.waterboards.ca.gov/centralcoast/Permits/Index.htm>

If you have questions please contact Dan Niles at 805-549-3355, or his supervisor John Robertson at 805-542-4630.

Sincerely,

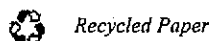
  
47 Roger W. Briggs  
Executive Officer

Enclosure:  
Order No. R3-2006-0018

cc:  
Santa Cruz Interested Parties List—No enclosures

S:\Land Disposal\Land Disposal Facilities\PERMITTED SITES\Santa Cruz\ORDERS\2006\Transmittal Letter

*California Environmental Protection Agency*



**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL COAST REGION**

**WASTE DISCHARGE REQUIREMENTS ORDER NO. R3-2006-0018**

Waste Discharger Identification No. 3 440301001  
Proposed for Consideration at the May 12, 2006 Board Meeting

**For**

**SANTA CRUZ CLASS III LANDFILL  
SANTA CRUZ COUNTY**

The California Regional Water Quality Control Board, Central Coast Region (hereafter "Water Board") finds that:

**SITE OWNER AND LOCATION**

1. The City of Santa Cruz (hereafter "Discharger" or "City") owns and operates the Santa Cruz Class III Landfill (hereinafter "Landfill"), known as the "City of Santa Cruz Resource Recovery Facility."
2. The California Code of Regulations, Title 27 (CCR Title 27) regulates waste discharges to land. The terms used herein are defined in CCR Title 27, Section 20164.
3. The 100-acre Landfill is located in Section 17, Township 11 South, Range 2 West, Mount Diablo base and Meridian on Highway 1, three miles west of the City limit, and one mile north on Dimeo Lane; latitude 36°57'45"N and longitude 122°06'00"W. The Landfill consists of a 40-acre historic unlined canyon fill area along the south, north, and west slopes where partial final cover has already been placed, and the lined areas, which consist of 26.3 acres. The lined areas are subject to Subtitle D liner requirements. The Assessors Parcel Number for the Landfill is 059-121-01. The Landfill location is shown on **Figure 1**.

**PURPOSE OF ORDER**

4. The purpose of Waste Discharge Requirements Order No. R3-2006-0018 (Hereafter "Order" or "Order No. R3-2006-0018") is to regulate proposed Landfill design and operational changes. This Order also updates and replaces Waste Discharge Requirements Order No. 94-62, adopted by the Water Board on November 18, 1994.
5. The Discharger submitted a Joint Technical Document (JTD) on March 10, 2005, to facilitate updating Order No. 94-62. The JTD provides a comprehensive description of Landfill design and operations. The JTD proposes and describes the following design and operational changes:
  - a. Recognize the previously permitted discharge of waste in the West Canyon within the 50 foot buffer area.
  - b. Allow acceptance of animal carcasses resulting from road kills, natural causes, etc. within city limits.
  - c. Household Hazardous Waste Drop-Off Facility.
  - d. Use of leachate for dust control.
  - e. Disposal of sludge mixed with dry soil and used as cover material to promote vegetative growth for winterization erosion control on closed or partially closed slopes.

- f. Use of alternate daily cover including tarps, wood chips, green waste and cementitious slurry materials such as Posi-shell.
  - g. Increased intake from 400 tons per day to 535 tons per day.
6. Order No. R3-2006-0018 includes the following key elements:
- a. Compliance review of the 100-acre Landfill.
  - b. Description of landfill operations including waste management unit construction.
  - c. Updated waste stream information.
  - d. Allowance for treated wood waste disposal.
  - e. Update WDR 94-62 to comply with CCR Title 27, Solid Waste, effective July 18, 1997, and 40 Code of Federal Regulations (CFR), Parts 257 and 258 Solid Waste Facility Disposal Criteria, Final Rule, as promulgated October 9, 1991 (40 CFR 257 and 258).
  - f. Incorporation of the requirements of Order No. 93-84 "Waste Discharge Requirements Amendment for All MSW Landfills in the Central Coast Region" (Super Order), and thereby rescission of the Super Order.
  - g. Modification to Prohibition B.5 to recognize the previously permitted discharge of waste in the West Canyon within the 50 foot buffer area.

#### LANDFILL DESCRIPTION AND HISTORY

7. Historically, the site was operated as a burn dump between 1926 and 1969. 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 waste masses, the City 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 Landfill's southern extent. Elevation of the 100-acre landfill property ranges from 110 feet to 530 feet above Mean Sea Level. **Figure 2** shows the Landfills current configuration and property line.
8. The 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, and the lined areas, which will ultimately comprise 26.3 acres subject to Subtitle D liner requirements. The Subtitle D area is shown in **Figure 3**. The lined areas, when complete, will consist of four lined cells. Cell 1 and part of Cell 2 have already been constructed as described below. Construction of the next lined cell, Cell 3, is scheduled to begin after 2007. 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). In the recently issued California Integrated Waste Management Board (CIWMB) Solid Waste Facility Permit, the maximum disposal intake was increased from 400 tons per day to 535 tons per day (not including recyclable or diverted tonnage).
9. 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 dispose of chromium-impacted wastes that had been excavated from Landfill leachate evaporation ponds. In the past, the ponds were used to evaporate landfill leachate and to dry out and dispose of local tannery sludge. Since these materials were found to contain high concentrations of chromium and were considered a threat to groundwater quality, the Water Board required these pond areas to be removed. The pond sediments and underlying soil were excavated and placed in Cell 1. Cell 1 has been filled to intermediate grade. No additional wastes are accepted in Cell 1 and the cover is left undisturbed.

10. Construction of part 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 Title 27. Currently, the City plans to use Cell 2 as the winter fill area because it is easily accessible to vehicles during wet weather. 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 achieved. Historic waste placement extends to the north portion of the western property line for approximately 250 feet in the West Canyon. Fill operations are continuing in this area as previously discussed. Therefore, new waste will be placed in this area. 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 was covered with geomembrane and soil protection layer, and will eventually be covered by additional refuse until design grades are achieved (**Figure 4**).
11. Ancillary facilities at the site include the following: the Recycling Center, an employee building (now used for storage), an equipment maintenance building, two administration office trailers, the Recycling Center-Skills Center trailer, a new mechanics' office trailer, the scale house and the vehicle scale. In addition, there is a Gas-to-Energy Building, a Gas-To-Energy office trailer and a Household Hazardous Waste Drop-Off Facility. Other facilities include: a leachate pump station, two leachate collection ponds, gas extraction trench and treatment facility, two 10,000-gallon galvanized steel water tanks, one diesel/bio-diesel tank, one gas tank, one propane tank, one emergency stand-by generator for the Refuse Recovery Facility, a used oil storage tank and several storage sheds.
12. 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). Most of the adjacent State Park's land is part of Wilder Ranch State Park and some of the State Park's land is leased to farmers. The headwaters of the two incised canyon drainages that used to converge under the landfill are owned by State Parks.
13. The Zoning and Coastal Permit issued by the City of Santa Cruz Zoning Administrator for the Landfill expansion is found in Appendix C of the JTD. This permit was issued on November 11, 1994. An update to this permit is not necessary since the design of the landfill area has not changed since the permit was issued and the corresponding California Environmental Quality Act analysis was conducted. The City's General Plan designates the Landfill as a Community Facility (CF) and the zoning is Public Facility (PF).

#### WASTE TYPE & CLASSIFICATION

14. The Landfill is operated as a Class III Municipal Solid Waste Landfill as defined by CCR Title 27, Sections 20240 and 20260.
15. 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 wastes. Class III wastes are all putrescible and non-putrescible solid, semi-solid, and liquid wastes, including garbage, trash, refuse, paper, rubbish, ashes, industrial wastes, demolition and construction wastes, abandoned vehicles and parts thereof, discarded home and industrial appliances, manure, vegetable or animal solid or semi-solid wastes and other discard waste (whether solid or semi-solid consistency); provided that such wastes do not contain wastes that must be managed as hazardous wastes, or wastes that contain soluble pollutants in concentrations that exceed applicable water quality objectives or could cause degradation of waters of the state.

16. The largest percentage of waste received at the Landfill is mixed municipal solid wastes, non-hazardous commercial and industrial wastes, and construction/demolition debris wastes. With the exception wastewater sludge, these waste types do not require any specialized handling and are disposed using standard disposal operating procedures. Additionally, residential and commercial recyclable materials are received through City Sanitation collection and on a drop-off basis. "Green Waste," which is vegetation such as grass, leaves and garden clippings is also accepted. Certain electronic waste from computers is accepted at the Recycling Center for shipping off-site to ECS Refiners of San Jose. Other computer hardware, such as hard drives, is placed in the metals pile at the Recycling Center as appropriate. The Landfill accepts household hazardous waste at the Household Hazardous Waste (HHW) Drop-Off Facility located at the Recycling Center. The household hazardous waste is not disposed in the landfill.
17. During 2004, the site received approximately 100,100 tons of waste. Disposed municipal solid waste comprised 57,000 tons while 43,100 tons of waste was diverted as miscellaneous fill, clean fill, wood, sludge used for erosion control, and recyclable material. Over the next five years, approximately 694,023 cy of airspace will be used for waste and daily and intermediate cover.
18. Based on the final excavation and grading plans and aerial photogrammetry from March 2004, the remaining total airspace of the Landfill is 6,029,272 cubic yards (cy) which includes the space created by the excavation for future landfill cells. The total liner and final cover soil requirements are 119,900 and 368,800 cy respectively. The remaining net air space (5,540,572 cy) was calculated by subtracting the total liner and total final cover requirement volumes from the total airspace. By using a 4:1 solid waste-to-daily and -intermediate cover ratio, the required volume of daily and intermediate cover is 1,205,854 cy and the available solid waste volume is 4,432,458 cy. The required cover material was calculated assuming a 4:1 ratio of waste to cover material. The current (2004) ratio of waste to cover material is significantly higher, as alternate daily covers (i.e. tarps, green waste) are being extensively used. However, for the purposes of these calculations, the conservative value of 4:1 was used; this assumption will be changed after five years of actual operations demonstrating that a higher waste to soil ratio was achieved. According to the JTD, as of March 2004, the estimated life of the Landfill is 34 years based on an estimated annual disposal rate of 98,873 cy/year beginning in year 2005, increasing to 156,265 cy/year in 2038 when it is estimated that the Discharger will exhaust Landfill capacity. The 2005 annual disposal rate was calculated by averaging the quantities for the previous three years (years 2002-2004.)
19. Wastes containing greater than one percent (>1%) friable asbestos are classified as hazardous under CCR, Title 22. Since such wastes do not pose a threat to water quality, Section 25143.7 of the Health and Safety Code permits their disposal in any landfill, providing waste discharge requirements specifically permit the discharge and the wastes are handled and disposed of in accordance with other applicable State and Federal statutes and regulations.
20. The Discharger proposes to accept treated wood waste at the facility. "Treated wood" means wood that has been treated with a chemical preservative for purposes of protecting the wood against attacks from insects, microorganisms, fungi, and other environmental conditions that can lead to decay of the wood and the chemical preservative is registered pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. Sec. 136 and following). Existing law regulates the control of hazardous waste, but exempts from the hazardous waste control laws, wood waste that is exempt from regulation under the federal Resource Conservation and Recovery Act of 1976, as amended (RCRA), if the wood waste is disposed of in a municipal landfill that meets certain requirements imposed pursuant to the Porter-Cologne Water Quality Control Act for the classification of disposal sites, and the landfill meets other specified requirements outlined in Sections 25143.1.5 and 25150.7 of the Health and Safety Code. Section 25150.8 of the Health and Safety Code also provides that if treated wood waste

is accepted by a solid waste landfill that manages and disposes of the treated wood waste in the manner specified, the treated wood waste shall be deemed to be a solid waste, and not a hazardous or designated waste. The Discharger has indicated that all treated wood waste accepted at the facility will be handled and disposed of in accordance with the provisions outlined in Sections 25143.1.5, 25150.7, and 25150.8 of the Health and Safety Code.

## GEOLOGY/HYDROGEOLOGY

21. Setting—The Landfill is located in the Coast Ranges geomorphic province in a canyon surrounded by rolling coastal foothills.
22. Topography—The Landfill is situated in a north-south trending, steep-walled Y-shaped canyon that drains to the Pacific Ocean approximately  $\frac{3}{4}$  of a mile south of the site. The canyon, which is bordered by a series of relatively flat-topped ridges, is one of several that have been eroded into the coastal marine terraces uplifted on the southwest flank of Ben Lomond Mountain. At the northeast corner of the property, elevations on adjacent ridges are as high as 535 feet above mean seal level (MSL), while the elevation at the bottom of Lombardi Creek on the southwestern corner of the site is approximately 130 feet above MSL.
23. Geologic Structure—The Landfill is located within the Salinian Block in the Coast Ranges Geomorphic Province. The Salinian Block is characterized by a basement of Cretaceous quartz diorite type granitic and older metasedimentary rocks. The Salinian Block is partitioned into smaller blocks by a series of northwest trending right-lateral faults. The relative vertical movement of these faults has controlled the patterns of sedimentation in the region, with up-thrown basement blocks serving as the provenance for the thick accumulation of Tertiary marine sediments found within intervening structural basins. According to the JTD, information from geologic borings and groundwater contours in the vicinity of the southern edge of the site suggest the presence of an east-west trending high-angle structure that acts as a local barrier to groundwater flow. In addition to the anomalous groundwater elevations, highly sheared bedrock in the Santa Cruz Mudstone was encountered during drilling of soil-pore gas probe W-20G near the postulated location for this structure. This feature does not appear as a fault on any of the professional geologic reports published for the region and, as a result, it is unclear whether this feature is a fault, an unconformity, a landslide shear plane or some other feature.
24. Stratigraphy—The geologic units within the vicinity of the Landfill from youngest to oldest include: recent alluvial deposits, Pleistocene marine terrace deposits, Tertiary Santa Cruz Mudstone, Tertiary Santa Margarita 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. Literature review suggests that a nonconformity exists between the Tertiary units at the site and the underlying basement rocks. The nonconformity is likely to be an undulatory surface, which also dips at shallow gradient to the south. Five distinct Pleistocene terrace deposits have been mapped at successive elevations in the Landfill area. The Santa Cruz Mudstone formation unconformably underlies the terrace deposits; however, at the Landfill, much of the upper portion of the mudstone has been removed by erosion and during replacement of the marine terraces. The valley slope is steeper than the dip of the mudstone beds and the mudstone thins towards the toe of the Landfill. Underlying the mudstone is the Santa Margarita sandstone. The total thickness of the Santa Margarita sandstone is variable throughout the Landfill area and, in general, it thins toward the toe of the landfill because of erosion. The Santa Margarita sandstone is exposed near the southerly limits of waste at the base of the canyon that discharges to Lombardi Creek.

25. Faulting/Seismicity—Several active and potentially active faults exist within a distance of engineering significance to the Landfill. These faults include the San Andreas, Zayante, San Gregorio-Palo Colorado and the Monterey Bay faults. The nearest active fault is the San Gregorio-Palo Colorado Fault, which is located approximately six miles west. No active faults have been mapped within the immediate vicinity of the Landfill.

In January 1996, GeoLogic Associates (GLA) prepared a slope stability analyses for the Landfill. The report is a summary of the slope stability analyses performed in order to evaluate plans for Landfill development, particularly for Cell 1 development, and repair of certain slopes. The project included the following: review of existing data, limited field and laboratory study, identification of seismic hazards, and computer-aided stability analyses of existing and planned landfill geometries. In summary, the report concluded that the planned Master Fill Plan fill slopes (2:1 between benches and 2.4:1 to 2.5:1, overall) would have adequate slope stability properties provided that groundwater elevations did not vary significantly from the elevations measured at the time and included in the calculations.

In February 1996 GLA submitted an addendum slope stability analyses to the Discharger due to change in the Master Fill Plan. The change called for the Landfill to attain a maximum elevation of 510 feet and for the southerly landfill slope to be reconfigured at a 2.5:1 gradient gross (2:1 between benches). Thus, the addendum presented the results of additional slope stability calculation performed to evaluate these changed conditions. A slope stability analyses for Cell 2, which includes an evaluation of seismic stability, was also prepared for the Discharger by GLA. This stability analyses used the computer programs EQFAULT and EQSEARCH to estimate the maximum ground accelerations for the MPE, which is considered to be an earthquake causing a maximum peak ground acceleration (PAG) value at the Landfill with a return period of 100 years, or the maximum historical ground acceleration at the site, whichever is greater. EQFAULT was also used to determine the active faults within a 60 mile radius of the Landfill and to determine the PGA at the site corresponding to earthquake magnitudes on these faults with a return period of 100 years. Based on the analyses, a maximum PGA of 0.33g, associated with a Magnitude 6.75 earthquake on Palo Colorado-San Gorgorio fault, was used for the project stability analyses. Geo-slope's SLOPE/W program was used to analyze potential failure surfaces in a grid pattern to identify the minimum factor of safety for both the "typical liner configuration" (i.e., clay liner overlain by a high density polyethylene [HDPE]) and for the alternative geosynthetic clay liner (GCL) configuration (i.e., GCL and HDPE). GLA concluded that the configuration for Cell 2 met the acceptable design criteria for slope stability. Please refer to the "Results of Slope Stability Analyses-Cell 2-Santa Cruz Resource Recovery Facility" for a complete description of their analyses and the supporting data and calculations. Appendix G of the JTD includes the above referenced slope stability reports.

26. Hydrogeology—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 (Holocene), the marine terrace unit (Pleistocene), the Santa Cruz Mudstone (early Pliocene) and the Santa Margarita Sandstone (Mio-Pliocene). Using information from groundwater monitoring wells between 1985 and 1995, Landfill hydrogeology was assessed including a description of the water bearing units, the groundwater conditions, flow directions, and flow rates. The following is a description of the water-bearing units:

*Alluvium:* Groundwater flow within the unconsolidated, porous alluvium is limited by the narrow distribution of the unit within the historic canyon bottom. Alluvial groundwater, originating within the headwaters of the northern and western canyons, has historically flowed to the south and is

believed to be flowing beneath the refuse mass. Construction of the fresh water by-pass tunnel system, including the two groundwater cut-off walls at the North and West Canyons, should significantly reduce the volumes of alluvial groundwater flowing beneath the refuse at this site. Construction of a groundwater cut-off wall at the southern toe of the landfill significantly reduces the volume of groundwater discharged from the site.

*Marine Terrace/Fill Unit:* From sampling and boring logs of wells in the southeast corner of the Landfill, the Marine Terrace/Fill unit appears to be locally saturated. Well construction data indicates the depth to Terrace/Fill groundwater in this area is generally less than 10 feet and its saturated thickness is less than 10 feet. In some areas, perched groundwater at the base of the Fill unit is less than about five feet thick and overlies unsaturated Marine Terrace soils. Groundwater within the unit flows southward and is separated from groundwater within the underlying Santa Cruz Mudstone by unsaturated Mudstone deposits.

*Santa Cruz Mudstone:* The Santa Cruz Mudstone is pervasively fractured and locally yields significant volumes of groundwater. Groundwater within the unit appears to occur primarily within fractures and little "grain-to-grain" (primary) porosity is interpreted to exist. While fracturing and weathering in the Santa Cruz Mudstone unit may impose small scale or localized control on groundwater flow, the pervasive character of fracturing is believed to result in flow that mimics porous media conditions. Near surface weathering horizons within the Santa Cruz Mudstone appear to be less fractured than deeper, better-cemented and brittle sequences. As an interpreted consequence, these weathered "clayey" portions of the unit appear to provide a locally "semi-confining cap" above the water-bearing portion of the unit. As a further consequence, within the northern two-thirds of the Landfill, groundwater within both the Santa Cruz Mudstone and Santa Margarita Sandstone appears to occur in a semi-confined condition, and wells within both units exhibit an upward vertical gradient. Beneath the southern one-third of the property, the Santa Cruz Mudstone has been eroded away within the historic canyon bottom and, as a result, groundwater flow in this area is limited to either the alluvium or the Santa Margarita Sandstone.

*Santa Margarita Sandstone:* Drilling and well construction data indicate that the granular Santa Margarita Sandstone unit is relatively loosely cemented and that groundwater flow within this unit should also be perpendicular to equipotential lines. Construction of monitoring well W-2DR in the West Canyon area demonstrated that groundwater within the Santa Margarita Sandstone occurs in an artesian condition in this area. In contrast, conditions during the construction of monitoring well W-4T and vadose zone monitoring point W20G indicate that the Santa Margarita Sandstone is unsaturated along the southern edge of the Landfill. This condition may be a result of draining the unit where it "daylights" beneath refuse in the southern third of the historic canyon, the presence of a local barrier to groundwater flow, or locally well-cemented, bituminous character.

Site potable water is transferred from the City's water treatment plant and piped to the Landfill. Water for dust control and fire protection is provided from North Coast sources and is pumped to a 10,000 gallon water tank that is located on the east ridge.

## GROUNDWATER, SURFACE WATER, AND STORM WATER

27. Groundwater—Landfill groundwater flows from the ridges towards the historical canyon bottom in the center of the property. The groundwater flow gradient parallel to the historic canyon axis is approximately 0.05 foot per foot, while the groundwater flow gradient from the ridgelines to the historical canyon axis is approximately 0.19 foot per foot. According to the July 2004 Detection Monitoring Report, monitoring of the seven wells near the Recycling Center during the second quarter 2004 indicated that groundwater in this area flows in a south-southeasterly direction at a



gradient of approximately 0.11 foot per foot. The July 2004 report summarizes that the groundwater dewatering system beneath Cell 1 and Cell 2 appears to have a minor effect on groundwater flow at the north end of the recycling area.

Literature review indicates that the hydraulic conductivity of the unconsolidated relatively fine-grained alluvial and terrace materials may range from approximately 0.1 to 0.0001 ft/day and that the effective porosity of these units ranges from 0.1 to 0.2. The better consolidated character of the terrace units is expected to result in generally lower hydraulic conductivity and lower effective porosity characteristics than the alluvial units.

Well recovery rates observed during well purging and sampling operations indicate that the Santa Cruz Mudstone unit appears to have erratic hydraulic characteristics, depending upon the degree of local weathering conditions. At some locations the Mudstone unit yields abundant water while at other locations it yields little water. Literature review suggests that the hydraulic conductivity ( $K$ ) of this fractured unit may range from as high as about 3 ft/day to as little as 0.0003 ft/day, and that its effective porosity ( $ne$  as a ratio of the mass of open fractures to rock) may also have a significant range (from about 0.05 to perhaps as high as 0.2).

As determined by a pumping test, the hydraulic conductivity of the Santa Margarita Sandstone unit ( $K = \pm 1.35$  ft/day) is consistent with published values for friable sandstone units. Literature review suggests that, where unaffected by bituminous tar, the effective porosity ( $ne$ ) of the sandstone unit should be on the order of approximately 0.20.

28. Organic Water Quality—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 down gradient 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 and groundwater collection trench along the southeast property line. The collection trench is adjacent the two mentioned wells and to a waste historic disposal area now located under a recently asphalted area at recycling facility. The gas collected from this trench 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.
29. Inorganic Water Quality—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 down gradient of the landfill and the two compounds were detected at concentrations above those in background wells. The corrective action program for these constituents also involves the gas and groundwater collector trench along the southeast property line. 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.
30. Supply Wells— One supply well is located off-site and within one mile of the Landfill however, there is 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 City 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.

31. Groundwater Separation—California Code of Regulations Title 27, Section 20240(c), requires the Discharger to operate the Landfill to ensure that wastes will be a minimum of five feet above highest anticipated groundwater, or engineered alternative. This operational requirement reduces leachate generation and impairment of beneficial uses. Current waste management units meet the separation criteria.
32. Surface water—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 currently blocks the flow of these seasonal creeks. In order to divert the two creeks under and around waste masses, the City constructed a fresh water bypass system that routes the water under and around the landfill and back into the natural grade of Lombardi Creek down-gradient of the southern “toe” of the landfill.
33. Storm Water—The Landfill is covered under the State Water Resources Control Board (SWRCB) 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 qualifying major storm of the rainy season and again later in the year during another qualifying 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, iron, total dissolved solids, and total suspended solids. An annual report, including sample results, is submitted to the Water Board by July 1st of each year for the previous twelve-month period.
34. Precipitation—Daily and quarterly rainfall data for the Landfill are reported in the Semi-Annual Detection Monitoring Reports, which are submitted to the Water Board. During the first and second quarters of 2004, precipitation totaled 11.80 inches. Also, during this period, the most intense 24-hour rain event yielded approximately 1.87 inches of rain. In 2003, during the first and second quarters of the year, precipitation totaled 7.83 inches. Also, during this period, the most intense 24-hour rain event yielded approximately 0.66 inches of rain. During the third and fourth quarters of 2003, precipitation totaled 11.27 inches. During this time period, the most intense 24-hour rain event yielded approximately 2.69 inches of rain. Thus, in 2003, the total precipitation was 19.10 inches of rain. Annual precipitation data is gathered from the California Irrigation Management Information System station closest to the Landfill. This station is DeLaveaga, which is located in the City of Santa Cruz approximately 3 miles from the Landfill. The DeLaveaga station is located approximately one and a half to two miles inland and is at an elevation of 300 feet, reasonably similar to the Landfill. In accordance with the rainfall frequency map provided in the JTD, the calculated peak 100-year, 24-hour storm event was determined to be 10.3 inches.
35. Floodplain—The Landfill is not in a 100-year flood plain according to the Federal Emergency Management Agency maps for Santa Cruz County. However, as noted in Findings 7 and 32, the City constructed a fresh water bypass system that routes the water under and around the landfill.
36. Springs—As described in the Preliminary Closure Plan, dated July 24, 1992, and revised on February 16, 1993, prepared by Brown and Caldwell for the City, the Lompico Sandstone to the north of the Landfill is considered to be the source of groundwater identified beneath the site. Groundwater contained in the Lompico Sandstone and the Santa Margarita Sandstone in the northern portion of the

Landfill is under confined conditions. The Sandstones are confined between the quartz diorite basement rock and the overlying Santa Cruz Mudstone. The confined conditions result in artesian pressure, observed at the northern end of the Landfill, and ultimately a discharging groundwater system. The Lompico Sandstone pinches out north of the Landfill and this pinching out, combined with the erosion of the Santa Cruz Mudstone and the thinning the Santa Margarita Sandstone near the southern portion of the Landfill, results in a discharge of groundwater through springs where the confining layer thins.

In the March 1993 Periodic Site Review report, which was prepared for the City by Brown and Caldwell, four springs within one mile of the landfill were identified. One of the springs is located on Landfill property, but is buried underneath the waste mass and may be partially controlled by the fresh water bypass. According to Brown and Caldwell, two springs, identified as SA and S-2, significantly dewater the Santa Margarita Sandstone as evidenced by the small amount of groundwater that was observed in monitoring well Well-4D (abandoned in the mid-1990s). However, one well located within one mile south and east of the landfill in the Santa Margarita Sandstone produce quantities of groundwater suitable for irrigation, though it is currently not in use. Groundwater present in the Santa Margarita Sandstone to the east and south is considered part of a different groundwater regime relative to the groundwater present in the Santa Margarita Sandstone beneath the landfill. The source of groundwater in the Santa Margarita Sandstone to the south is largely due to direct recharge.

### CONTROL SYSTEMS/MONITORING PROGRAMS

37. Leachate Management System—The Landfill is located where two canyons converge forming the lower portion of Lombardi Creek. Two pipelines, one 36-inch and one 30-inch, which were originally used for diverting runoff, are buried at the bottom of the canyon floor. These concrete pipes were originally used to transport runoff from the northern and western canyons under the refuse prism to Lombardi Creek. The pipes are now sealed at the upstream ends but leachate and groundwater flow into them through cracks. These pipes (primarily the 36-inch pipe) are now used as the primary leachate collection feature under the unlined portions of the Landfill. The pipes discharge into the leachate ponds located at the southern toe of the Landfill.

Cells 1 and 2 are joined to provide a contiguous lined area including extensions of the existing sub-drain collection and leachate collection system. The leachate collection and removal system (LCRS) for Cell 1 and Cell 2 consists of the following:

- Six inch diameter HDPE slotted and solid pipe;
- Drainage gravel; and
- 8-oz geotextile between the LCRS gravel layer and protective soil cover in order to separate the protective cover from the LCRS gravel.

The LCRS for Cells 1 and 2 was designed to remove leachate efficiently and to maintain the potential hydraulic head on the composite liner system to less than 12 inches, as required by CCR Title 27. Leachate collected in Cell 2 is conveyed to the Cell 1 system. The LCRS for Cell 1 was constructed with an outfall pipe that drains south of the lined area and connects to the outgoing six-inch leachate line carrying leachate that has been pumped from the leachate ponds. The two lines meet underground and then the combined flow goes down Dimeo Lane to the City's sanitary sewer system.

Based on calculated results using the "HELP 3" computer model, the peak daily leachate generation that may be expected within the planned 26.3-acre landfill liner expansion area, when complete, is 13.5 gallons per minute (gpm). The LCRS for this area and the groundwater collection systems underneath the liner tie into the leachate transport pipeline. The volume of groundwater and leachate

collected and removed from the facility during the first and second quarters of 2004 were approximately 4,100,310 gallons and 5,153,450 gallons respectively.

38. Landfill Gas Control—The gas control and collection system consists of a network of 25 vertical gas collection wells, 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. In addition, as previously mentioned, in late 2005, construction was completed for groundwater and gas collection pipes, a treatment facility, and a horizontal trench curtain to capture and remove migrating gas in the southeast corner of the Landfill adjacent to the Recycling Center.
39. Groundwater Monitoring— There are 14 groundwater monitoring wells, and four piezometers per the monitoring and reporting program. The compliance wells are as follows: 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. Groundwater sampling has been conducted at the Landfill since 1990. Groundwater samples are analyzed for inorganic parameters and VOCs. At a minimum, the 47 VOCs are analyzed and reported pursuant to 40 Code of Federal Regulations, Part 258. Field measurements of water chemistry are conducted to ensure that the water sampled is representative of fresh water in the screened, water-bearing zone. These field measurements include temperature, pH, electrical conductivity, dissolved oxygen, and turbidity.
40. Leachate Monitoring—As noted in Finding 37, Landfill leachate collected beneath the facility and former surface water bypass system, flows down Dimeo Lane to the City's sanitary sewer system. Leachate and groundwater from the interceptor collection trench commingle and flow by gravity to the leachate collection ponds at the toe of the landfill where liquids are pumped downtown to the City's sanitary sewer system and the Wastewater Treatment Facility. The mixing creates leachate that Water Board staff determined was acceptable for application over Landfill areas for dust suppression. The discharger performs leachate monitoring to assess what is being discharged to the City's sanitary sewer system. The discharger also conducts leachate monitoring when it intends to use leachate for dust suppression.
41. Surface Water Monitoring—The surface water monitoring stations are: US-1, US-2, and DS-1. The up-gradient surface water stations, US-1 and US-2, are located in the North Canyon pond and West Canyon pond respectively. DS-1 is the down-gradient surface water station located at the southern toe of the landfill, near the property boundary, just below where the fresh water bypass tunnel exits to form Lombardi Creek. Station DS-2 is no longer sampled per the MRP. Surface water samples are currently analyzed for twelve inorganic parameters. In addition, field measurements of temperature, pH, electrical conductivity, dissolved oxygen, and turbidity are obtained from calibrated instruments at the time of sampling. Surface water samples are not analyzed for VOCs.
42. Landfill Gas Monitoring—There are 10 perimeter vadose zone monitoring wells and 3 temporary gas probes. The 10 perimeter vadose zone gas monitoring wells consist of 8 historical wells and 2 new perimeter gas monitoring stations that were installed in Summer 2004. In accordance with CCR Title 27, the original eight vadose zone wells are positioned on approximately 1,000 foot centers around the perimeter of the of the Landfill to depths equivalent to adjacent refuse or five to 10 feet above groundwater. Where the borehole was deeper than 20 feet, soil-pore gas monitoring probes were "nested" to provide the ability to monitor more than one discrete depth interval. The two new perimeter vadose zone wells are located along the southern boundary of the Landfill property and each has three nested probes at discreet sampling intervals. The three temporary probes are single probes that are also located along the southern boundary of the property.

### **BASIN PLAN**

1. The Water Quality Control Plan, Central Coast Basin (Basin Plan), was adopted by the Water Board on September 8, 1994, and approved by the SWRCB on November 17, 1994. The Basin Plan incorporates statewide plans and policies by reference and contains a strategy for protecting beneficial uses of State Waters. This Order implements the water quality objectives of the Basin Plan.
2. Present and anticipated beneficial uses of surface waters downgradient of the discharge include:
  - a. Agricultural Supply
  - b. Groundwater Recharge
  - c. Non-Contact Water Recreation
  - d. Contact Water Recreation
  - e. Wildlife Habitat
  - g. Cold Freshwater Habitat
3. The beneficial uses of groundwater in the vicinity of the Landfill are:
  - a. Domestic and Municipal Supply
  - b. Agricultural Supply
  - c. Industrial Supply

### **CALIFORNIA ENVIRONMENTAL QUALITY ACT**

1. The development plan for the Landfill described in the JTD was analyzed for environmental impacts in an Initial Study dated March 2002, which determined that a Negative Declaration was appropriate CEQA documentation for the plan. The Notice of Determination approving the project was dated August 14, 2002.
2. This Order contains prohibitions, discharge specifications, water quality protection standards, and provisions intended to protect the environment by mitigating or avoiding impacts of the project on water quality. This Order is for an existing facility and therefore is exempt from provisions of the California Environmental Quality Act (Public Resources Code, Section 21000, et seq.) in accordance with Title 14, Chapter 3, and Section 15301.

### **GENERAL FINDINGS**

1. The Landfill currently meets all Title 27 criteria for classification as a Class III Landfill suitable to receive non-hazardous solid wastes.
2. The Landfill operates under the following Orders and Permits:
  - a. Waste Discharge Requirements Order No. 94-62.
  - b. Waste Discharge Requirements Order No. 93-84.
  - c. Region Wide Cleanup and Abatement Order No. R3-2002-0130.
  - d. National Pollutant Discharge Elimination System General Permit No. CAS000001, Waste Discharge Requirements For Discharges of Storm Water Associated With Industrial Activities Excluding Construction Activities (Water Quality Order No. 91-13 DWQ), revised 1997.
  - e. CIWMB Solid Waste Facility Permit No. 44-AA-0001.
  - f. Monterey Bay Unified Air Pollution Control District Title V Operating Permit TV 31-02.

- g. Monterey Bay Unified Air Pollution Control District permit to operate 6233B.
  - h. Santa Cruz County Environmental Health Service Permit to Operate.
  - i. City of Santa Cruz Zoning Permit No. 94-245.
  - j. Monterey Bay Unified Air Pollution Control District Gas Extraction Trench and Treatment Facility Permit to Operate 11300.
3. This Order implements the prescriptive standards and performance goals of CCR Title 27, as promulgated on July 18, 1997, and in conformance with the goals of the Basin Plan.
  4. In June 2004, the Discharger demonstrated availability of financial resources to conduct closure and post-closure maintenance activities.
  5. In January 2004, the Discharger demonstrated a Financial Assurance Instrument for corrective action. The Discharger updated its cost estimate for "worst case" corrective action reasonably foreseeable release at the Landfill. This was reported to the CIWMB in June 2004, and the cost estimate is annually adjusted for inflation. It covers the costs associated with a Corrective Action Program, an Evaluation Monitoring Program, and annual testing, operation, and maintenance.
  6. On **February 22, 2006**, the Water Board notified the Discharger and interested agencies and persons of its intention to update the Landfill Waste Discharge Requirements and has provided them with a copy of the proposed Order and an opportunity to submit views and comments.
  7. After considering all comments pertaining to this discharge during a public hearing on **May 12, 2006**, this Order was found consistent with the above findings.

**IT IS HEREBY ORDERED** pursuant to authority in Section 13263 of the California Water Code, the City of Santa Cruz, its agents, successors, and assigns may discharge wastes at the Santa Cruz Class III Landfill, providing compliance is maintained with the following:

**A. COMPLIANCE WITH OTHER REGULATIONS, ORDERS AND STANDARD PROVISIONS**

1. Discharge of waste is a privilege, not a right, and authorization to discharge waste is conditioned upon the discharge complying with provisions of Division 7 of the California Water Code and with any more stringent limitations necessary to implement the Basin Plan, to protect beneficial uses, and to prevent nuisance. Compliance with this Order should ensure conditions are met and mitigate any potential changes in water quality due to the project.
2. Discharge of waste shall comply with all applicable requirements contained in the California Code of Regulations Title 27, Division 2, Solid Waste (CCR Title 27) and Title 40 Code of Federal Regulations Parts 257 and 258 (40 CFR) Solid Waste Facility Disposal Criteria. If any applicable regulation requirements overlap or conflict in any manner, the most water quality protective requirement shall govern in all cases, unless specifically stated otherwise in this Order, or as directed by the Executive Officer.
3. This Landfill is no longer subject to this Water Board's Order No. 93-84 "Waste Discharge Requirements (WDR) Amendment for All Municipal Solid Waste Landfills in the Central Coast Region" (Super Order). The Super Order updated all Region 3 landfill WDRs to comply with the updated federal landfill regulations, 40 CFR Parts 257 and 258. Through compliance with CCR Title 27 and 40 CFR Parts 257 and 258 as required above in A.2, the Discharger will satisfy requirements identical to those within Order No. 93-84.

4. The Discharger shall monitor potential releases from the Landfill related to storm 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 (NPDES) General Permit No. CAS000001 Waste Discharge Requirements for Discharge of Storm Water Associated with Industrial Activities Excluding Construction Activities."
5. This Landfill is subject to this Water Board's Cleanup and Abatement Order No. R3-2002-0130 "Moratorium on the Disposal of Decommissioned Materials to Class III and Unclassified Waste Management Units" adopted on October 11, 2002.

## B. PROHIBITIONS

1. Discharge of waste to areas outside the Permitted Landfill Boundary, as identified on **Figure 3**, is prohibited
2. Discharge of waste (solid or liquid) to areas within the Permitted Landfill Boundary that have not previously received waste is prohibited unless a composite liner system, as described in **Specification C. 29**, is installed and accepted by the Executive Officer. Inert wastes, as defined in CCR Title 27, Section 20230(a), may be disposed of outside the composite liner system and within the permitted waste footprint of the Landfill, as described in **Specification C. 18**, is implemented to demonstrate that the waste is inert.
3. Discharge of the following types of wastes is **prohibited**:
  - a. Radioactive wastes.
  - b. Designated waste.
  - c. Hazard waste, except wastes containing greater than one percent (>1%) friable asbestos.
  - d. Chemical and biological warfare agents.
  - e. Waste solvents, dry cleaning fluids, paint sludge, pesticides, phenols, brine, and acid and alkaline solutions.
  - f. Oils or other liquid petroleum products.
  - g. Wastes that have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the unit, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products.
  - h. Wastes that require a higher level of containment than provided by the Landfill.
  - i. Liquid or semi-solid waste containing less than 50 percent solids by weight. This includes dewatered sewage or water treatment sludge, landfill leachate and gas condensate, except as allowed by **Specification C. 35** and **Provision E. 15**.
4. Discharge of solid waste, liquid waste or leachate to surface waters, ponded water from any source, surface water drainage courses, or groundwater is prohibited.
5. Discharge of waste within 50 feet of the property line or within 100 feet of surface waters or domestic supply wells is prohibited. However, the Discharger may submit a request to discharge waste within 50 feet of the property line. The request shall include an irrevocable access and operations easement with the adjacent property owner and shall be approved by the Executive Officer, prior to waste disposal. This prohibition does not apply to the area that is being filled as part of the originally approved permit when filling began—i.e. part of the originally approved 67 acre fill area that did not include a 50 foot setback in the West Canyon area because of the near vertical profile of the West Canyon wall (**Figure 3**).

6. Disposal site operations shall not be a source of odor nuisance.
7. Disposal of wastes within five (5) feet of the highest anticipated elevation of underlying groundwater, including the capillary fringe, is prohibited unless an Executive Officer approved engineered alternative in accordance with CCR Title 27, Section 20080 (b) is in place.

### **C. SPECIFICATIONS**

#### **General Specifications**

1. The Discharger shall implement the attached MRP No. R3-2006-0018, including any addendum thereof, in order to detect, at the earliest opportunity, any unauthorized discharge of waste constituents, or any unreasonable beneficial use impairment associated with and or caused by the discharge of waste. The Executive Officer may amend the Monitoring Reporting Program at any time to determine compliance with Order No. R3-2006-0018.
2. The discharge shall neither cause nor contribute to any surface water contamination, pollution, or nuisance, including, but not limited to:
  - a. Floating, suspended, or deposited macroscopic particulate matter or foam.
  - b. Increases in bottom deposits or aquatic growth.
  - c. An adverse change in temperature, turbidity, or apparent color beyond natural background levels.
  - d. The creation or contribution of visible, floating, suspended, or deposited oil or other products of petroleum origin.
  - e. The introduction or increase in concentration of toxic or other pollutants and contaminants resulting in unreasonable impairment of beneficial uses of waters of the State.
3. "Treated wood" wastes may be discharged, but only to an area equipped with a composite liner and leachate collection and removal system, as described in Construction Specification C.29, and shall be handled in accordance with California Health and Safety Code Sections 25143.1.5 and 250150.7. "Treated wood" means wood that has been treated with a chemical preservative for purposes of protecting the wood against attacks from insects, microorganisms, fungi, and other environmental conditions that can lead to decay of the wood and the chemical preservative is registered pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (7 U.S.C. Sec. 136 and following). This may include but is not limited to waste wood that has been treated with chromated copper arsenate (CCA), pentachlorophenol, creosote, acid copper chromate (ACC), ammoniacal copper arsenate (ACA), ammoniacal copper zinc arsenate (ACZA), or chromated zinc chloride (CZC).
4. Treated wood must be managed to ensure consistency with Sections 25143.1.5 and 25150.7 of the Health and Safety Code. If a verified release is detected from the waste management unit where treated wood is disposed, the disposal of treated wood shall be terminated at the unit with the verified release until corrective action ceases the release.
5. Discharge Specifications C.3 and C.4, above, apply only to treated wood waste that is a hazardous waste solely due to the presence of a preservative in the wood, and is not subject to regulation as a hazardous waste under the federal act.
6. The discharge shall not cause an increase in concentration of waste constituents in soil-pore gas, soil-pore liquid, perched water, groundwater or geologic materials outside of the Point of Compliance (as defined by CCR Title 27).



7. The Discharger shall conduct intake load checking as specified by this Order including the attached MRP, and shall monitor for radioactive materials in the incoming waste.
8. The Discharger shall remove and relocate any wastes discharged in violation of these requirements.
9. All refuse material that is wind-blown outside the active Landfill area shall be collected regularly and disposed of in the Landfill. If wind-blown litter becomes a continuing problem, a containment barrier (additional screens and/or fences) shall be constructed to prevent spreading of refuse.
10. Refuse shall be covered daily by at least six inches of soil cover material or an Executive Officer-accepted alternative daily cover and cover frequency. Daily cover shall promote lateral runoff of rainfall away from the active disposal area.
11. Water used over areas underlain by waste within unlined Landfill areas shall be limited to the minimum amount necessary for dust control and construction.
12. Water collected in any storm water catchment basin or a site water treatment facility may be used in minimum amounts necessary for dust control, compaction, or irrigation of cover vegetation provided:
  - a. The water does not infiltrate past the vegetation root zones or past a depth where effective evaporation can occur.
  - b. The water does not contain or carry waste constituents.
13. Surface drainage from tributary areas and internal site drainage from non-landfill surface or subsurface sources shall not contact or percolate through wastes.
14. To prevent erosion and percolation through the waste, permanent drainage ditches crossing over Landfill areas shall be lined with either a synthetic liner or at least a one-foot-thick layer of soil having an in-place hydraulic conductivity of  $1 \times 10^{-6}$  cm/sec or less, or an alternative material that restricts infiltration of surface waters into the underlying waste as approved by the Executive Officer.
15. Waste shall not be discharged to a wetland, as defined in 40 CFR Section 232.2(r), or to any portion thereof, unless the Discharger successfully completes all demonstrations pursuant to 40 CFR Section 258.12(a). Such demonstration is subject to approval of the Executive Officer.
16. The Discharger shall monitor potential releases from the site related to surface water runoff by complying with all National Pollutant Discharge Elimination System (NPDES) Stormwater Monitoring Program requirements.
17. Water Board staff shall be notified within 24 hours by phone, with a written report to follow within seven days, of any slope failure or leachate seep occurring at the Landfill. Any leachate seep or any failure, which threatens the integrity of containment features or the Landfill, shall be promptly corrected and the methods shall be so stated in the written report.
18. Inert wastes, as defined in CCR Title 27, Section 20230(a), may be disposed of outside the composite liner system and within the permitted waste footprint of the Landfill. The discharger shall characterize inert liquid waste in accordance with the Executive Officer-approved Liquid Waste Sampling Plan to demonstrate that the waste is inert as described in **Prohibition B. 2**.

Wet Weather

19. **By October 1 of each year**, all necessary runoff diversion and erosion prevention measures shall be implemented. All necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the Landfill and to prevent surface drainage from contacting or percolating through wastes.
20. **Throughout the rainy season of each year**, a compacted intermediate soil cover designed and constructed to minimize percolation of precipitation through wastes shall be maintained over all waste disposal areas containing buried waste. The soil cover shall be in place by **October 1 of each year**. The thickness and permeability of the intermediate cover shall be based primarily on site-specific conditions including, but not limited to: length of exposure time; volume of underlying material; permeability, thickness and composition of existing cover; amount of yearly rainfall; depth to groundwater; beneficial uses of underlying groundwater; site-specific geologic and hydrogeologic conditions; existing groundwater impacts and effectiveness of existing monitoring system. The only exception to this specification is the working face. The working face shall be confined to the smallest area practicable based on the anticipated quantity of waste discharged and required Landfill facility operations. Landfill areas that have been provided with an Executive Officer-approved vegetative layer shall not be required to satisfy this requirement. Based on site-specific conditions, the Executive Officer may require a thicker soil cover for any portion of the Landfill prior to the rainy season.
21. **By October 1 of each year**, vegetation shall be planted and maintained as necessary to minimize erosion on interim cover slopes and on slopes at final elevation. Vegetation shall be selected to require a minimum of irrigation and maintenance. Upon written Executive Officer approval, non-hazardous sewage sludge may be utilized as a soil amendment to promote vegetation. Soil amendments and fertilizers (including wastewater sludge) used to establish vegetation shall not exceed the vegetation's agronomic rates (i.e., annual nutrient needs), unless approved by the Executive Officer.
22. If adequate soil cover material is not accessible during inclement weather, such material shall be stockpiled during favorable weather to ensure year-round compliance.
23. All Landfill surfaces and working faces shall be graded and operated to minimize rainfall infiltration into wastes, to prevent standing water, and to resist erosion.
24. Rills in the cover (final or interim) exceeding six inches in depth must be backfilled throughout the entire year.
25. Drainage facilities shall be designed, constructed, and maintained to accommodate anticipated precipitation and peak surface runoff flows from a 100-year, 24-hour rainstorm event.
26. Storage facilities associated with precipitation and drainage control systems shall be emptied immediately following each storm or otherwise managed to maintain the design capacity of the system. A minimum of two feet of freeboard shall be maintained in all storm water/sediment containment or percolation ponds.

#### **Design Criteria**

27. All waste disposal areas, containment structures and drainage facilities shall be designed and constructed under the direct supervision of a California Registered Civil Engineer or a Certified Engineering Geologist, and shall be certified by that individual as meeting the prescriptive standards and performance goals of all state and federal landfill regulations including, but not limited to, CCR

Title 27 and 40 CFR parts 257 and 258. For containment structures (liners), certification of standards shall be obtained prior to waste discharge.

28. Waste management units, containment structures, and drainage facilities shall be designed, constructed and maintained to limit, to the greatest extent possible, standing water, infiltration, inundation, erosion, slope failure, washout, overtopping, and damage due to natural disasters (e.g., floods with a predicted frequency of once in 100 years, and severe wind storms).
29. Wastes shall not be discharged to new areas (i.e., areas which have not previously received wastes) unless equipped with a containment system, which meets either a. or b. below:
  - a. A composite liner and a leachate collection and removal system consisting of the following components:
    - A well-prepared subgrade, engineered to support the Landfill and associated structures.
    - Lower Component: a minimum two-foot layer of compacted soil with a hydraulic conductivity of no more than  $1 \times 10^{-7}$  cm/sec.
    - Upper Component: a minimum 60-mil high-density polyethylene (HDPE). The upper component must be installed in direct and uniform contact with the lower component.
    - A Leachate Collection and Removal System (LCRS), designed so that leachate drains by gravity to a collection point/sump and is removed through gravity or pumping to a holding tank or sanitary sewer for volume measurement, testing and disposal.
    - A protective soil layer or operations layer shall be placed above the LCRS and liner system. This layer shall be a minimum of 12 inches thick
  - b. An engineered alternative liner design, approved by the Executive Officer. Engineered alternative designs must satisfy the performance criteria in 40 CFR Section 258.40(a)(1) and (c), and satisfy the criteria for an engineered alternative to the above prescriptive design, as provided by CCR Title 27, Section 20080(b). Performance of the alternative composite liners' components, in combination, shall equal or exceed the waste containment capability of the prescriptive design outlined above.
30. Future composite-lined landfill modules not meeting the five-foot groundwater separation requirement [CCR Title 27, Section 20240(c)] will require installation of an under-drain beneath the composite liner. An engineered alternative design plan must be approved by the Executive Officer prior to installation of the underdrain.
31. All Landfill facilities shall be designed and constructed to prevent damage during the maximum probable earthquake.
32. The Discharger shall ensure the integrity of final slopes under both static and dynamic conditions to protect public health and safety and prevent damage to post-closure land uses, roads, structures, utilities, gas monitoring and control systems, leachate collection and control systems to prevent public contact with leachate, and prevent exposure of waste. Slope stability analyses shall be conducted and reported pursuant to the requirements of Division 2, Subdivision 1, Chapter 4, Subchapter 3, Article 4 Section 21750(f)(5). A minimum factor of safety of 1.5 is required for permanent and interim slopes under both static and dynamic conditions. If a factor of safety of 1.5 is not achieved, calculated deformation under seismic loads shall be no greater than 6 inches of landfill slopes and bottom liners and 12 inches for final cover system slopes.

33. A preferential leachate pathway layer shall be constructed so that leachate generated in newly constructed cells placed over unlined areas flows to the lined portion of the Landfill for collection and disposal.
34. The leachate collection and removal system shall:
  - a. Be designed and constructed to prevent more than 12 inches of static hydraulic head on the liner.
  - b. Convey to a sump, or other appropriate collection area, all leachate that reaches the liner. The depth of fluid in any collection sump shall be kept at the minimum needed to ensure efficient pump operation.
  - c. Be designed so that short and long term system performance can be monitored and evaluated [CCR Title 27, Section 20340 (d)].
  - d. Storage facilities shall have a secondary containment system sized to hold 110 percent of the primary containment system capacity.
  - e. Be constructed with double lined sumps with leak detection capability.
35. Discharge of condensate or leachate shall comply with the following:
  - a. Liquids shall be returned to **only** a waste management unit equipped with a containment system that meets or exceeds the performance standards of CCR Title 27, 40 CFR, Part 258.40(a)(2), or in this Order, whichever is more protective of water quality.
  - b. Liquids shall be measured by volume and recorded on a monthly basis. These monthly volumes shall be included as a part of monitoring submittals as required in the attached MRP R3- 2006-0018.
  - c. No discharge of leachate shall occur within 48 hours of any forecasted rain event, during any rain event, or 48-hours after any rain event, unless a site specific Leachate Application Plan is submitted and approved by the Executive Officer,
  - d. Have an approved alternate method of leachate disposal (e.g., wastewater treatment plant) that is acceptable to the Executive Officer.

Closure

36. All Landfill waste disposal areas that have not reached final fill elevation, but will remain inactive more than one year, must be provided with an Executive Officer-approved long-term intermediate cover. The thickness and permeability of the long-term intermediate cover shall be based primarily on site-specific conditions including, but not limited to length of exposure time; volume of underlying material, permeability, thickness and composition of existing cover; amount of yearly rainfall; depth to groundwater; beneficial uses of underlying groundwater; site-specific geologic and hydrogeologic conditions; and effectiveness of existing monitoring system.
37. Final Landfill configuration shall conform to the contours delineated in Drawing No. 1 of the February 2005 JTD.
38. All Landfill waste disposal areas at final elevations shall receive final cover pursuant to CCR Title 27, Section 21090, which meets either a. or b. below:
  - a.
    - Minimum two-foot foundation layer placed over waste, compacted to maximum density obtainable at optimum moisture conditions [CCR Title 27, Section 21090 (a)(1)].
    - For units that have not been equipped with a Subtitle D composite liner system, a low hydraulic conductivity layer, consisting of compacted clay with a hydraulic conductivity of  $1 \times 10^{-6}$  cm/sec.

Compacted clay will not be considered for sites with VOC detections in point of compliance wells. In such cases a geosynthetic clay layer or geomembrane will be proposed.

- For units that have been equipped with a Subtitle D composite liner system, a low hydraulic conductivity layer equal to or less than the hydraulic conductivity of the bottom liner system.
  - At least one foot of soil capable of supporting vegetation, resisting erosion, and protecting the underlying low hydraulic conductivity layer.
- b. An engineered alternative design, approved by the Executive Officer, will be considered for final cover areas. Engineered alternative designs must satisfy the performance criteria in 40 CFR Parts 257 and 258, and satisfy the criteria for an engineered alternative to the above prescriptive design, as provided by CCR Title 27. Performance of the alternative composite cover's components, in combination, shall equal or exceed the waste containment capability of the prescriptive design outlined above.
39. All closed Landfill waste management units shall be provided with at least two permanent monuments, installed by a licensed land surveyor, from which the location and elevation of all wastes, containment structures, and monitoring facilities can be determined throughout the post-closure maintenance period. Cumulative waste subsidence and settlement of areas where final cover is installed shall be documented in the annual report.
40. The Discharger shall control vectors to minimize and prevent, to the extent feasible, on and off-site impacts to water quality.
41. Leachate shall be removed from the Landfill to the maximum extent feasible. Leachate removal and disposal shall be in accordance with an Executive Officer-approved Leachate Reduction and Removal Plan.

#### D. WATER QUALITY PROTECTION STANDARDS

1. Discharge of waste shall not cause the concentration of any Constituents of Concern (COC) or Monitoring Parameter to exceed its respective background value in any monitored media (i.e., soil or groundwater) at any Monitoring Point pursuant to MRP No. R3-2006-0018.
2. Constituents of Concern and Monitoring Parameters for groundwater and surface water are listed in MRP No. R3-2006-0018. Monitoring points and background monitoring points for detection monitoring and corrective action monitoring shall be those specified in MRP No. R3-2006-0018.
3. The discharge of waste shall not cause a statistically significant difference in water quality over background concentrations or Concentration Limit for each COC or Monitoring Parameter (per MRP No. R3-2005-0018) at the Point of Compliance. The Concentration Limits shall be maintained for as long as the waste poses a threat to water quality. Discharge of waste shall not adversely impact the quality of State waters.
4. Discharge of waste shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Water Board or the State Water Resources Control Board.
5. The Point of Compliance is the vertical surface located at the downgradient edge of the waste footprint as shown on **Figure 3**, and extends vertically down through the uppermost aquifer.
6. Discharge of waste shall not cause radionuclides in groundwater down-gradient of the Point of Compliance to exceed the State Department of Health Services latest recommended Drinking Water

Action Levels or Maximum Contaminant Levels of the CCR Title 22, Division 4, Chapter 15, Article 5.5.

7. The Water Board considers the Discharger to have a continuing responsibility for waste containment, monitoring, and correcting any problems that may arise in the future as a result of this waste discharge. This responsibility continues as long as the waste poses a threat to water quality.
8. Monitoring results are subject to the most appropriate statistical or non-statistical test, as required by the attached MRP No. R3-2006-0018.
9. The Discharger shall, in a timely fashion, install any additional groundwater, soil pore liquid, soil pore gas, surface water, and leachate monitoring devices as required by the Executive Officer.

**E. PROVISIONS**

General Provisions

1. Order No. 94-62, "Waste discharge Requirements for City of Santa Cruz Class III Landfill, Santa Cruz County," adopted by the Water Board on November 18, 1994, is hereby rescinded.
2. The Discharger shall comply with "Monitoring and Reporting Program No. R3-2006-0018", as specified by the Executive Officer.
3. The Water Board will review this Order periodically and will revise these requirements when necessary.
4. A Construction Quality Assurance Plan, acceptable to the Executive Officer, must be implemented by a third party (i.e., unrelated to the Discharger, Landfill operator, project designer, contractor) prior to initiating construction of the Landfill's final cover system or constructing a new waste management unit.
5. Two weeks prior to and during construction of each module (e.g., preparing foundation, installing liner, installing leachate collection and removal system, placing operations layer, etc.), the Discharger shall provide a schedule of construction activities. Schedules shall be updated and provided to Water Board staff on a weekly basis.
6. For newly constructed waste management unit(s), the Discharger must submit Final Documentation verifying construction quality assurance [CCR Title 27, Section 20324(d)(1)(C)].
7. The Discharger shall maintain a copy of this Order at the facility and make it available at all times to regulatory agency personnel and to facility operating personnel (who shall be familiar with its contents).
8. The Discharger shall maintain legible records of the volume and type of all waste discharged at each Unit and the manner and location of discharge. Such records shall be maintained at the facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the Water Board and of the State Water Resources Control Board at any time during normal business hours. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Water Board.

9. The Discharger shall be responsible for accurate waste characterization, including determinations of whether or not wastes will be compatible with containment features or other wastes, whether or not wastes are required to be managed as hazardous wastes, whether waste is liquid, and whether waste is inert.
10. The Discharger shall comply with all other applicable provisions of CCR Title 27 and 40 CFR Parts 257 and 258 that are not specifically referred to in this Order. If any applicable requirements overlap or conflict in any manner, the requirement most protective of water quality shall govern in all cases, unless specifically stated otherwise in this Order, or as directed by the Executive Officer.
11. The Discharger shall have a continuing responsibility to ensure protection of usable waters from discharged wastes and from gases and leachate generated by discharged waste during the Landfill's active life, closure, and post-closure maintenance periods and during subsequent use of the property for other purposes.
12. The Discharger shall maintain waste containment facilities and precipitation and drainage controls, and shall continue to monitor, as appropriate, groundwater, vadose zone, liquid and gas, surface waters, and leachate from waste management units throughout the post-closure monitoring and maintenance period.
13. Methane and other landfill gases, generated as a result of waste disposal, shall be adequately vented, removed from the Landfill, or otherwise controlled to prevent the danger of explosion, adverse health effects, nuisance conditions, and the degradation of water quality.
14. The Water Board will review this Order periodically and will revise these requirements when necessary.
15. Sewage sludge or water treatment sludge with greater than 50 percent moisture content may be discharged to the waste management unit only if all the following criteria are met:
  - a. Sludge shall be discharged only to lined modules that have a LCRS, designed so that leachate drains by gravity to a collection point/sump and is removed through gravity or pumping to a holding tank or sanitary sewer for volume measurement, testing and disposal.
  - b. A daily minimum solids-to-sludge ratio of 5 to 1, based on weight, shall be maintained when co-disposing sludge with solid waste.
  - c. Primary and mixtures of primary and secondary sewage sludge shall contain at least 20 percent solids by weight.
  - d. Secondary sewage sludge and water treatment sludge shall contain at least 15 percent solids by weight.

#### Reporting Provisions

16. All technical and monitoring reports submitted pursuant to this Order are required pursuant to Section 13267 of the California Water Code. Failure to submit reports in accordance with schedules established by this Order and attachments to this Order, or failure to submit a report of sufficient technical quality to be acceptable to the Executive Officer may subject the Discharger to enforcement action pursuant to Section 13268 of the California Water Code.
17. Discharger shall notify Water Board staff, within 24 hours by telephone and within seven days in writing, of any noncompliance potentially or actually endangering health or the environment. Any noncompliance that threatens the Landfill's containment integrity shall be promptly corrected.

Correction schedules are subject to the approval of the Executive Officer, except when delays will threaten the environment or the Landfill's integrity (i.e., emergency corrective measures). Corrections initiated prior to Executive Officer approval shall be so stated in the written report. The written report shall contain a description of the noncompliance and its cause; the period of noncompliance including exact dates and times or anticipated duration; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance. This provision includes, but is not limited to:

- a. Violation of a discharge prohibition.
  - b. Violation of any Water Quality Protection Standard.
  - c. Slope failure.
  - d. Liner damage.
  - e. Leachate seep(s) occurring on, or in proximity to, the Landfill.
18. Reports of compliance or noncompliance, or any progress reports on interim and final requirements contained in any compliance schedule, shall be submitted within 14 days following each scheduled date unless otherwise specified within the Order. A report shall be submitted within 14 days of achieving full compliance.
  19. Design reports shall be submitted 180 days in advance of any planned changes in the permitted facility or any activity that could potentially or actually result in noncompliance.
  20. The Discharger shall report all changes in usage of daily cover and performance standards within 10 days following the change.
  21. The Discharger shall implement all necessary wet weather preparedness measures to ensure discharges to surface waters or groundwater do not occur during the impending rainy season, and ensure all other relevant CCR Title 27 and 40 CFR criteria have been implemented. To ensure the appropriate wet weather measures have been implemented, the Discharger shall submit a report of Wet Weather Preparedness. The report shall detail all preparedness actions taken to comply with this requirement. **REPORT DUE DATE: November 1<sup>st</sup>** of each year.
  22. The Discharger shall obtain and maintain Financial Assurance Instruments (Instruments), which comply with CCR Title 27 (Sections 22207 [Closure Fund], 22212 [Post-Closure Fund], and 22220 et seq. [Corrective Action Fund]), and 40 CFR parts 257 and 258. The Discharger shall evaluate the cost of Financial Assurance to cover the estimated costs of the worse case reasonably foreseeable release. Upon request, the Discharger shall submit a report on financial assurance for corrective action for the Water Board Executive Officer's review and approval. Every five years after submittal of the initial financial assurance report, or earlier if requested by the Executive Officer, the Discharger shall submit a report, that either validates the Instruments' ongoing viability, or proposes and substantiates any needed changes. The Discharger may combine the three components (Closure, Post-Closure, Corrective Action) of the Instruments into one report to comply with this requirement. The Discharger shall also submit evidence (e.g., an acceptance letter from the California Integrated Waste Management Board— Financial Assurance Division) that a financial assurance instrument(s) is in place for closure, post-closure, and corrective action. The acceptance letter can be included in the Landfills Annual Report to the Executive Officer.
  23. For the protection of water quality, the Executive Officer may require partial or final closure of any Waste Management Unit or Landfill area regardless of whether the unit or area has reached final capacity. Such a requirement will be requested in writing and in accordance with CCR Title 27, Section 22190.



24. The Discharger shall submit a Joint Technical Document (JTD) to the Executive Officer pursuant to CCR Title 27, Section 21710. The JTD shall contain, but is not limited to, the following:
- a. Information on waste characteristics, geologic and climatologic characteristics of the Landfill and the surrounding region, installed features, operation plans for waste containment, precipitation and drainage controls, and closure and post closure maintenance plans, in accordance with CCR Title 27, Sections 21740, 21750, 21760, and 21769.
  - b. A completed SWRCB JTD Index, in accordance with CCR Title 27, Section 21585(b), with your JTD addendum.
  - c. A Discussion of whether, in the Discharger's opinion, there is any portion of this Order that is incorrect, obsolete, or otherwise in need of revision.
  - d. Any technical documents needed to demonstrate continued compliance with this Order and all pertinent State and Federal requirements.
  - e. Detailed information regarding regulatory considerations; design, construction and operating provisions; environmental monitoring; and closure and post-closure.
  - f. A Fill Sequencing Plan that includes detailed maps. The Fill Sequencing Plan should describe in detail the overall development of the entire Landfill.
  - g. A detailed description of the lateral and vertical extent of refuse within all existing Landfill Units. It must include an accurate estimate of waste volumes within each existing Landfill fill area (i.e., phases) and an approximation of the remaining volume and years of capacity for each existing phase and all new proposed fill area within currently "Permitted Landfill Boundary." It must also describe all existing available space within currently permitted Landfill areas (i.e., areas where refuse has been placed in the past, but have not reached final permitted elevation and Landfill Units or portions of Landfill Units where refuse has never been placed).
  - h. A discussion of any plans or proposals to close or partially close any Landfill Units or portions of Landfill Units, any proposed liner systems and respective design components, any proposed plans for long-term intermediate cover for Landfill areas which may remain inactive for long periods of time (over one year). **REPORT DUE DATE: December 31, 2010**, or as specified by the Executive Officer.
25. The Discharger shall submit to the Water Board an updated closure and post-closure maintenance plan (Closure Plan). The Closure Plan shall describe the methods and controls to be used to ensure protection of the quality of surface and groundwater during partial and final closure operations and during any proposed subsequent use of the land. The Closure Plan shall include:
- a. A description of the final cover, designed in accordance with all applicable State and Federal regulations and the methods and procedures to be used to install the cover.
  - b. An estimate of the largest waste disposal area (Waste Management Unit) requiring a final cover at any time during the Landfill's active life.
  - c. An estimate of the maximum inventory of wastes at the site over the active life of the Landfill.
  - d. A schedule for completing all activities necessary to satisfy all closure criteria as required by CCR Title 27 and 40 CFR Parts 257 and 258 regulations.
  - e. An estimate of closure and post-closure maintenance costs.
  - f. A proposal for a trust fund or equivalent financial arrangement to provide sufficient funding for closure and post-closure maintenance.
  - g. The amount to be deposited in the trust fund or equivalent financial arrangement each year.

The Closure Plan shall be prepared by or under the supervision of a California Registered Civil Engineer or Certified Engineering Geologist. Updates of the plan are required whenever substantial changes occur or five years has elapsed since the last major revision. The method identified for each

Waste Management Unit closure and protection of the quality of surface and groundwater shall comply with this Order. The Closure Plan report shall be consistent with all applicable state and federal regulations, including CCR Title 27 and 40 CFR Parts 257 and 258. **REPORT DUE DATE: December 31, 2010**, and every five years thereafter.

26. The Water Board considers the Discharger to have a continuing responsibility for correcting any problems that may arise in the future as a result of this waste discharge. This responsibility continues as long as the waste poses a threat to water quality.
27. After suspending the Corrective Action Program measures, the Discharger shall remain in corrective action monitoring until an approved Detection Monitoring Program is established in accordance with CCR Title 27 and has been incorporated into Waste Discharge Requirements. Any time the Executive Officer determines that the Corrective Action Program does not satisfy the requirements of CCR Title 27, the Discharger shall, within 90 days of receiving written notification of such determination, submit an amended Corrective Action Program with needed changes pursuant to Water Code section 13267.
28. The leachate collection and removal system shall be tested annually to demonstrate proper operation. The results of the test shall be compared with previous tests and included in the Annual Monitoring Report.
29. The Discharger shall notify the Water Board in writing of any proposed change in ownership or responsibility for construction or operation of the Landfill in accordance with CCR Title 27, Section 21710 (c)(1). Failure to submit the notice in writing shall be considered a violation of Section 13264 of the Water Code. The written notice shall be given at least **90 days** prior to the effective date of change in ownership or responsibility and shall:
  - a. Be accompanied by an amended Joint Technical Document and any technical documents that are needed to demonstrate continued compliance with these Waste Discharge Requirements.
  - b. Contain the requesting entity's full legal name, the state of incorporation if a corporation, the name and address and telephone number of the persons responsible for contact with the Water Board.
  - c. Contain a statement indicating that the new owner or operator assumes full responsibility for compliance with this Order.

Request for change in ownership or responsibility may be approved or disapproved in writing by the Executive Officer. In the event of any change in ownership of this Landfill, the Discharger shall notify the succeeding owner or operator, in writing, of the existence of this Order. A copy of that notification shall be sent to the Executive Officer.

30. At any time, the Discharger may file a written request (including appropriate supporting documents) with the Water Board Executive Officer, proposing appropriate modifications to the monitoring and reporting program. The Executive Officer either shall reject the proposal for reasons listed, or shall incorporate it into a revised monitoring and reporting program. The Discharger shall implement any changes in the monitoring and reporting program proposed by the Executive Officer upon receipt of a revised monitoring and reporting program.
31. The Discharger shall notify the Executive Officer at least 180 days prior to beginning any partial or final Landfill closure activities. The notice shall include a statement that all closure activities will conform to the most recently approved Closure Plan and that the Plan provides for closure in compliance with all applicable State and Federal regulations. If there is no approved Closure Plan,

the Discharger must submit a complete Closure Plan at least 240 days prior to beginning any Landfill closure activities.

32. The Water Board shall be allowed, at any time and without prior notification:
  - a. Entry upon the Landfill or where records must be kept under the conditions of this Order and MRP No. R3-2006-0018.
  - b. Access to copy any records that must be kept under the conditions of this Order and MRP No. R3-2006-0018.
  - c. To inspect any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order and MRP No. R3-2006-0018.
  - d. To photograph, sample, and monitor for the purpose of showing compliance with this Order.
  
33. Except for data determined to be confidential under Section 13267 (b) of the California Water Code, all reports prepared in accordance with this Order are considered public record and shall be sent to the appropriate contact at the California Integrated Waste Management Board and Monterey County Health Department - Environmental Health Division. All reports shall be signed as follows:
  - a. For a public agency - by either a principal executive officer or ranking elected official\*.
  - b. For a partnership or sole proprietorship - by a general partner or the proprietor, respectively\*.
  - c. For a corporation - by a principal executive officer of at least the level of vice president\*.
  - d. For engineering reports and monitoring reports- by a California Registered Civil Engineer or Certified Engineering Geologist.

\*or their "duly authorized representative."
  
34. Any person signing a report makes the following certification, whether it is expressed or implied:

"I certify under penalty of perjury I have personally examined and am familiar with the information submitted in this document and all attachments and, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment."
  
35. Any person who violates Waste Discharge Requirements and/or who intentionally or negligently discharges waste or causes or permits waste to be deposited where it is discharged into waters of the State is liable for civil and/or criminal remedies, as appropriate, pursuant to Section 13350, 13385, and 13387 of the California Water Code.
  
36. As provided by CWC Section 13350(a), any person may be civilly liable if that person in violation of a waiver condition or waste discharge requirements, discharges waste, or causes waste to be deposited where it is discharged, into the waters of the State.
  
37. Provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.
  
38. This Order does not authorize commission of any act causing injury to the property of another, does not convey any property rights of any sort, does not remove liability under federal, state, or local laws, and does not guarantee a capacity right.

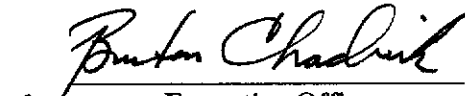
39. The Discharger must comply with all conditions of these Waste Discharge Requirements. Violations may result in enforcement actions, including Water Board orders or court orders requiring corrective action or imposing civil monetary liability, or in modification or revocation of these Waste Discharge Requirements by the Water Board. [CWC Section 13261, 13263, 13265, 13267, 13268, 13300, 13301, 13304, 13340, 13350].

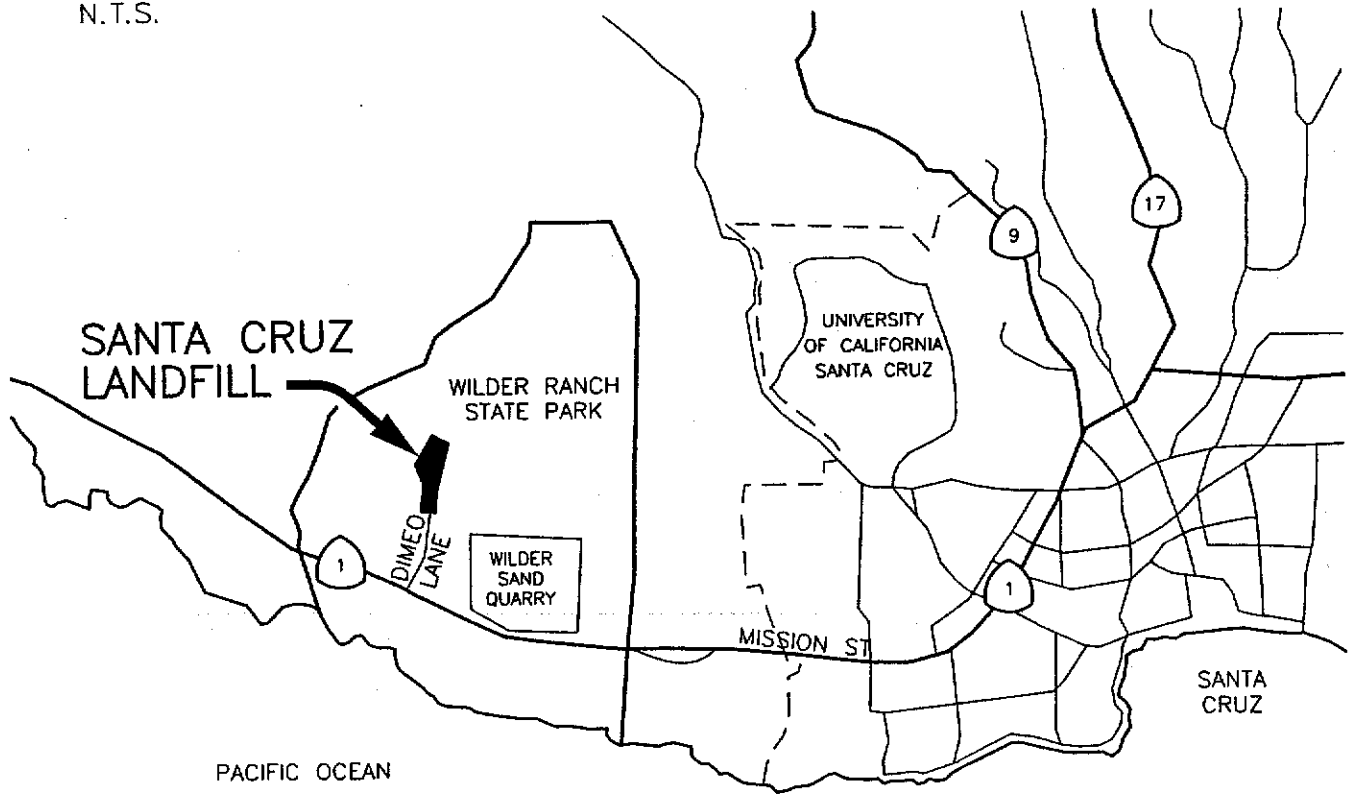
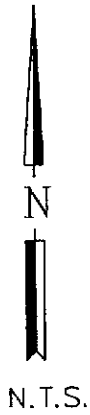
The Discharger shall comply with the following submittal and implementation schedule for all tasks and reports required by this Order:

**REPORT AND TASK IMPLEMENTATION DATE SUMMARY**

REPORT/TASK	IMPLEMENTATION DATE
Wet Weather Preparedness Report [Provision E.21]	November 1, 2006, and yearly thereafter.
Financial Assurance Report [Provision E.22]	Upon request, and every five years thereafter.
Joint Technical Document [Provision E.24]	December 31, 2010, and every five years thereafter.
Closure Plan [Provision E.25]	December 31, 2010, and every five years thereafter.

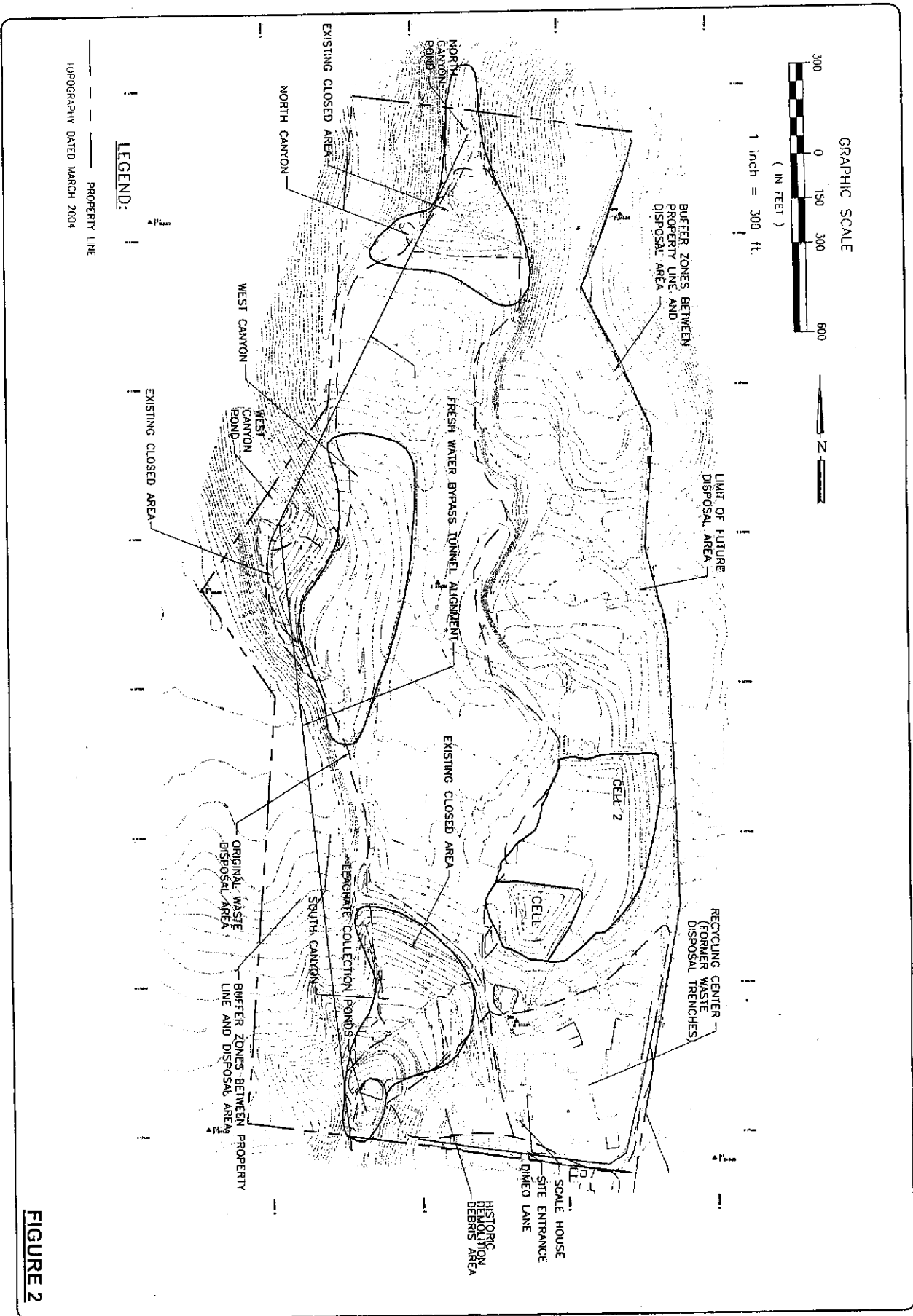
I, Roger W. Briggs, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Water Quality Control Board, Central Coast Region, on May 12, 2006.

  
Executive Officer  
*Roger Briggs*



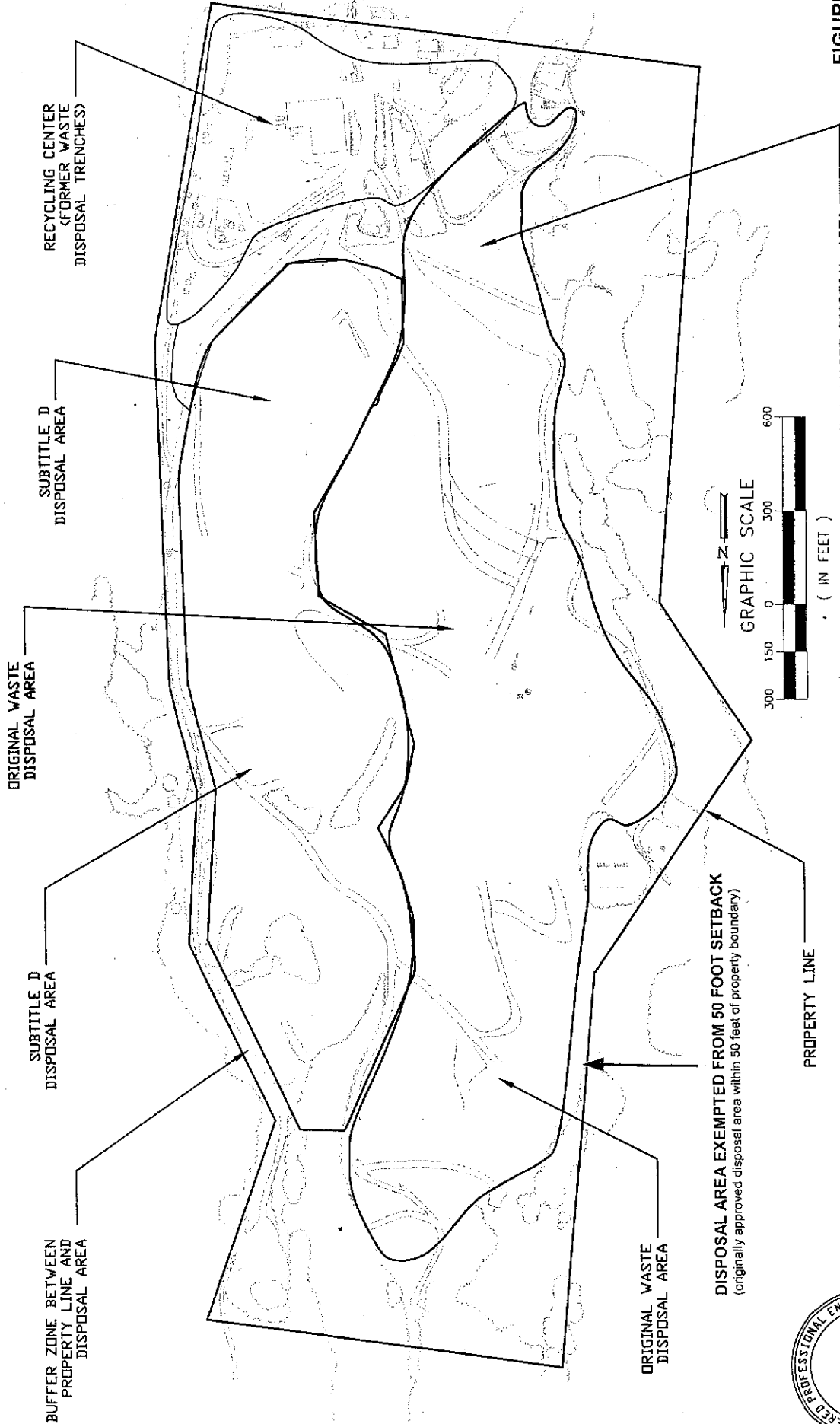
**FIGURE 1**

<p>(831) 420-5160 CITY OF SANTA CRUZ</p>	<p>SANTA CRUZ RESOURCE RECOVERY FACILITY</p>	<p>JOB NO. 2005.0012</p>
<p>DEPARTMENT OF PUBLIC WORKS 809 CENTER STREET, ROOM 201, SANTA CRUZ, CA 95060</p>	<p><b>SITE LOCATION MAP</b></p>	<p>DATE 1-2005 DRAWN BY C.A.L. FILE NAME 172047DB</p>



**FIGURE 2**

(831) 420-5160 <b>CITY OF SANTA CRUZ</b> DEPARTMENT OF PUBLIC WORKS 809 CENTER STREET, ROOM 201, SANTA CRUZ, CA 95060	<b>SANTA CRUZ RESOURCE RECOVERY FACILITY</b>		JOB NO. 2005.0012
	<b>DISPOSAL AND BUFFER AREA PLAN</b>		DATE 3-2005
			DRAWN BY MTB
			FILE NAME: 172052DB



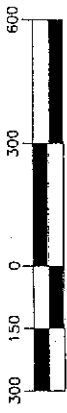
**FIGURE 3**

ORIGINAL WASTE DISPOSAL AREA

PROPERTY LINE

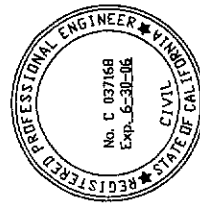
DISPOSAL AREA EXEMPTED FROM 50 FOOT SETBACK  
(originally approved disposal area within 50 feet of property boundary)

GRAPHIC SCALE



( IN FEET )

<b>REVISIONS</b> 2005 Tapo Flawn 3/9/2005		<b>CITY OF SANTA CRUZ</b> PUBLIC WORKS DEPARTMENT 899 Center Street, Room 201 Santa Cruz, CA 95060		<b>RESOURCE RECOVERY FACILITY DISPOSAL AND BUFFER AREA PLAN</b>		REFERENCES FIELD BOOK # DRAWING #		DATE 2/17/2006 DRAIN A. HOGAN DESIGN A. HOGAN CHECKED C. CHANG		SCALE 1" = 250' SHEET 1 OF 1 VAULT NO. #	
--	--	---	--	---	--	---	--	---	--	--	--



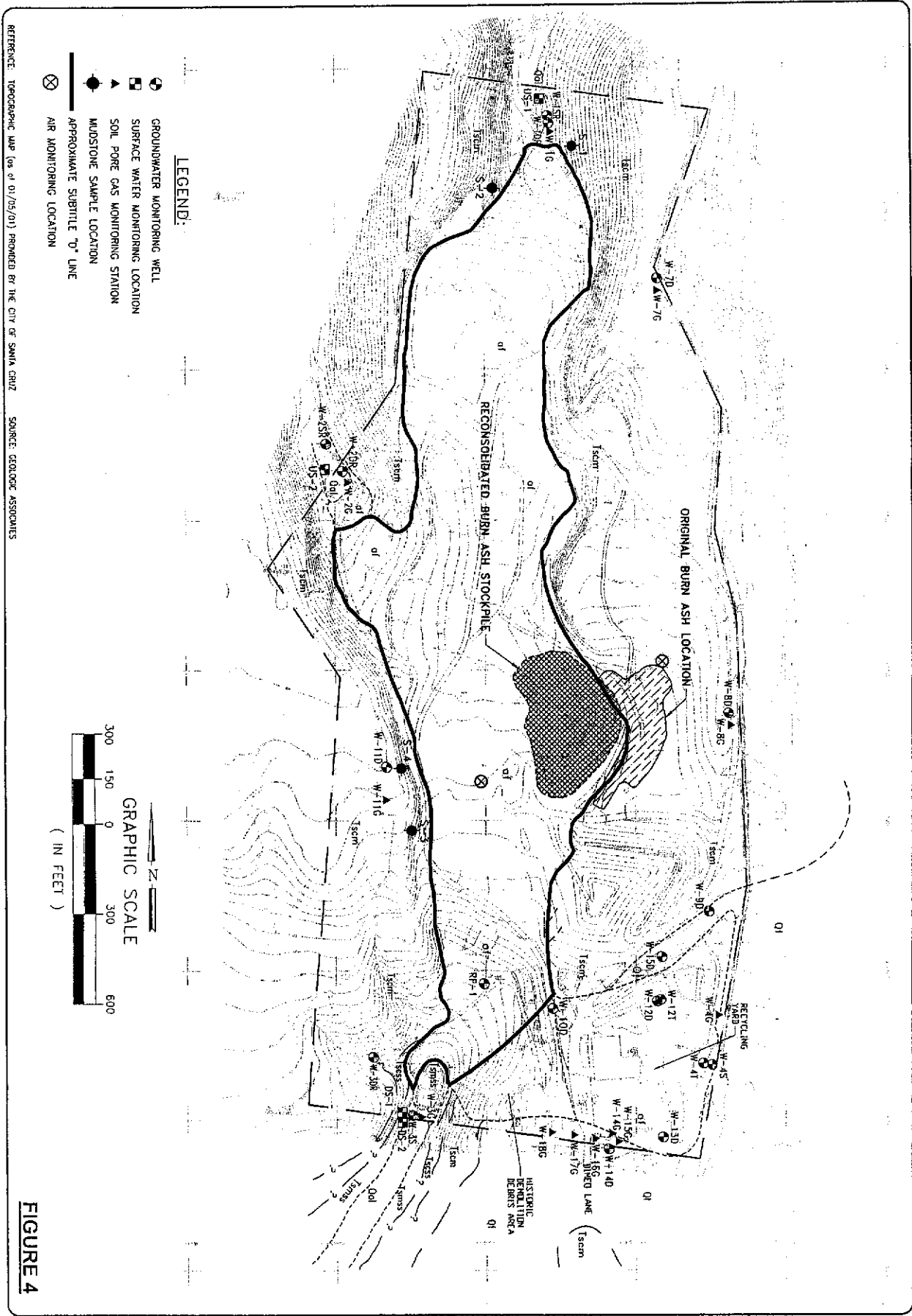


FIGURE 4

(831) 420-5160 <b>CITY OF SANTA CRUZ</b> DEPARTMENT OF PUBLIC WORKS 809 CENTER STREET, ROOM 201, SANTA CRUZ, CA 95060	<b>SANTA CRUZ RESOURCE RECOVERY FACILITY</b>		JOB NO. 2005.0012
	<b>BURN ASH RECONSOLIDATION AREA</b>		DATE 3-2005
			DRAWN BY MTH
			FILE NAME: 1721290B



**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL COAST REGION**

**MONITORING AND REPORTING PROGRAM NO. R3-2006-0018**

Waste Discharger Identification No. 3 440301001

Proposed for Consideration at the May 12, 2006 Board Meeting

For

**SANTA CRUZ CLASS III LANDFILL  
SANTA CRUZ COUNTY**

**PART I: MONITORING AND OBSERVATION SCHEDULE**

Unless otherwise indicated all required monitoring and observations shall be reported in the Detection Monitoring Report and/or the Annual Summary Report, as outlined in Part IV of this Monitoring and Reporting Program.

**A. SITE INSPECTIONS**

The Discharger shall inspect the Landfill site, in accordance with the following schedule, recording, at a minimum, the Standard Observations as defined in Part V.

Site Inspection Schedule:

1. During the wet season (October through April) and following each storm which produces storm water discharge, with inspections performed at least monthly.
2. During the dry season a minimum one inspection each Monitoring Period

**B. INTAKE MONITORING**

The Discharger shall maintain a daily record of the waste stream. The record shall include the following:

1. Weight and volume of waste received.
2. Running totals of volume received, volume remaining for waste placement, and site life expectancy.
3. Current fill area.
4. Waste type and diversion quantities.
5. Log of random load checking program. The log shall contain a record of refused loads, including the type of refused waste, and the date, name, address, and phone number of the party attempting to dispose of the waste.

**C. LEACHATE COLLECTION AND DISPOSAL SYSTEM INSPECTIONS**

The Discharger shall inspect all leachate systems and record the following information:

1. *Record Weekly*; leachate containment system integrity, volume of leachate collected and disposal method utilized.
2. *Record Quarterly*; pumping system operational check.
3. *Record Annually*; leachate collection and removal system testing as required by CCR Title 27,

Section 20340 (d), reporting the results as part of the Annual Summary Report required by Part IV.B., below.

Additionally the Discharger shall inspect all drainage control systems following each storm and record the following information:

1. Whether storm storage basins and drainage ditches contain liquids.
2. Any apparent seepage from storage basins.
3. General conditions of facilities and liners.
4. Steps taken to correct any problems found during inspection and when taken.

**D. RAINFALL DATA**

The Discharger shall record the following information:

1. Total precipitation during the Monitoring Period;
2. Precipitation during the most intense twenty-four hour interval of the Monitoring Period.
3. Return rating of most intense storm [25 year, 100 year, and so on].

**E. WATER MONITORING**

The Discharger shall monitor water bearing media in accordance with the following schedule. Sampling, analyses, and reporting shall follow Parts II, III, and IV of this Monitoring and Reporting Program. The Discharger shall insure enough samples are taken, at each monitoring point, to qualify for the most appropriate statistical analysis method outlined under Part III of this Monitoring and Reporting Program.

1. *Monitoring Points and Background Monitoring Points:* The Discharger shall sample the following Monitoring Points and Background Monitoring Points, as shown in **Figure 1**, in accordance with the schedule outlined below in Table 1.
2. *Monitoring Frequency:* Beginning August 21, 2003, monitoring of each monitored medium, all Monitoring Points and all Background Monitoring Points, shall be carried out at least once each Monitoring Period. The monitoring frequency for each Monitoring Point is shown in Table 1, below. The Monitoring Period for Constituents of Concern is every five years or anytime a release is discovered. Therefore, the next scheduled COC monitoring event shall occur during **2006** and every five years thereafter.

**Table 1**  
**Detection and Corrective Action Monitoring**

UNIT	POSITION	SAMPLE LOCATION <sup>2</sup>	MONITORING PROGRAM		MONITORING FREQUENCY
			Detection	Corrective Action	
Alluvium	Upgradient	W-1SR, W-2SR		X	Yearly
	POC <sup>1</sup>	W-3S		X	Semi-annually

UNIT	POSITION	SAMPLE LOCATION <sup>2</sup>	MONITORING PROGRAM		MONITORING FREQUENCY
			Detection	Corrective Action	
Marine Terrace	POC	W-4T		X	Semi-annually
	POC	W-12T <sup>2</sup>		X	Quarterly
Santa Cruz Mudstone	Upgradient	W-1DR, W-11D, W-8D		X	Yearly
	POC	W-4S, W-9D, W-10D <sup>2</sup>		X	Semi-annually
	POC	W-12D <sup>2</sup> , W-13D, W-14D, W-15D <sup>2</sup>		X	Quarterly
Santa Margarita Sandstone	Upgradient	W-2DR, W-7D			Yearly
	POC	W-3DR		X	Semi-annually
Landfill Gas	POC	W-1G, W-2G, W-3G, W-4G, W-7G, W-8G, W-11G,		X	Quarterly <sup>3</sup>
	POC	W-4G, W-14G, W-15G, W-17G, W-18G		X	Monthly <sup>4</sup>
Leachate	System	RP-1	X		Yearly
Surface Water	Upstream	US-1, US-2	X		Quarterly
	Downstream	DS-1,	X		Quarterly

1. Point of Compliance.
2. Groundwater elevations shall be monitored quarterly. Wells W-10D, W-12D, W-12T and W-15D shall only be monitored for groundwater elevations.
3. If methane measurements equal or exceed three percent then a gas sample will be collected from the monitoring probe.
4. Corrective action monitoring probe. A gas sample will be collected from each monitoring probe that equals or exceeds three percent methane.

**Table 2**  
**Media Monitoring Points**

MONITORING POINT	MEDIA MONITORED
W-2SR, W-3S, W-4T, W-12T, W-1DR, W-11D, W-8D, W-4S, W-9D, W-10D, W-12D, W-13D, W-14D, W-15D, W-2DR, W-7D, W-3DR, W-1SR	Groundwater
W-1G, W-2G, W-3G, W-4G, W-7G, W-8G, W-11G, W-4G, W-14G, W-15G, W-17G, W-18G	Landfill Gas
US-1, US-2, DS-1	Surface Water
RP-1	Leachate

3. *Monitoring Parameters*

- a. Groundwater: The Discharger shall analyze all samples from all groundwater Monitoring Points<sup>4</sup> for the following monitoring parameters:

**Table 3**  
**Groundwater Monitoring Parameters**

PARAMETER	USEPA METHOD <sup>2</sup>	UNITS
<b>Laboratory Parameters:</b>		
Manganese	6010b	mg/l
Total Dissolved Solids (TDS)	160.1	mg/l
Nitrate (as Nitrogen)	9200	mg/l
Sodium	6010b	mg/l
Volatile Organic Compounds <sup>1</sup>	8260b	µg/l
Sulfate	9038	mg/l
Chloride	9252	mg/l
Chromium (Total)	6010b	µg/l
Chromium VI <sup>3</sup>	7199	µg/l
<b>Stabilized Field Parameters:</b>		
pH	Field	pH Unit
Dissolved Oxygen	Field	mg/l
Electronic Conductivity	Field	µmhos/cm
Turbidity	Field	NTU
Temperature	Field	°F

1. The VOC Monitoring Parameter includes all Volatile Organic Compounds detectable using USEPA Method 8260,

including at least all 47 organic constituents listed in Appendix I to 40 CFR, 258 (Subtitle D), fuel oxygenates (i.e. MtBE), 1,4 dioxane, and all unidentified peaks. Defined in Part V.

2. Use the USEPA method listed or most current approved USEPA method.
3. Use most appropriate method for determining Chromium VI concentrations with the lowest practicable detection limits.
4. Wells W-10D, W-12D, W-12T and W-15D shall be tested for groundwater elevations only.

Statistical and non-statistical assessment methods, as required by Part III, below, shall be used to evaluate the sampling results.

- b. *Surface water monitoring:* The Discharger shall analyze all samples from all surface water monitoring points for the following monitoring parameters:

**Table 4**  
**Surface Water Monitoring Parameters**

PARAMETER	USEPA METHOD <sup>1</sup>	UNITS
Chloride	9252	mg/l
Sulfate	9038	mg/l
Sulfide	9215	mg/l
Nitrate (as Nitrogen)	9200	mg/l
TDS	160.1	mg/l
Iron	6010b	mg/l
Chromium (Total)	6010b	µg/l
Chromium VI	7199	µg/l
Lead	6010b	µg/l
Manganese	6010b	mg/l
Sodium	6010b	mg/l
Total Oil and Grease	9070	mg/l
<b>Field Parameters</b>		
pH	Field	pH Unit
Dissolved Oxygen	Field	mg/l
Electronic Conductivity	Field	µmhos/cm
Turbidity	Field	NTU
Temperature	Field	°F

1. Use the USEPA method listed or most current approved USEPA method.

- c. *Soil Pore Gas Monitoring:* The Discharger shall monitor the soil pore gas and unsaturated zone gas at all monitoring locations for the following monitoring parameters:

**Table 5**  
**Gas Monitoring Parameters**

PARAMETER	USEPA METHOD <sup>2</sup>	UNITS
VOC	TO-14b	ppbv
Methane	PID or FID	ppbv

4. *Groundwater Flow Rate and Direction:* For each monitored groundwater body, the Discharger shall measure the water level in each well before purging, at least quarterly, including the times of expected highest and lowest elevations of the water level, and determine the presence of vertical gradients, and groundwater flow rate and direction for the respective groundwater body. Groundwater elevations for all wells in a given groundwater body shall be measured within a period of time short enough to avoid temporal variations in groundwater flow which could preclude accurate determination of groundwater flow rate and direction (40 CFR §258.53(d)). The Discharger shall compare observed groundwater characteristics with those from previous determinations, noting the appearance of any trends and of any indications that a change in the hydrogeologic conditions beneath the site has occurred. This information shall be reported in the Detection Monitoring Report required under Part IV (A) of this Monitoring and Reporting Program.
  
5. *Constituents of Concern (COC):* All COCs are included in Appendix II to 40 CFR, Part 258. Monitoring for COCs shall encompass all listed Constituents of Concern and all Monitoring Parameters. The regularly scheduled sampling of monitoring wells for monitoring parameters listed in Table 3 may be combined with a COC monitoring event.

**Table 6**  
**Constituents of Concern**

CONSTITUENTS	METHOD	UNITS
Antimony, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Nickel, Silver, Tin, Vanadium, Zinc	6010b	mg/l
Arsenic	7060	mg/l
Cyanide	9010	mg/l
Lead	7421	mg/l
Mercury	7470	mg/l
Selenium	7740	mg/l
Sulfide	9030	mg/l
Thallium	7841	mg/l
Chlorophenoxy Herbicides	8150	µg/l
Organochlorine Pesticides	8081	µg/l
PCBs	8082	µg/l

CONSTITUENTS	METHOD †	UNITS
Organophosphorus Pesticides	8141	µg/l
Semi-Volatile Organic Compounds	8270	µg/l
Volatile Organic Compounds, Appendix II*	8260b	µg/l

<sup>1</sup>The Discharger shall analyze for all constituents using the USEPA analytical methods indicated above or the most recently approved SW-846 USEPA method or other equivalent USEPA method.  
\* Includes fuel oxygenates, 1-4 dioxane

6. *Thirty-Day Sample Procurement Limitation:* For any given monitored medium, the samples taken from all Monitoring Points and Background Monitoring Points to satisfy the data analysis requirements for a given Monitoring Period shall all be taken within a span not exceeding 30 days, and shall be taken in a manner that insures sample independence to the greatest extent feasible [CCR Title 27, Section 20415(e)(12)(B)].

## PART II: SAMPLE COLLECTION AND ANALYSIS

### A. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analysis shall be performed according to the most recent version of Standard US EPA Methods (USEPA publication "SW-846"), and in accordance with an approved sampling and analysis plan. Water and waste analysis shall be performed by a State of California certified laboratory. Specific methods of analysis must be identified. For each laboratory where samples are analyzed, the laboratory director shall supervise the laboratory analytical work and shall sign all reports submitted to the Regional Board. The Discharger is responsible to ensure that the laboratory maintains and calibrates all monitoring instruments and equipment to ensure accuracy and precision of measurements. In addition, the Discharger is responsible for seeing that the laboratory analysis of all samples from Monitoring Points and Background Monitoring Points meets the following restrictions:

1. The methods of analysis and the detection limits used must be appropriate for the expected concentrations. For detection monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., Trace) in historical data for that medium, the SW-846 analytical method having the lowest Method Detection Limit (MDL) shall be selected.
2. Trace results (results falling between the MDL and the Practical Quantitation Limit (PQL)) shall be reported as such.
3. Method Detection Limits and Practical Quantitation Limits shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. Both limits are defined in Part V and shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the laboratory. If the laboratory suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-

derived values, the results shall be flagged accordingly, and an estimate of the limit actually achieved shall be included. The Method Detection Limit shall always be calculated such that it represents a concentration associated with a 99% reliability of a non-zero result.

4. Quality assurance and quality control (QA/QC) data shall be reported along with the sample results to which it applies. Sample results shall be reported unadjusted for blank results or spike recovery. The QA/QC data submittal shall include:
  - a. The method, equipment, and analytical detection limits.
  - b. The recovery rates, an explanation for any recovery rate that is outside the USEPA-specified recovery rate.
  - c. The results of equipment and method blanks.
  - d. The results of spiked and surrogate samples.
  - e. The frequency of quality control analysis.
  - f. The name and qualifications of the person(s) performing the analyses.
5. Upon receiving written approval from the Executive Officer, an alternative statistical or non-statistical procedure can be used for determining the significance of analytical results for a constituent that is a common laboratory contaminant (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate) during any given Monitoring Period in which QA/QC samples show evidence of laboratory contamination for that constituent. Nevertheless, analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Regional Board Staff.
6. Unknown chromatographic peaks shall be reported, along with an estimate of the concentration of the unknown analyte. When unknown peaks are encountered, second column or second method confirmation procedures shall be performed to attempt to identify and more accurately quantify the unknown analyte.
7. In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.

## **B. CONCENTRATION LIMITS**

1. For the purpose of establishing Concentration Limits for COC and Monitoring Parameters detected in greater than ten percent of a medium's historical samples the Discharger shall:
  - a. Statistically analyze existing monitoring data (Part III), and propose, to the Executive Officer, statistically derived Concentration Limits for each Constituent of Concern and each Monitoring Parameter at each Monitoring Point for which sufficient data exists.
  - b. In cases where sufficient data for statistically determining Concentration Limits does not exist the Discharger shall collect samples and analyze for Monitoring Parameter(s) which require additional data. Once sufficient data is obtained the Discharger shall submit proposed Concentration Limit(s) to the Executive Officer for approval. This procedure shall take no longer than two calendar years.
  - c. Sample and analyze new Detection Monitoring Points, including any added by this Order, until sufficient data is available to establish a proposed Concentration Limit for all COC and Monitoring Parameters. Once sufficient data is obtained the Discharger shall submit the proposed Concentration Limit(s) to the Executive Officer for approval. This procedure shall take no longer than two calendar years.



2. The Discharger shall review Concentration limits annually. The past years data will be reviewed for application to revision of concentration limits. When appropriate, new concentration limits shall be proposed

**C. INITIAL BACKGROUND DETERMINATION**

For the purpose of establishing an initial pool of background data for each Constituent of Concern and each Monitoring Parameter at each Background Monitoring Point in each monitored medium the Discharger shall:

1. Collect at least one sample quarterly for at least one year from each Background Monitoring Point in each monitored medium and analyze for all newly-added Constituent(s) of Concern and Monitoring Parameter(s), including any added by the adoption of this Order.
2. Sample new Background Monitoring Points, including any added by this Order, at least quarterly for at least one year, analyzing for all Constituents of Concern and Monitoring Parameters.

Once this reference set of background data is collected, the Discharger shall include it as a separate identified item in the ensuing monitoring report submittal.

**D. RECORDS TO BE MAINTAINED**

Written records shall be maintained by the Discharger or laboratory, and shall be retained for a minimum of five years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge or when requested by the Board. Such records shall show the following for each sample:

1. Identity of sample and of the Monitoring Point or Background Monitoring Point from which it was taken, along with the identity of the individual who obtained the sample.
2. Date and time of sampling.
3. Date and time that analyses were started and completed, and the name of the personnel performing each analysis.
4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used.
5. Calculation of results.
6. Results of analyses, and the Method Detection Limit and Practical Quantitation Limit for each analysis.

**PART III: STATISTICAL AND NON-STATISTICAL ANALYSIS OF DATA**

**A. METHOD DETERMINATION**

The Discharger subject to this section shall use the most appropriate method(s) to determine if there has been a release from the Unit. For any given data set, the Discharger shall first decide if statistical analysis is possible, by reference to the relative frequency with which the constituent is detected in background samples. Those constituents for which no statistical method is appropriate shall be analyzed by the non-statistical method. If the initial analysis tentatively indicates the detection of a release, the Discharger shall implement the appropriate retest procedure in Part III.D. of this Monitoring and Reporting Program.

**B. STATISTICAL METHODS**

For Detection and Corrective Action Monitoring, the Discharger shall use statistical methods to

analyze COC and Monitoring Parameters that exhibit concentrations that equal or exceed their respective MDL in at least ten percent of applicable historical samples. The Discharger may propose and use any statistical method that meets the requirements of California Code of Regulations, Title 27, §20414(e)(7). All statistical methods and programs proposed by the Discharger are subject to Executive Officer approval.

**C. NON-STATISTICAL METHOD**

The Discharger shall use the following non-statistical method for analyzing all constituents that are detected in less than 10% of applicable background samples. This method involves a two-step process:

1. From all constituents to which the method applies, compile a list of those constituents which exceed their respective Method Detection Limit (Method Detection Limit) in the sample of a given Monitoring Point.
2. Evaluate whether the listed constituents meet either of two possible triggering conditions. Either, the list contains two or more constituents, or contains one constituent that equals or exceeds its Practical Quantitation Limit. If either condition is met the Discharger shall conclude a release is tentatively indicated and shall immediately implement the appropriate retest procedure under Part III.D.

**D. DISCRETE RETEST**

1. In the event that the Discharger concludes that a release has been tentatively indicated, the Discharger shall carry out the reporting requirements of Part IV.C.2 and, within 30 days of receipt of analytical results, collect two new suites of samples for the indicated COC or Monitoring Parameter(s) at each indicating Monitoring Point, collecting at least as many samples per Monitoring Point as were used for the initial test.
2. Analyze each of the two suites of re-test analytical results using the same statistical method (or non-statistical comparison) that provided the tentative indication of a release. If the test results of either (or both) of the re-tested data suites confirm the original indication, the Discharger shall conclude that a release has been discovered and shall carry out the requirements of Part IV.C.3.
3. Re-tests shall be carried out only for the Monitoring Point(s) for which a release is tentatively indicated, and only for the COC or Monitoring Parameter(s) which triggered the indication. When an analyte of the VOC composite parameter is re-tested the results of the entire VOC composite shall be reported.

**PART IV: REPORTING**

**A. GENERAL**

A written Monitoring Report shall be submitted semi-annually by January 31 and July 31 of each year. Monitoring Reports will be submitted in an electronic format, with text, tables, figures, laboratory analytical data (MS Excel Format), Graphs, and appendices placed on a **CDROM** in PDF or Microsoft Word format. Accompanying the electronic version of the report will be a hard copy transmittal letter, with signatures of preparers and submitters (in accordance with requirements stated in Waste Discharge Requirements Order No. 94-62), along with an executive summary of the report text. The Monitoring Report shall address all facets of the Landfill's monitoring. Reports shall include, but should not be limited to, the following:

1. *Letter of Transmittal:* A letter transmitting the essential points shall accompany each report. Such a letter shall include a discussion of any violations found since the last such report was submitted, and shall describe actions taken or planned for correcting those violations. If the Discharger has previously submitted a detailed time schedule for correcting said requirement violations, a reference to the correspondence transmitting such schedule will be satisfactory. If no violations have occurred since the last submittal, this shall be stated in the letter of transmittal. Monitoring reports and the letter transmitting the monitoring reports shall be signed by a principal executive officer at the level of vice president or above, or by his/her duly authorized representative, if such a representative is responsible for the overall operation of the facility from which the discharge originates. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct.
2. *Compliance Evaluation Summary:* The summary shall contain at least:
  - a. For each monitored groundwater body, a description and graphical presentation of the velocity and direction of groundwater flow under/around the Unit, based upon water level elevations taken during the collection of the water quality data submitted in the report.
  - b. For each monitoring well addressed by the report: a description of the method and time of water level measurement, the type of pump used for purging and the placement of the pump in the well, and the method of purging (the pumping rate, the equipment and methods used to monitor field pH, temperature, and conductivity during purging, the calibration of the field equipment, results of the pH, temperature, conductivity, and turbidity testing, the well recovery time, and the method of disposing of the purge water).
  - c. For each Monitoring Point and Background Monitoring Point addressed by the report, a description of the type of pump, or other device, used, its placement for sampling, and a description of the sampling procedure (number of samples, field blanks, travel blanks, and duplicate samples taken; the type of containers and preservatives used; the date and time of sampling; the name and qualifications of the person actually taking the samples; description of any anomalies).
3. *Map:* A map or aerial photograph showing the locations of observation stations, Monitoring Points, and Background Monitoring Points. Groundwater contours shall be indicated to the greatest degree of accuracy possible.
4. *Laboratory Results:* Laboratory statements, concerning the results of all analyses, demonstrating compliance with Part II of this Monitoring and Reporting Program. Additionally results of all sampling and analyses performed at the site, out side the requirements of this Monitoring and Reporting Program, shall be reported and summarized.
5. *Graphical Presentation of Analytical Data:* For each Monitoring Point and Background Monitoring Point, submit in graphical format the laboratory analytical data for all samples taken within the previous two calendar years. Each such graph shall plot the concentration of one or more constituents over time for a given Monitoring Point or Background Monitoring Point, at a scale appropriate to show trends or variations in water quality. Maximum contaminant levels (MCL) shall be graphed along with constituent concentrations where applicable. Graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data.

6. *Standard Observations:* A summary and certification of completion of all Standard Observations (Part V.I.) for the Unit, for the perimeter of the Unit, and for the Receiving Waters.

## **B. ANNUAL SUMMARY REPORT**

The Discharger shall submit an annual report to the Board covering the previous monitoring year. The annual Monitoring Period ends December 31. This report may be combined with the Second Semi-annual Monitoring Report of the year and shall be submitted no later than January 31 each year. The annual report must include the information outlined above and the following:

1. *Discussion:* Include a comprehensive discussion of the compliance record, a review of the past year's significant monitoring system and operational changes, a summary of corrective action results and milestones, constituent mass removal totals from landfill gas and leachate, corrective action system discussion, and a review of construction projects, with water quality significance, completed or commenced in the past year or planned for the up-coming year.
2. *Affected Persons Notification:* Copy of the annual notice to Affected Persons (Part IV.C.5.c) and mailing list.
3. *Graphical Presentation of Analytical Data:* For each Monitoring Point and Background Monitoring Point, submit in graphical format the laboratory analytical data for all samples collected. Each graph shall plot the concentration of one or more constituents over time for a given Monitoring Point or Background Monitoring Point, at a scale appropriate to show trends or variations in water quality. Maximum contaminant levels shall be graphed along with constituent concentrations where applicable. Graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data.
4. *Analytical Data:* All monitoring analytical data obtained during the previous year, presented in tabular form as well as on CDROM, in MS-EXCEL format or in another file format acceptable to the Executive Officer. Additionally, complete data histories of each well shall be submitted on CDROM.
5. *Leachate Results:* Results of annual leachate collection and leachate detection system testing, as required by Part I.C. Where leachate is used for dust control, testing that shows the leachate is non-hazardous shall be submitted annually.
6. *Map(s):* A map showing the areas where filling has taken place during the previous calendar year. Indicate areas, if any, in which filling has been completed or intermediate cover has been placed.

## **C. CONTINGENCY RESPONSE**

1. *Leachate Seep:* The Discharger shall, within 24 hours report by telephone concerning the discovery any previously unreported seepage from the disposal area. A written report shall be filed with the Board within **seven days**, containing at least the following information:
  - a. Map - A map showing the location(s) of seepage.
  - b. Flow rate - An estimate of the flow rate.

- c. Description - A description of the nature of the discharge (e.g., all pertinent observations and analyses).
  - d. Location - Location of sample(s) collected for laboratory analysis, as appropriate.
  - e. Corrective measures - approved (or proposed for consideration) by the Regional Water Board Executive Officer.
2. *Response to an Initial Indication of a Groundwater Release:* Should the initial statistical or non-statistical comparison (under Part III. A. or B. of this Monitoring and Reporting Program) indicate that a release is tentatively identified, the Discharger shall implement the Requirements of CCR Title 27, Section 20420 (i)(j)(1) thru (m) as appropriate.
  3. *Groundwater Release Beyond Facility Boundary:* Any time the Discharger concludes (or the Regional Board Executive Officer directs the Discharger to conclude) that a release from the Unit has proceeded beyond the facility boundary, the Discharger shall so notify all persons who either own or reside upon the land that directly overlies any part of the plume (Affected Persons).
    - a. Initial notification to Affected Persons shall be accomplished within **14 days** of making this conclusion and shall include a description of the Discharger's current knowledge of the nature and extent of the release.
    - b. Subsequent to initial notification, the Discharger shall provide updates to all Affected Persons, including any persons newly affected by a change in the boundary of the release, within **14 days** of concluding there has been any material change in the nature or extent of the release.
    - c. Annually, the Discharger shall notify Affected Persons concerning the status of the release and corrective action.
    - d. Each time the Discharger sends a notification to Affected Persons (under a. or b., above), the Discharger shall, within seven days of sending such notification, provide the Regional Board with both a copy of the notification and a current mailing list of Affected Persons. In the case of annual notification to Affected Persons (c. above), notification to the Executive Officer is via the Annual Report.

#### **D. RESPONSE TO VOC DETECTION IN BACKGROUND**

1. Any time the laboratory analysis of a sample from a Background Monitoring Point shows either (1) two or more VOCs above their respective Method Detection Limit, or (2) one VOC above its respective Practical Quantitation Limit, the Discharger shall implement the Requirements of CCR Title 27, Section 20420 (i)(j)(1) thru (m) as appropriate.
2. If the Executive Officer determines, after reviewing the report submitted under Part IV.D.1., that the detected VOC(s) most likely originated from the Unit, the Discharger shall assume that a release has been detected and shall immediately begin carrying out the requirements of Part IV.C.3.

### **PART V: DEFINITION OF TERMS**

#### **A. AFFECTED PERSONS**

All individuals who either own or reside upon the land that directly overlies any part of that portion of a gas- or liquid-phase release that has migrated beyond the facility boundary.

**B. CONSTITUENTS OF CONCERN (COC)**

Those constituents which are likely to be in the waste in the Unit or which are likely to be derived from waste constituents, in the event of a release. The Constituents of Concern for this Unit are listed in Part I.E.5.

**C. METHOD DETECTION LIMIT**

The lowest concentration at which a given laboratory, using a given analytical method, to detect a given constituent, (in spite of any Matrix Effect) can regularly differentiate, with 99% reliability, between a sample which contains the constituent and one which does not.

**D. PRACTICAL QUANTITATION LIMIT**

The lowest constituent concentration a given laboratory, using a given analytical method, to determine the concentration of a given constituent (in spite of any Matrix Effect), can regularly quantify within specified limits of precision acceptable to the Regional Board Executive Officer.

**E. MATRIX EFFECT**

Any increase in the Method Detection Limit or Practical Quantitation Limit for a given constituent as a result of the presence of other constituents, either of natural origin or introduced through a release, that are present in the sample being analyzed.

**F. MONITORED MEDIA**

Those water bearing media that are monitored pursuant to this Monitoring and Reporting Program. The Monitored Media may include: (1) groundwater in the uppermost aquifer, in any other portion of the zone of saturation (§2601 of Chapter 15) in which it would be reasonable to anticipate that waste constituents migrating from the Unit could be detected, and in any perched zones underlying the Unit, (2) any bodies of surface water that could be measurably affected by a release, and (3) soil pore liquid beneath and/or adjacent to the Unit.

**G. MONITORING PARAMETERS**

A short list of constituents and parameters used for the majority of monitoring activity. The Monitoring Parameters for this Unit are listed in Part I.E.3. of this Monitoring and Reporting Program.

**H. MONITORING PERIOD**

The database duration separating the submittal of a monitoring report and the time of the next report submittal. The Monitoring Period for analysis of all Constituents of Concern is five years; the Monitoring Period for the Monitoring Parameters is quarterly]. Quarterly monitoring will be performed within the following time frames: [Winter (January 1 to March 31), Spring (April 1 to June 30), Summer (July 1 to September 30), Fall (October 1 to December 31)]. The due date for any given report will be 30 days after the end of its Monitoring Period, unless otherwise stated.

**I. STANDARD OBSERVATIONS**

1. *For Receiving Waters:*

- a. Floating and suspended materials of waste origin; presence or absence, source, and size of affected area.
- b. Discoloration and turbidity; description of color, source, and size of affected area.
- c. Evidence of odors; presence or absence, characterization, source, and distance of travel from source.

- d. Evidence of beneficial use; presence of water-associated wildlife.
- e. Flow rate to the receiving water.

2. *Along the perimeter of the Unit:*

- a. Evidence of liquid leaving or entering the Unit, estimated size of affected area, and flow rate (show affected area on map).
- b. Evidence of odors; presence or absence, characterization, source, and distance of travel from source.
- c. Evidence of erosion and/or of exposed refuse.
- d. Inspection of all storm water discharge locations for evidence of non-storm water discharges during dry seasons, and integrity during wet seasons.

3. *For the Unit:*

- a. Evidence of ponded water at any point on the waste management facility (show on map).
- b. Evidence of odors; presence or absence, characterization, source, and distance of travel from source.
- c. Evidence of erosion and/or of daylighted refuse.
- e. Compliance with Storm Water Pollution Prevention Plan, insuring that the terms of the general permit are properly implemented.
- f. Integrity of all drainage systems.

**J. RECEIVING WATERS**

Any surface water which actually or potentially receives surface or groundwaters which pass over, through, or under waste materials or contaminated soils.

**K. VOLATILE ORGANICS COMPOSITE MONITORING PARAMETER FOR WATER (VOC)**

VOC – A composite parameter that encompasses a variety of VOCs. The constituents addressed by the VOC Composite Monitoring Parameter include all Appendix I to 40 CFR 258, and all unidentified peaks.

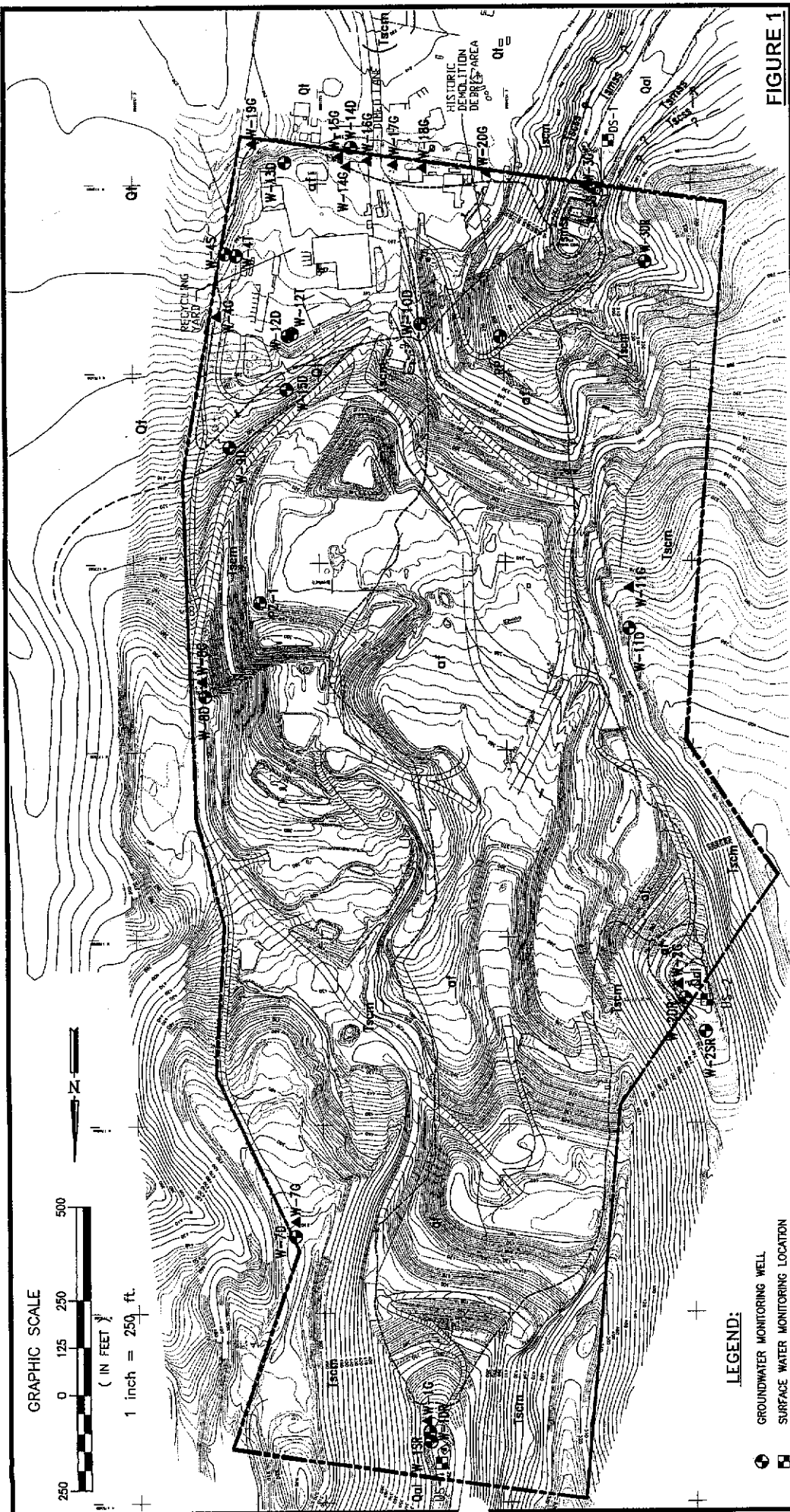
All reports required in this MRP are required pursuant to California Water Code Section 13267. Any person affected by this action of the Regional Board may petition the State Water Resources Control Board (State Board) to review the action in accordance with section 13320 of the California Water Code and Title 23, California Code of Regulations, Section 2050. The petition must be received by the State Water Resources Control Board within 30 days of the date of this Order. Copies of the law and regulations applicable to filing petitions will be provided upon request.

ORDERED BY:

*Burt Chadwick*  
Executive Officer  
*for Roger Briggs*

DATE:

*6/01/06*



**FIGURE 1**

GEOLOGIC MAP AND  
MONITORING STATION LOCATION PLAN

DETECTION MONITORING PROGRAM  
SANTA CRUZ RESOURCE RECOVERY FACILITY  
SANTA CRUZ, CALIFORNIA

GeoLogic Associates  
Geophys., Hydrogeophys. and Engineers

DRAWN BY: VL | DATE: JANUARY 2006 | JOB NO.: 2005-157

- LEGEND:**
- GROUNDWATER MONITORING WELL
  - SURFACE WATER MONITORING LOCATION
  - ▲ SOIL PORE GAS MONITORING STATION