California Regional Water Quality Control Board
North Coast Region

ORDER NO. R1-2004-0040
WDID NO. 1B80149OSON
AND
1B99011RSON

CONTINUED OPERATION AND CORRECTIVE ACTION AT THE COUNTY OF SONOMA CENTRAL LANDFILL AND EAST CANYON EXPANSION UNIT SOLID WASTE DISPOSAL SITE

CLASS III LANDFILLS

Sonoma County

The California Regional Water Quality Control Board, North Coast Region, (hereinafter the Regional Water Board) finds that:

1. The County of Sonoma, Department of Transportation and Public Works (hereinafter Discharger) owns and operates the Central Disposal Site, a Class III solid waste disposal facility. The disposal site has been in operation since 1971, and currently serves as the only operating municipal landfill within the County of Sonoma. The landfill currently operates under previously issued Waste Discharge Requirements (WDRs) (R1-2000-62) which this order rescinds, revises and replaces.

2. The existing disposal facility has been constructed in a canyon located at 500 Mecham Road, Petaluma, less than 4 miles southwest of the City of Cotati in an unincorporated area of Sonoma County. The facility is located on two unnamed tributaries to Stemple Creek in Section 4 and 9 T5N, R8W, MDB&M (latitude of 38 degrees, 18 minutes north and longitude of 122 degrees, 45 minutes west) as shown in Attachment "A", incorporated herein and made part of this Order.

3. The disposal site accepts non-hazardous and inert solid waste from commercial haulers and private citizens, is open to the public seven days a week, 359 days a year, receiving approximately 1200-1800 tons of refuse per day. The permitted maximum tonnage is 2500 tons per day. The maximum permitted elevation of the site is 565 feet above mean sea level, and the minimum permitted elevation is 212 feet above mean sea level.

4. The total site area is 398.5 acres, which includes two landfills, the existing landfill unit "Landfill 1", and the partially constructed East Canyon Expansion Unit

"Landfill 2". The Landfill 1 footprint covers approximately 130 acres and the expansion area covers an additional 42.8 acres, half of which has been constructed. The total area permitted for refuse disposal is approximately 150 acres.

5. The disposal site as delineated in Attachment "B" meets the criteria contained in Title 27, CCR as a Class III landfill for non-hazardous solid wastes.

6. The existing onsite support facilities include County offices, a scalehouse, recycling facilities, landfill gas collection, gas flaring and co-generation power plant, wood and greenwaste diversion processing area, composting operations, material recovery and storage areas, two Class II leachate storage-surface impoundments, leachate treatment plant, and various sedimentation ponds. Recent construction has added a public tipping facility, household hazardous waste collection facility and laboratory, as shown in Attachment "C".

7. Potential future development plans include landfill expansion into two additional areas (West Canyon expansion, and Rock Extraction Area expansion) and construction of a compressed gas fuel facility and a soil bioremediation facility. However, at this time, the Discharger has not submitted a JTD/ROWD for either of these projects, so they are not subject to this Order. The Discharger must submit a new Report of Waste Discharge to facilitate the permitting of any future waste management unit construction and prior to any discharges of waste associated with these potential future projects.

8. Landfill 1 consists of an upper and a lower unit. The upper unit is the original 1971 Landfill footprint and is the current location for the County's composting operations. The lower canyon unit was constructed as a vertical expansion area in 1988, and designed with a clay-lined dendritic leachate collection and removal system (LCRS). The entire Landfill 1 unit is classified as unlined by current standards. The lower canyon unit's capacity has been nearly filled. The upper canyon area will provide capacity for approximately 1 1/2 years at present rates of incoming waste, according to information provided by the Discharger. However, in order to resume placement of waste in this area, the Discharger will need to remove or reconfigure the present composting operations from the top of the unit, and the Discharger must demonstrate that the placement of any further waste in this area will not impede, interfere with, or prevent timely remediation of necessary corrective actions associated with this area.

9. Landfill 2, the East Canyon expansion landfill, was designed to have four main phases to complete the actual footprint, beginning with the lower, southern canyon, "Phase I" liner construction, and proceeding through "Phase IV". To date, Phases I & II have been constructed and mostly filled. Due to releases of pollutants from the Phase I and II area and recent findings of ground water contamination in the areas proposed for Phase III and IV, the Discharger must submit a revised Report of Waste Discharge/Joint Technical Document and obtain WDRs in order to proceed with any future waste cells, including Phases III and IV.

10. The Discharger has indicated that the existing, permitted landfills have remaining capacity until approximately June 2005, depending on planned reduced waste inflow.

11. The Discharger has established surface, groundwater, and landfill gas monitoring locations for both Landfills 1 and 2 as shown on Attachments “D”, “E” and “F.”

12. The construction of Landfill 2 required that 0.98 acres of existing wetlands be filled. The Discharger prepared a wetlands mitigation proposal in order to protect wetland beneficial uses and to ensure no net loss of wetlands. The Discharger constructed an offsite wetlands mitigation project on a 38-acre County owned parcel at 601 Hammel Road, south of the landfill permitted boundary, as shown in Attachments “B” and “G”.

13. On October 9, 1991, the United States Environmental Protection Agency (USEPA) promulgated federal municipal solid waste (MSW) regulations under the Resource Conservation and Recovery Act (RCRA), Subtitle D (Title 40, Code of Federal Regulations, Parts 257 and 258), hereinafter referred to as "Subtitle D". These regulations apply to all California Class III landfills accepting MSW, including the Sonoma County Central Disposal Site.

14. Effective July 18, 1997, the water quality regulations for Class II and Class III disposal facilities formerly contained in Chapter 15, Title 23, California Code of Regulations (CCR), and the solid waste regulations formerly in Title 14, CCR, were re-codified into Chapters 1 through 7, Subdivision 1, Division 2, Title 27, CCR (Title 27). Chapter 15 is therefore no longer applicable to this facility.

WASTES AND THEIR CLASSIFICATION

15. The Discharger proposes to continue to accept municipal solid wastes, commercial and industrial wastes, and special wastes, classified as "inert" or "nonhazardous" under Sections 20220 and 20230 of Title 27. The Discharger does not propose to accept wastes defined as "hazardous" or "designated" under Title 27, and these WDRs prohibit the disposal of such wastes.

16. The landfill accepts nonhazardous grit and screening wastes (special wastes) from local wastewater treatment plants. Liquid wastes generated onsite, such as landfill leachate, is currently trucked for disposal to the Santa Rosa Laguna Sub-Regional Sewage Treatment Plant, under permit No. SR-IW5202 issued by the City of Santa Rosa. This permit is typically revised on a 5-year basis and currently expires on May 12, 2007.

17. The landfill accepts other wastes requiring special handling, including autoclaved medical waste, low level contaminated soils, small dead animals, soils from residential areas, and dewatered sludge. The County has developed Refuse Bulletins describing specific procedures and acceptance criteria for handling these various special wastes or wastes suspected of being a hazard.

18. A household hazardous waste exclusion program is in effect at the facility and includes periodic waste load-checking.

SITE DESCRIPTION

19. The area surrounding the site is primarily rural grazing area on low rolling hills and valleys. Both landfill units occupy adjacent south-trending valleys that are drained by unnamed tributaries to Stemple Creek.

20. Surrounding land uses include rural residential and agricultural operations, including dairy and cattle ranches. The closest subdivision, "Happy Acres," is about 0.5 miles northeast of the facility and has about 70 residences.

21. Groundwater resources provide domestic and agricultural water supply for the surrounding area. There are three adjacent residences associated with dairy and cattle operations served by domestic water supply wells. Numerous additional domestic and irrigation wells are located to the south of the site, along Mecham Road.

SURFACE WATER

22. The site is within the Stemple Creek watershed of the Estero de San Antonio Hydrologic Area within the Bodega Bay Hydrologic Unit. Stemple Creek is a coastal tributary to Bodega Bay.

23. The beneficial uses of Stemple Creek, a minor coastal stream not specifically listed in the Basin Plan, and the Estero de San Antonio, are listed below:

    a) Municipal and domestic supply
    b) Agricultural supply
    c) Industrial services supply
    d) Industrial process supply
    e) Groundwater recharge
    f) Navigation
    g) Water contact recreation
    h) Non-contact water recreation
    i) Commercial and sport fishing
    j) Cold freshwater habitat
    k) Preservation of areas of special biological significance
    l) Wildlife habitat
    m) Rare, threatened, or endangered species
    n) Marine habitat
    o) Migration of aquatic organisms
    p) Spawning, reproduction, and/or early development
    q) Shellfish harvesting
    r) Estuarine habitat

24. Stemple Creek has been included on the CWA Section 303(d) list as an impaired water body, due to nutrients and sediment. The Regional Water Board adopted a Total Maximum Daily Load (TMDL) and Attainment Strategy for the Stemple Creek Watershed on December 11, 1997, in Resolution No. 97-108. The TMDL lists impairments of the beneficial uses for the Stemple Creek Watershed and sets objectives and targets for the reduction of nutrients, sediment and prevention of erosion to the maximum extent possible. The intent of the TMDL is to restore, enhance, and protect the beneficial uses that are being impaired. The Stemple

Creek TMDL has not been approved by the State Water Resources Control Board and therefore is not in effect at this time. However, staff will continue to monitor the loading of sediment and nutrients in the watershed and from this facility. Additional controls on these pollutants may be required, if necessary, in order to achieve water quality objectives.

STORM WATER

25. This Order does not replace the need for a NPDES storm water permit, as required by provisions of the Clean Water Act.

26. Storm water run-on and runoff from the site is controlled in a series of perimeter ditches, stormdrain pipes, downchutes, and sedimentation ponds located throughout the facility. The purpose of the sedimentation basins is to retain runoff, allowing for settling of sediments, and evaporation. The conveyances route stormwater around the site and off the waste units prior to their discharge to two unnamed tributaries to Stemple Creek.

27. Two new sedimentation basins (Numbers 5-replacement and 6) have been constructed for the East Canyon expansion project at the base of the canyon, as shown in Attachment "B." Landfill runoff from the East Canyon is captured by a perimeter ditch system and discharged into the sedimentation basins for settling prior to discharge to Stemple Creek tributaries.

28. The facility receives about 30 inches of average annual precipitation (as shown by the isohyetal map of normal annual precipitation prepared by the Sonoma County Water Agency (1983)). About 95 percent of the storm events occur between the months of November and April. The mean annual evaporation is 43.67 inches, as published by the California Department of Water Resources for Sonoma County (December 1996 - November 1997).

29. The 100-year, 24-hour precipitation event for the Santa Rosa Station is 6.95 inches, based on California Department of Water Resources (DWR) precipitation records, titled, "Rainfall Analysis for Drainage Design Vol. II, Long Duration Precipitation Frequency Data, Bulletin No. 195, October 1976."

30. Both Landfill 1 and Landfill 2 are located at elevations higher than the 100-year floodplain, as demonstrated by the Discharger under Subtitle D (40 CFR 258.11) and Title 27, CCR.

31. The Discharger has obtained storm water discharge coverage for the facility under the General Industrial, National Pollution Discharge Elimination System (NPDES), Storm Water Permit. The General Permit, No. CAS000001, is issued by the State Water Resources Control Board (State Water Board) under Water Quality Order No. 97-03-DWQ. The permit applies to direct storm water discharges and storm water discharges from the sedimentation basins into surface waters. The facility is also required to obtain coverage under the General Construction NPDES Storm Water Permit No. CAS000002, Order No. 99-08-DWQ, for construction of any site improvements, 30 days prior to construction activities.

WETLANDS

32. Construction of Landfill 2 required removal of an existing creek within the East Canyon and placement of the landfill liner as fill. In total, the Landfill 2- East Canyon expansion impacted 0.98 acres of seasonal wetlands, and 0.08 acres of stream channel and habitat. Under WDRs Order No. R1-2000-62, the Board found that the Discharger had taken appropriate measures to minimize impacts to wetlands. In addition, the Regional Water Board found that the Discharger had provided acceptable offsetting mitigation for the proposed wetlands destruction, by creating approximately 2.6 acres of offsite wetlands, including 0.50 acres of red-legged frog habitat, as shown in Attachment "G" of this Order. Further, the Regional Water Board found that the Discharger would conduct wetland mitigation monitoring. Finally, the Regional Water Board found that the Discharger had satisfied the permitting requirements of the California Department of Fish and Game and the U.S. Army Corps of Engineers for the proposed stream and wetlands impacts. Thus, under WDRs Order No. R1-2000-62, the Regional Water Board certified that any discharge from the Landfill 2- East Canyon expansion project would comply with the applicable provisions of sections 301 ("Effluent Limitations"), 302 ("Water Quality Related Effluent Limitations"), 303 ('Water Quality Standards and Implementation Plans"), 306 ("National Standards of Performance"), and 307 ("Toxic and Pretreatment Effluent Standards") of the Clean Water Act, and the Regional Water Board required that the Discharger conduct wetlands monitoring and submit annual reports.

33. Following issuance of WDRs Order No. R1-2000-62, the Discharger constructed the mitigation wetlands area and began monitoring the area in accordance with the WDRs and associated Monitoring and Reporting Program. Monitoring activities are still underway, so monitoring provisions from Regional Water Board Order No. R1-2000-62 are included in the Monitoring and Reporting Program associated with this Regional Water Board Order.

SITE GEOLOGY

34. The geologic units within the property boundaries include Quaternary alluvium, the Late Miocene to Pliocene- Wilson Grove Formation, the Late Miocene to Pliocene- Sonoma Volcanics Group, and the Late Jurassic-to Late Cretaceous Franciscan Formation. These formations are summarized as follows:

    a. The Quaternary alluvium/colluvium occurs within the base of the canyons and thin layers on side slopes and ridgetops. These deposits are interbedded clays, silts, sands and gravels and are removed in the landfill areas as part of grading and cover operations.

    b. The Late Miocene to Pliocene- Wilson Grove Formation unconformably overlies the Franciscan Formation northeast and south of the landfill site. A remnant outcrop of Wilson Grove existed within the East Canyon but has since been removed during grading at the site. The formation consists of poorly consolidated, massive to interbedded, silty sandstone to fine grained, sandy gravels. This formation is the primary water bearing formation for many of the domestic water supply wells within the area.

    c. The Late Miocene to Pliocene-Sonoma Volcanics Group occurs locally to the southwestern border of the property. The formation has not been mapped in

contact with the waste units and outcrops southwest of the Dunham fault along the southwest boundary of the site.

d. The Late Jurassic-to Late Cretaceous Franciscan Formation underlies both canyon landfill areas, is a regional bedrock unit, and is the primary geologic unit underlying the site. The formation is comprised of both massive and interbedded graywacke sandstones, with shales and metavolcanic rocks. The formation exhibits deformation ranging from fracturing and consolidation of layered units to complete melange or mixed rock types. The Wilson Grove Formation and Sonoma Volcanics Group overlie the Franciscan Formation and occur discontinuously throughout the region.

35. The facility's location within southwestern Sonoma County is near numerous regional active fault zones, including the Rodgers Creek- Healdsburg and San Andreas Fault zones which are approximately 5.7 miles and 15 miles away, respectively. Seismic Hazard Evaluations have been performed using Maximum Probable Event Magnitudes in development of the Landfill 2- East Canyon expansion design.

36. Local faults include the Tolay, Dunham, and an "unnamed fault". The Tolay fault is within 1-mile northwest of the site and is considered potentially active. The Dunham fault and the "unnamed fault" lie within the property boundary of the site. The Dunham fault was investigated onsite in 1992 and found to be "probably pre-Holocene". This finding was later confirmed by Geologic Associates in an assessment performed in 2002-2003 (March 2003 Report), where the determination was made that, "Based on the radiocarbon dates obtained during the study and the geometric relationships exposed in trenches excavated along the trace of the Dunham fault, it was concluded that the Dunham fault has not exhibited movement during the Holocene epoch and, as such, should not be considered active." The unnamed fault trace is located in the East Canyon area and trends east and slightly north. A fault investigation was completed in 1993 and concluded the fault trace to be pre-Holocene and likely pre-Quaternary.

37. There are no Holocene faults within 200'of the Landfill 2 East Canyon expansion refuse footprint.

GROUNDWATER

38. The primary water table lies within the Franciscan Formation, ranging in depth from about 20–130 feet below grade. Many Franciscan Formation monitoring wells have demonstrated low-yielding characteristics.

39. Shallow groundwater conditions are present in the Alluvial wells, with groundwater ranging in elevation from the surface to about 12 feet. One alluvial well is artesian during wetter periods of the year. Several alluvial wells are also reported dry during the summer months.

40. The natural groundwater gradient direction in the Franciscan Formation is towards the southwest to southeast, trending with the canyon topography in both the Landfill 1 and Landfill 2 areas. It is likely controlled by fractures to some degree.

41. The Wilson Grove Formation marine sandstone is a principal water producing formation and a primary groundwater recharge formation in Sonoma County. Many domestic wells located deep within this formation and within 1 mile of the site are reported to have moderate to high yields. The Wilson Grove Formation occurs locally to the south of Hammel Road and to the northeast of the site, underlying the Happy Acres subdivision. Domestic water supply wells within the subdivision draw water from both geologic formations, the upper Wilson Grove sandstone and the underlying Franciscan bedrock formation.

42. Beneficial uses of areal groundwaters include:

    a. domestic water supply
    b. agricultural water supply
    c. industrial service supply

CORRECTIVE ACTION

Landfill 1

43. In 1995, the Discharger discovered a release of waste constituents from Landfill 1 to groundwater. Subsequently, the Discharger installed numerous detection and corrective action monitoring wells in the bedrock Franciscan formation, as identified in MRP No. R1-2004-40, and shown on "Attachments "D" and "F".

44. Monitoring of the shallow zone shows elevated levels of minerals and the presence of various volatile organic compounds (VOCs), including vinyl chloride. The shallow VOC plume extends beyond the landfill footprint towards the southwest County property boundary. Inorganic constituents have also been detected at elevated levels. The source area was identified as a leak in the Landfill 1 toe-area barrier wall. The extent of contamination appears to be limited to the area between the landfill toe barrier wall and the property line barrier wall systems, and is consistent with the trend of shallow groundwater flow. The upper Landfill 1 existing unit has also had confirmed detections of VOC's at a northern perimeter monitoring well (No. F5) in close proximity to the waste unit. The source of this VOC detection is likely landfill gas migration, and detections have been transient over the years. Recent reports show no VOC's detected in F5.

45. The Discharger has implemented an Evaluation Monitoring and Corrective Action Program (EMCAP) to address the release and to investigate all potential sources of contamination. Interim measures to address the release have been implemented, including: removal of the central canyon sedimentation pond and redirection of all surface flow around the toe; installation of a collection station within the barrier wall leak for discharge to the leachate ponds; improvements to the landfill gas and leachate extraction and collection system to remove leachate from the landfill; and development and implementation of a groundwater remediation and feasibility study.

46. To control landfill gas (LFG), the Discharger also installed numerous additional landfill gas extraction wells.

47. On May 3, 1999, the Regional Water Board Executive Officer directed the Discharger to install landfill gas monitoring probes along the main landfill haul road separating the current bottom of the Landfill 1 existing unit and the proposed Landfill 2-expansion unit. The probes were needed to monitor the effectiveness of gas removal in an area of potential outward gas migration from the unlined Landfill 1 towards the proposed adjacent underdrain system for Landfill 2.

48. On May 13, 1999, pursuant to Section 13267 of the California Water Code, Regional Water Board staff requested the Discharger to further evaluate the landfill gas and leachate collection facilities. On May 28, 1999, the Discharger submitted a report that indicated that accumulated leachate, more than 100'deep in onsite wells, was present within the Landfill 1 refuse prism, thereby inundating collectors and inhibiting the collection of landfill gas. On July 19, 1999, the Regional Water Board Executive Officer directed the Discharger to implement additional leachate extraction necessary to de-water the landfill and to develop a plan for additional remedial measures, pursuant to Section 13267 of the California Water Code. The Discharger submitted an initial workplan to address needed remedial measures, in accordance with Section 13267 of the Water Code, by the required submittal dates.

49. The Discharger installed 7 Temporary Gas Probes at four locations, as noted in Attachment "E." The depth of these probes range from 16 to 41 feet below ground surface. Initial monitoring of the probes disclosed low levels of landfill gas within all probes, with the exception TMP-3, in which methane was not detected. Landfill gas monitoring results for the Temporary Gas Probes has shown improvement over time, however continued monitoring of the probes is warranted to demonstrate adequate compliance through future wet seasons.

50. From October 2003 through February 2004 groundwater investigation were conducted to further evaluate potential sources of leachate and landfill gas impacts at the site. During exploratory trenching at ~12-15' below grade along the eastern side of Landfill 1 leachate discharges were observed outside of the waste footprint. In this area monitoring wells F3, F8 and F30 have also shown groundwater impacts. The leachate discharge area has been intercepted by a collection gallery and now discharges to the leachate pond system. Additional groundwater investigations are planned in this are to define the extent of contamination and to remediate impacts.

    Although progress has been made in collecting and extracting leachate from Landfill 1, further remedial efforts are needed to minimize the leachate buildup on the leachate collection and removal system, landfill gas collector system, and the Landfill 1 barrier wall.

51. A Report of Waste Discharge has been submitted on April 21, 2004, to further address necessary remedial efforts to control landfill gas and leachate volumes. Continued progress to abate the build-up of leachate and to mitigate landfill gas migration towards the East Canyon is required in accordance with the Compliance Time Schedule Component of this Order, Provision No. 15. The Discharger must demonstrate adequate mitigation prior to any landfill expansion between the existing Landfill 1 and Landfill 2 footprints.

Landfill 2

52. In July 2003, the Discharger confirmed a release of volatile organic compounds (VOC's) from Landfill 2 into its ground water diversion and interception "underdrain" system. The Discharger subsequently initiated an Evaluation Monitoring Program and ultimately attributed one potential source of this release to a design failure in the liner anchor trench construction that appeared to be responsible for allowing landfill gas around the liner into underlying ground water. The Discharger is currently retrofitting the liner materials along the anchor trench as part of the Corrective Action Program to address this release (Attachments "I" and "J"). Additionally, the Discharger is collecting all flows from the landfill underdrain and directing them to the Class II surface impoundments at the site.

53. In December 2003, ground water samples from the groundwater interception and diversion "underdrain" system began showing concentrations of waste constituents which could not be attributed to landfill gas. The Discharger indicated to Regional Water Board staff that leachate may have migrated into ground water during repair work to a landfill gas condensate line in October 2003, which had required temporary removal of the liner in a localized area.

54. The Discharger submitted an Amended Report of Waste Discharge on April 30, 2004, to document and address further corrective actions proposed for the site, including:

a) Hydraulic head reduction in the Landfill 2 Underdrain Sump
b) Anchor trench modifications (Attachments "I" and "J")
c) Landfill gas enhancements
d) Leachate control and capping options
e) Corrective action implementation schedule

WASTE MANAGEMENT UNIT DESIGN

56. Under the criteria of Section 20260(b)(1) of Title 27, the natural geologic materials underlying the site are not sufficient to protect beneficial uses of groundwater. Section 20260 (b)(2) therefore requires a minimum, prescriptive, single clay liner with hydraulic conductivity of 1×10^{-6} cm/sec or less.

57. The Federal Subtitle D liner design criteria for new MSW landfills, and lateral expansions of existing landfills, are as follows:

a. a leachate collection and removal system (LCRS)
b. a single synthetic liner at least 40 mil thick (at least 60 mil, if HDPE)
c. two feet of compacted soil, 1×10^{-7} cm/sec (0.1 feet/year)

The LCRS must convey all leachate which reaches the liner to a sump, without relying on unlined or clay-lined conveyances. Engineered alternative designs are allowed in lieu of the prescriptive standard if the design meets the performance criteria of the regulation (40 CFR Sections 258.40 (a)(1) and (c)), and is approved as an engineered alternative by the Regional Water Board under Section 20080(b) of Title 27.

58. Implementation of Subtitle D and State Water Board Resolution 93-62 containment criteria for a Class III MSW landfill base-liner, as applied to for this site, are more stringent than Title 27.

59. Although the Landfill 1 footprint is unlined, it qualifies as an "existing" Class III MSWLF under Section 20080 (d) of Title 27 and, with the exception of closure, is therefore exempt from the Title 27 prescriptive containment criteria (the landfill also pre-dates and is exempt from the Subtitle D containment criteria). However, since there has been a release from the WMU, it must comply with the Title 27 and Subtitle D requirements for monitoring and corrective action.

60. Landfill 1 was constructed in phases; an upper unlined canyon fill and a lower vertical expansion area, constructed with a clay lined dendritic leachate collection system. Landfill 1 is required to operate with minimal buildup of leachate within the waste footprint and leachate collection recovery system (LCRS).

61. During construction of the vertical expansion for Landfill 1, three cutoff barriers were constructed across the bottom of the canyon; one at a mid level area, one at the toe of the ultimate fill area, and one along the property boundary downgradient from all disposal site operations. The barriers are constructed of compacted clay having a permeability of 1×10^{-6} cm/sec or less, and they are keyed into the Franciscan formation.

62. The Discharger has constructed an engineered alternative design (EAD) to the prescriptive Title 27 and Subtitle D designs for the Landfill 2 composite liner system. The engineered alternative design substitutes a geosynthetic clay liner (GCL) for one foot of clay in the base liner, and for two feet of clay on the side slopes, as shown in Attachment "H" and outlined as follows:

East Canyon Composite Liner and LCRS: Side Slopes:

a. Minimum two-foot operations layer
b. LCRS (geotextile/geonet)
c. 60-mil HDPE geomembrane liner
d. Geosynthetic clay liner (GCL) with 30 mil HDPE backing
e. Geocomposite capillary break
f. Prepared compacted subgrade

East Canyon Composite Liner and LCRS: Floor Area

a. Minimum two-foot operations layer
b. Nonwoven geotextile filter fabric
c. One-foot gravel LCRS drainage layer
d. Geotextile cushion layer
e. 60-mil HDPE geomembrane liner (bottom side textured)
f. Geosynthetic clay liner (GCL) with 30 mil HDPE backing
g. 1' thick compacted clay liner (1×10^{-7} cm/sec)
h. Geotextile separator layer
i. 1' thick capillary break/underdrain system (granular materials)
j. Prepared compacted subgrade

63. On August 25, 2000, the Regional Water Board issued WDRs Regional Water Board Order No. R1-2000-62 to the Discharger to construct the Engineered Alternative Design liner for Landfill 2 based on a technical demonstration by the Discharger indicating that the EAD would be as protective, and likely more protective, than the prescriptive liner and would, thus, satisfy the criteria described in Finding No**.** 57, above.

64. The Discharger demonstrated in its January 2000 Joint Technical Document, in accordance with Section 20080(b) of Title 27, that construction of a prescriptive standard liner would be unreasonably or unnecessarily burdensome and would cost substantially more than an EAD, and that there was a specific EAD that would be consistent with both the performance goal and the prescriptive standard which affords equivalent protection against water quality impairment.

The Discharger also demonstrated that the EAD satisfied the performance criteria contained in 40 CFR Section 258.40 because:

a. Leachate would be controlled during the operational life of the unit.
b. Landfill gas would be controlled as long as the landfill is biologically active.
c. The expansion WMU would employ a composite liner consisting of 60-mil HDPE underlain by a geosynthetic clay liner.
d. Site-specific hydrologic, climatic, and leachate characteristics had been considered in designing the expansion as described in the Joint Technical Document and the Environmental Impact Report.
e. The groundwater point of compliance would be at the southern edge of the landfill and was set after considering the following:

i. leachate characteristics,
ii. hydrogeologic factors,
iii. groundwater flow,
iv. proximity of groundwater users,
v. alternative drinking water supplies,
vi. existing groundwater contamination,
vii. public health, and
viii. the predictable capability of the landfill operator.

65. Monitoring information obtained following construction and commencement of operation of Phases I and II has placed the validity of the demonstrations described in Findings 63. and 64, above, into question. The efficacy of the EAD liner is currently under review. Any expansion using this liner design will not be considered until the review is complete.

SURFACE IMPOUNDMENT DESIGN

66. Landfill leachate is managed on-site in two Class II surface impoundments, LP1 and LP2. Both ponds are double lined leachate ponds. LP1, constructed in 1988 as a soil based liner system, was retrofitted in 2001 with an upper synthetic liner system and a design capacity of 1.8 million gallons. LP2, constructed in 1995, has a geosythetic based liner system and a design capacity of 2.9 million gallons. The geosynthetic based liner system for LP2 includes high-density polyethylene (HDPE) liner materials.

The Class II surface impoundments have been constructed as follows:

Leachate Pond- LP1:

a. 80 mil electrically conductive membrane (primary)
b. 200 mil geonet LCRS
c. 80 mil textured geomembrane (secondary)
d. 2' thick compacted clay liner (1 x 10^{-8} cm/sec)
e. 1'-1.5' thick layer permeable drain rock (original LCRS)
f. 2' thick compacted clay liner (1 x 10^{-8} cm/sec)
g. Prepared subgrade

Leachate Pond – LP2:

a. 60-mil HDPE textured geomembrane (primary geomembrane liner)
b. 16 oz/yd ^{2} 2 geotextile cushion
c. Geonet (T>=1 x 10^{-4} m^2 /sec) LCRS drainage layer (geonet sump riser, granular material, geotextile)
d. 60-mil HDPE textured geomembrane liner (composite secondary liner)
e. 30 mil Geosynthetic clay liner (GCL)
f. Geocomposite Underdrain system
e. Underdrain system (Geonet (T>=1 x 10^{-4} m^2 /sec)/10 oz/yd ^{2} geotextile filter)

The Discharger monitors for liquid infiltration in both LP1 and LP2 leachate collection and recovery system layers to evaluate possible leaks of the primary liners. If liquid is detected, repairs are scheduled and implemented.

WASTE MANAGEMENT UNIT SITING

67. Section 20240 (c) of Title 27 requires that *new* landfills be "sited, designed, constructed and operated", to ensure or maintain at least five feet of separation between the contained wastes and the highest anticipated level of the groundwater table. Existing landfills are to be "operated" to maintain the required separation.

68. The Discharger proposed an EAD to the five-foot separation requirements. The design incorporated an engineered alternative to the minimum separation between the highest anticipated groundwater and the waste, due to the fact that areas of the Landfill 2 East Canyon expansion contain shallow groundwater including seasonal springs. The proposed containment system design includes:

Base grade:

a. 1 foot thick granular blanket as a capillary break-underdrain layer
b. Capillary break underdrain layer discharge pipe

Side slopes:

a. Geotextile filter
b. Geonet
c. Geotextile filter

69. The Discharger presented information indicating that the EAD would provide equivalent or improved water quality protection as compared to the prescriptive standards by providing:

    a. A positive barrier to the capillary rise, effectively separating groundwater from the liner,
    b. a means of controlling, collecting, and monitoring groundwater migrating beneath the landfill,
    c. a means of first detecting and then removing leachate in the event it penetrates the composite liner; and,
    d. an alternative secondary component of the composite liner (GCL) with a hydraulic conductivity at least a hundred times less than the Title 27, CCR and Subtitle D prescriptive standards.

70. The Discharger demonstrated that the EAD satisfied the engineered alternative design criteria contained in Title 27 CCR 20080 (a) (4) (b) for the above noted reasons.

71. The Discharger provided the necessary document certifications pursuant to Section 20240(d) of Title 27 for design and construction of each existing landfill unit at the site.

72. Monitoring information obtained following construction and commencement of operation of Phases I and II have indicated that this EAD may not be adequately protective of water quality. Efficacy of the EAD liner design is currently under review. These WDRs do not permit any landfill construction or further expansion.

CLOSURE AND FINANCIAL ASSURANCES

73. Since Landfill 1 was not closed prior to the federal deadline (October 9, 1993), the closure requirements of Subtitle D apply to all of Landfill 1.

74. The Discharger has proposed to close the entire landfill, inclusive of Landfill 1 and Landfill 2, following completion of final Phase V construction over both units. Closure is estimated to occur in 2014. The highest elevation of the closed landfill will be about 565 feet MSL.

75. The Discharger has submitted a Preliminary Closure and Post-Closure Maintenance Plan describing the planned closure configuration for both landfills. The final cover designs are as follows:

    Landfill 1:

    a. Erosion layer, -minimum one-foot vegetative cover soil
    b. Drainage layer,- geocomposite with sufficient hydraulic capacity
    c. Barrier layer, -GCL (5×10^{-9} cm/sec) *or* minimum one-foot thick clay layer (1×10^{-6} cm/sec)
    d. Foundation layer, -minimum two-foot thick soil layer (may incorporate intermediate cover)

Landfill 2:

a. Erosion layer, -minimum one-foot vegetative cover soil
b. Drainage layer, - geocomposite with sufficient hydraulic capacity
c. 40 mil textured geomembrane
d. Barrier layer, -GCL (5×10^{-9} cm/sec) *or* minimum one-foot thick clay layer (1×10^{-6} cm/sec)
e. Foundation layer, -minimum two-foot thick soil layer (may incorporate intermediate cover)

The use of GCL instead of clay would be an EAD to the prescriptive Subtitle D standard for a composite liner.

76. Perimeter slopes in the existing landfill area will be no greater than 3:1 (horizontal-to-vertical) for Landfill 1, and the final slopes in the expansion area will be approximately 4:1. The top deck of Landfill 2 will be sloped at 5% for adequate drainage.

77. Slope stability analyses were performed for the site including seismic site response and deformation analyses completed for the Healdsburg-Rogers Creek Fault. Deformations in the landfill mass/liner system and final cover associated with the calculated yield accelerations were evaluated and found to be less than 6 inches. Interface testing was completed to evaluate the strength of the critical interface between the GCL and geomembrane under hydrated and unhydrated conditions. Slope stability analyses were completed using the interface test results and modified waste shear strength. Results of the analyses indicate that all factors of safety are larger than 1.5 and seismically induced deformations are less than 6 inches.

78. The financial assurance mechanism consists of an Enterprise Fund for closure and a Pledge of Revenue for post-closure maintenance. Enterprise monies are paid into the fund annually or pledged in accordance with an approved estimate, as waste is discharged to the landfill. The preliminary closure cost estimate for both landfills is $14,393,106, in 2000 dollars. The preliminary post-closure maintenance cost estimate is $10,310,446, in 2000 dollars.

79. The Discharger is required to update approved all cost estimates annually to account for inflation. Annual inflation factor determinations are provided for in the Annual Report.

80. The Discharger has estimated that $1.67 million will be necessary to cover the costs of corrective action for a known or reasonably foreseeable release (RFR) at Landfill 1. The Discharger estimated in 2000 that an additional $300,000 would be sufficient to cover corrective action costs for a possible release from the Landfill 2- East Canyon expansion unit. Regional Water Board staff approved the plan and amount funded for Landfill 1, pending further development and confirmation of estimates for the expansion unit. The financial assurance mechanism is a Pledge of Revenue. Sonoma County is in the process of updating the financial mechanism to reflect a combined total for both RFR cost estimates.

On August 4, 2000, the Discharger submitted Sonoma County Board of Supervisors Resolution No. 00-0831, dated July 11, 2000, and a Pledge of Revenue Agreement, signed July 19, 2000, by Sonoma County Director of Transportation and Public Works and County Counsel, establishing financial assurance for both landfill units. The combined Pledge of Revenue corrective action cost estimate was $2,048,127, adjusted for year 2000 inflation, and was completed following review by the California Integrated Waste Board representatives.

81. An annual review of the RFR scenario and cost estimate is required within the facility's annual report. As a result of the update, any additional financial assurance monies will need to be provided for within the annual update.

82. Due to releases discovered at the site following issuance of WDRs Order No. R1-2000-62, these WDRs require that the Discharger revise the closure plan and reasonably foreseeable release (RFR) scenario and update the financial assurance mechanisms, accordingly, to reflect the current situation at the site.

CEQA AND OTHER CONSIDERATIONS

84. In 1998, the Sonoma County Board of Supervisors approved two separate Environmental Impact Reports (EIRs) (one on August 18, 1998 and one on December 15, 1998) to satisfy the requirements of the California Environmental Quality Act. The EIRs identified significant environmental impacts associated with the landfill expansion project and the reasonably foreseeable rock extraction project, and included a site mitigation plan for each significant impact.

85. In adopting Waste Discharge Requirements Order No. R1-2000-62, the Regional Water Board considered the EIRs and proposed mitigation measures and determined that compliance with Order No. R1-2000-62 would mitigate any potential adverse water quality impacts.

86. This revision to the WDRs is being made for the protection of the environment, through update of the corrective action requirements for the site and, therefore, is exempt from the provisions of the California Environmental Quality Act (Public Resources Code, Section 21000 et seq.) in accordance with Section 15321, Chapter 3, Title 14, California Code of Regulations. This order is adopted to tighten the environmental quality protection requirements pertaining to an existing facility, and this revised order does not permit expansion of existing permitted operations, and it is therefore exempt under CEQA Guideline section 15301.

PROCEDURAL REQUIREMENTS

87. All local agencies with jurisdiction to regulate land use, solid waste disposal, air pollution and to protect public health have approved the use of this site for the discharges of waste to land stated herein.

88. The Regional Water Board has notified the discharger and interested agencies and persons of its intent to revise waste discharge requirements for the site and has provided them with an opportunity to submit their written comments and recommendations.

89. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to this facility and discharge.

90. This revision to Waste Discharge Requirements is intended to update the corrective action requirements of the previously issued permit for this existing facility, and does not permit expansion of any previously permitted activities. Therefore, this revision is not expected to result in any violation of the antidegradation provision of State Water Resources Control Board Resolution No. 68-16.

THEREFORE, IT IS HEREBY ORDERED that Waste Discharge Requirements Order No. R1-2000-62 be rescinded, and that the Discharger, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. Disposal of waste outside of the permitted footprint for Landfill 1 and Phases I and II of Landfill 2 as described in the Report of Waste Discharge/Joint Technical Document is prohibited.

2. The discharge of "hazardous waste" and "designated waste" at this facility is prohibited. The discharge of leachate from the landfill unit and LCRSs at this facility is prohibited. For the purposes of this Order, the terms “hazardous waste” and “designated waste” are as defined in Title 27, CCR.

3. The discharge of waste, including solid, liquid, leachate, or landfill gas to surface water, surface water drainage systems or groundwater is prohibited.

4. The discharger shall not cause the concentration of any Constituent of Concern to exceed its respective concentration limit in any monitoring medium. The concentration limit for each monitoring parameter will be set at the background concentration. Data analyses will be performed in accordance with the approved Monitoring and Reporting Program.

5. Discharges of waste to either a landfill unit that has not received wastes or to a lateral expansion of a landfill unit are prohibited, unless the discharge is to an area equipped with a containment system which meets requirements in Item B, Discharge Specifications, below.

6. The discharge of liquid or semi-solid waste (i.e., waste containing less than 50 percent solids) to Landfill 1 and Landfill 2 is prohibited, with the following exceptions:

   a) de-watered sewage or water treatment sludge as provided in Section 20220(c) of Title 27 may be disposed of on lined areas or the vertical expansion area of Landfill 1, and

   b) leachate may be used for dust control over lined areas with the written approval of Regional Water Board staff.

7. The discharge of solid waste containing free liquid or moisture in excess of the waste's moisture holding capacity to Landfill 1 or Landfill 2 is prohibited.

8. Ponding of liquids, including rainfall runoff and leachate, over solid waste disposal cells is prohibited.

9. The disposal of containerized liquids at this facility is prohibited.

10. The discharge of waste to ponded water from any source is prohibited.

11. The discharge of waste to surface waters or within 50 feet of surface waters is prohibited.

12. The discharge of wastes which 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 which in turn:

    a) require a higher level of containment than provided by the unit;
    b) are "restricted" hazardous wastes; or
    c) impair the integrity of containment structures,
    is prohibited.

13. The disposal of wastes containing greater than one percent by weight (>1%) friable asbestos is prohibited.

14. The discharge of landfill wastes, including VOC-impacted ground water, to a storm water sedimentation basin is prohibited.

15. At any time when landfill gas or leachate contaminants are detected within the discharge from the East Canyon groundwater underdrain area, the Discharger shall implement corrective action and collect all underdrain flow as leachate for discharge to the Class II surface impoundments.

16. The discharge of any waste in any manner not specifically described in the findings and regulated by this Order is prohibited.

17. Creation of a pollution, contamination, or nuisance, as defined by Section 13050 of the California Water Code (CWC), is prohibited. [Health and Safety Code, Section 5411]

18. The retention of more than 1 foot of leachate above the bottom of landfilled waste in any Subtitle D lined Waste Management Unit is prohibited. The County shall implement a Leachate Management Program for Landfill 1 acceptable to the Executive Officer that provides for hydraulic control of the leachate in accordance with the Compliance Time Schedule included in these WDRs.

B. DISCHARGE SPECIFICATIONS

General Specifications

1. The discharge of wastes shall not cause water quality degradation by allowing a statistically or non-statistically significant increase over background or baseline concentrations as determined in accordance with Monitoring and Reporting Program No. R1-2004-40.

2. Wastes shall only be discharged into, and shall be confined to, the landfill units specifically designed for their containment.

3. Leachate generation by a landfill unit shall not exceed 85% of the design capacity of the sump pump. If leachate generation exceeds this value or if the depth of fluid in an LCRS exceeds the minimum needed for efficient pump operations, then the Discharger shall immediately cease the discharge of sludges and other high-moisture wastes to the landfill unit and shall notify the Regional Water Board in writing within seven days. Notification shall include a timetable for corrective action necessary to reduce leachate production.

4. Waste discharged at this site shall be provided with approved interim cover material. The active face shall not be excessively large for daily waste placement. The active face shall receive approved daily cover. All inactive areas shall be capped with at least one foot of clean, earthen material or approved interim cover material, compacted and graded to drain from the active area.

5. All daily cell runoff shall be collected and controlled as leachate.

General WMU Construction

6. Clay liners shall have a maximum hydraulic conductivity of 1×10^{-7} cm/sec and a minimum relative compaction of 90 percent.

7. Clay liners in landfill caps shall have a maximum hydraulic conductivity of 1×10^{-6} cm/sec and a minimum relative compaction of 90 percent. Or equal to the hydraulic conductivity of any bottom liner system or underlying natural geologic material, whichever is less permeable, or another design which provides a correspondingly low through flow rate throughout the post-closure maintenance period. Hydraulic conductivities of liner materials shall be determined by laboratory tests using solutions with similar properties as the fluids that will be contained. Hydraulic conductivities of cap materials shall be determined by laboratory tests using water. Hydraulic conductivities determined through laboratory methods shall be confirmed by field-testing, in accordance with the General Monitoring and Reporting Provisions. Construction methods and quality assurance procedures shall be sufficient to ensure that all parts of the liner and cap meet the hydraulic conductivity and compaction requirements.

8. LCRSs shall be designed, constructed, and maintained to collect twice the anticipated daily volume of leachate generated by the WMU and to ensure there is no buildup of hydraulic head on the underlying liner at any time in accordance with section 20340 (c), T27, CCR. The depth of fluid in any LCRS sump shall be kept at or below the level needed to ensure efficient pump operation.

9. Landfill liner repair, retrofit, or maintenance activities and any cap construction, repair, retrofit, or maintenance activities after the effective date of this Order shall be designed and implemented in accordance with the applicable provisions of Title 27 and this Order and approved by the Executive Officer prior to operation. Prior to the beginning of construction, repair, retrofit, or maintenance work on any portion of a liner or cap, the Discharger shall submit a Final Design Report to the Executive Officer for review and approval and shall include, but not be limited to, the engineered design plans for the proposed activities, the contract specifications, a construction quality assurance (CQA) plan to verify that construction specifications will be met, and a revised water quality monitoring plan. Written approval of the final design report shall be obtained from the Executive Officer prior to commencement of activities associated with the landfill liner or cap. A final report shall be submitted for approval by the Executive Officer after each phase of construction, repair, retrofit, or maintenance work and prior to the discharge of waste into any affected portion of the liner. The final report shall include, but not be limited to, as-built plans for the affected portion of liner or cap, a CQA report with a written summary of the CQA program and all test results, analyses, and copies of the inspector's original field notes, and a certification as described in the Landfill Specifications, below.

Landfill Specifications

10. All WMU containment structures installed after October 9,1993, shall meet the requirements of Subtitle D, including the prescriptive requirements described in Finding No. 57, unless otherwise authorized, in writing, by this Regional Water Board.

11. All WMU containment structures shall meet the general criteria set forth in Section 20320 of Title 27.

12. WMU containment structures shall be designed, constructed, repaired, and/or retrofitted 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 (except where exempt or approved as an engineered alternative design herein) and performance goals of Title 27 prior to waste discharge. In the case of an engineered alternative, the registered civil engineer or certified engineering geologist must certify that the waste management unit has been constructed, repaired, and/or retrofitted in accordance with Regional Water Board approved plans and specifications. Designs shall include a Construction Quality Assurance Plan, the purpose of which is to:

    a. Demonstrate that the waste management unit has been constructed, repaired, and/or retrofitted according to the specifications and plans approved by the Regional Water Board.
    b. Provide quality control on the material and construction practices used to construct, repair, and/or retrofit the waste management unit and prevent the use of inferior products and/or materials which do not meet the approved design plans and specifications.

13. Materials used to construct, repair, and/or retrofit liners shall have appropriate physical and chemical properties to ensure containment of discharged waste over the operating life, closure, and post closure maintenance period of the waste management unit.

14. New landfill units and lateral expansions shall not be located in wetlands unless the Discharger has successfully completed, and the Regional Water Board has approved, all demonstrations required for such discharge under 40 CFR 258.12(a).

Surface Impoundment Specifications

15. Both Class II Surface Impoundments, leachate ponds LP1 and LP2, shall be operated in accordance with an approved leachate management plan. All offsite discharge of leachate shall be to a legal point of disposal, as presented within the approved leachate management plan. The legal point of disposal is currently the City of Santa Rosa Sub-Regional Laguna Sewage Treatment Plant, under permit No. SR-IW5202. The City of Santa Rosa updates their requirements approximately every 5 years. The Discharger is intending to update its permit with the City of Santa Rosa in accordance with the periodic review. Any change in the legal point of disposal shall be provided in writing to the Regional Water Board prior to the change in discharge.

16. The Discharger shall maintain at least 2 feet of freeboard in the leachate ponds LP1 and LP2 at all times.

17. The leachate ponds shall be operated with dedicated freeboard measurement devices at all times.

18. The Discharger shall notify Regional Water Board staff immediately by phone of any violations in freeboard requirements in either LP1 or LP2.

19. The Discharger shall notify Regional Water Board staff immediately by phone of any breaches, maintenance problems, holes, or damage in either LP1 or LP2.

20. Leachate surface impoundments LP1 and LP2 shall be fully inspected annually and integrity tested, as needed, in accordance with the applicable provisions of Title 27. Inspection reports or testing results shall be submitted by **February 15, annually** and shall include a complete report of findings and provisions for completion of all necessary maintenance, repairs, and submittal of CQA reports for repairs.

21. Leachate surface impoundment maintenance and repair plans shall be submitted to the Regional Water Board in advance of any work. Surface Impoundment repair plans and liner Construction Quality Assurance Plans shall be developed and stamped by a licensed professional experienced in this type of work. The Discharger shall fax daily logs of all CQA work to the Regional Water Board at the end of each workday.

Landfill Closure Specifications

22. At closure, each landfill shall receive a final cover in accordance with the prescriptive standards of Subtitle D and Title 27, or the EAD, as described in Finding No**.** 76.

23. Vegetation shall be planted and maintained over intermediate cover and closed landfill areas. Vegetation shall be selected to require a minimum of irrigation and maintenance, and shall have a rooting depth of not more than the vegetative layer thickness.

24. Closed landfill units shall be graded to at least a three-percent (3%) grade and maintained to prevent ponding and infiltration.

25. The WMU slopes shall not exceed a horizontal-to-vertical ratio of 1.75:1, without benching, to ensure slope stability. Other areas with slopes greater than ten percent, surface drainage courses, and areas subject to erosion by wind or water shall be designed and constructed to prevent such erosion.

26. Closure of each waste management unit shall be performed under the direct supervision of a registered civil engineer or California certified engineering geologist.

Protection from Storm Events

27. Both active and closed WMUs shall be designed, constructed, and operated to prevent inundation or washout due to floods with a 100-year return period. Class III landfill units and related containment structures shall be constructed and maintained to prevent, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping under 100-year, 24-hour precipitation conditions.

28. Precipitation and drainage control systems shall be constructed on both active and closed WMUs, and shall be designed and constructed to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 100-year, 24-hour precipitation conditions.

29. Prior to the anticipated rainy season, but no later than **October 1, annually**, any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the facility and to prevent surface drainage from contacting or percolating through wastes. By **August 1, annually** the Discharger shall submit to the Executive Officer a Winterization Plan describing measures planned to prepare the site and to conduct operations during the wet season. By **December 1, annually**, the Discharger shall submit a report to the Executive Officer describing measures taken to comply with this specification (the information may be included in the Annual Monitoring Report, per the monitoring program).

30. Surface drainage shall be designed to minimize infiltration and shall not be allowed to contact wastes. Internal site drainage shall be located to the maximum extent practicable, such that it does not cross over landfill areas. Site drainage over landfill areas shall be contained in engineered conveyance structures or in drainage ditches which are lined with at least one foot of compacted soil having an in-place permeability of 1×10^{-6} or less.

31. New landfill units, existing landfill units, and lateral expansions thereof, shall not be located in the 100-year floodplain of any surface water unless the Discharger

has successfully completed, and the Regional Water Board has approved, all demonstrations required for such discharge under Subtitle D (40 CFR 258.11).

C. PROVISIONS

1. The Discharger shall comply with these WDRs and the attached MRP No. R1 2004-40. A violation of the MRP is a violation of these Waste Discharge Requirements. The Discharger shall further comply with all applicable provisions of Title 27 and Subtitle D not specifically referred to in this Order.

2. The Discharger shall comply with the attached General Monitoring and Reporting Provisions, which are hereby incorporated into this Order. A violation of any of the standard provisions and reporting requirements is a violation of these Waste Discharge Requirements.

3. Prior to landfill liner construction, the Discharger shall obtain any and all permits required under federal, State, or local laws, including Waste Discharge Requirements from this Regional Water Board.

4. During the operational life of the landfill, the Discharger shall implement the Wetlands Mitigation and Monitoring Program, and shall submit annual monitoring reports as described in MRP No.R1-2004-40, a part of this Order. The Discharger shall further conduct long term monitoring of wetlands created off-site pursuant to this plan and to MRP No. R1-2004-40. 2.6 acres of wetlands mitigation shall be fully functional and shall meet federal wetland delineation criteria by **December 31, 2005**. The wetland mitigation site shall remain functional from this date through the life of the landfill.

5. The Discharger shall maintain waste containment facilities and precipitation and drainage control systems throughout the post-closure maintenance period, and shall immediately notify the Regional Water Board of any flooding, equipment failure, slope failure, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or of precipitation and drainage control structures.

6. The Discharger shall continue to monitor each WMU and all underlying media per MRP No. R1-2004-40 throughout the post-closure maintenance period, and shall continue until the Regional Water Board determines that the wastes remaining at the site no longer threaten water quality.

7. The Discharger shall have the continuing responsibility to assure protection of waters of the State from discharged wastes, including leachate, that may be generated and discharged during the closure, and post-closure maintenance period of the facility and during subsequent use of the property for other purposes.

8. The Discharger shall maintain legible records of the volume and type of each waste discharged for each landfill unit and the manner and location of discharge. Such records shall be maintained at the facility or the facility's administration office until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the Regional 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 for each of the landfill areas, copies of these records shall be sent to the Regional Water Board.

9. The Discharger shall provide proof to the Regional Water Board **within sixty days after completing final closure** that the deed to the landfill facility property, or some other instrument that is normally examined during title search, has been modified to include, in perpetuity, a notation to any potential purchaser of the property stating that:

   a. the parcel has been used as a municipal solid waste landfill;
   b. land use options for the parcel are restricted in accordance with the post-closure land uses set forth in the post-closure plan and in WDRs for the landfill; and
   c. in the event that the Discharger defaults on carrying out either the post-closure maintenance plan or any corrective action needed to address a release, then the responsibility for carrying out such work falls to the property owner.

10. The Discharger or persons employed by the Discharger shall comply with all notice and reporting requirements of the State Department of Water Resources with regard to the construction, alteration, destruction, or abandonment of all monitoring wells used for compliance with this Order or with MRP No. R1-2004-40, as required by Sections 13750 through 13755 of the California Water Code.

11. By **February 15, 2005,** the Discharger shall submit to the Regional Water Board a preliminary closure and post-closure maintenance plan and cost estimate, prepared in accordance with Section 21769 of Title 27. The plan shall include all information necessary for Regional Water Board staff review and approval of financial assurance cost estimates for closure and post-closure maintenance of each landfill submitted to the California Integrated Waste Management Board (CIWMB), pursuant to Sections 20950(f), and 22205 et seq. of Title 27.

12. The Discharger shall obtain and maintain adequate assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from any waste management unit at the facility in accordance with Sections 20380(b) and 22222 of Title 27. The Discharger shall provide an updated corrective action cost estimate to the Regional Water Board for review by **February 15, 2005,** and every five years thereafter, for the term of this Order.

13. In the event that the Regional Water Board determines that the County of Sonoma has failed or is failing to perform corrective action as required by law, the California Integrated Waste Management Board may direct the County of Sonoma to pay from the pledged revenue such amounts as are necessary to insure sufficient corrective action. The County of Sonoma shall be obligated to use such funds for corrective action in accordance with the directive of the Regional Water Board.

14. In accordance with Title 27, the Discharger shall further provide and maintain adequate financial assurances to cover the costs of closure and post-closure maintenance for each waste management unit and shall report to the Regional Water Board by **February 15, annually,** that it has demonstrated financial responsibility to the CIWMB.

Compliance Time Schedule

15. Pursuant to Section 13267 (b) of the CWC, the Discharger shall complete the tasks outlined in these WDRs and the attached MRP No. R1-2004-40, in accordance with the following time schedule:

Corrective Action for Landfill 1	**Compliance Date**
Implement Landfill 1 Leachate and Landfill Gas Management Program to include the following:	
Submit workplan to install a Landfill 1 leachate monitoring network. This workplan will contain a scope and schedule for installation of leachate peizometers and a water-level monitoring and reporting schedule for assessment of hydraulic control.	July 1, 2004
Submit workplan to develop a site conceptual model and performance criteria to maintain hydraulic control of Landfill 1 leachate and to reduce leachate build-up to the maximum extent practicable as per studies.	August 31, 2004
Submit workplan for installation of a Landfill 1 gas-monitoring network. This workplan will contain a scope of work and schedule for installation and monitoring of the landfill gas monitoring network that will evaluate the effectiveness of the existing infrastructure, it's layout, operations and capabilities towards water quality protection.	September 15, 2004
Submit a Delineation Assessment Report and Engineering Feasibility Study for groundwater potentially affected by Landfill 1 leachate or landfill gas.	February 15, 2005
Complete leachate removal activities to the maximum extent practicable and establish a long term maintenance plan to prevent leachate buildup.	August 15, 2009

Corrective Action for Landfill 2	**Compliance Date**
Submit time schedule to complete all East Canyon Landfill 2 Liner retrofit and all CQA logs to date.	July 30, 2004
Complete all East Canyon Landfill permanent (as feasible) and temporary retrofit work.	October 1, 2004 (winterization deadline)
Complete all permanent East Canyon Landfill 2 retrofit work.	June 30, 2005
Submit workplan for installation of Landfill 2 gas-monitoring network. This workplan will contain a scope of work and schedule for installation and monitoring of the landfill gas monitoring network that will evaluate the effectiveness of the existing infrastructure, it's layout, operations and capabilities towards water quality protection.	September 15, 2004
Submit CQA plan for all Landfill 2 liner work in accordance with T27, CCR.	August 15 2004
Landfill 1 and 2 Common Activities/Corrective Action	**Compliance Date**
Submit an update of the Long-Term Leachate Management Plan. The plan will describe: (1) the leachate management program for Landfill 1; (2) the existing leachate management facilities and monitoring program for Landfill 2; and (3) planned capital projects (e.g. leachate pipeline, operations and maintenance, leachate treatment and storage).	September 30, 2004
Submit CQA Plan for Leachate Pond Liner Inspection/Repairs.	September 30, 2004
Submit preliminary plan for partial closure of Landfill 1 and Landfill 2.	January 1, 2005

Time frames for completing all Compliance Time Schedule Requirements may be extended in writing by the Executive Officer for good cause.

16. A copy of this Order shall be kept at the discharge facility for reference by operating personnel at all times. Key operating personnel shall be familiar with its contents.

17. Revision of Requirements

The Regional Water Board will review this Order periodically and will revise these requirements when necessary.

18. Severability

Provisions of these waste discharge requirements are severable. If any provision of these requirements is found invalid, the remainder of these requirements shall not be affected.

19. Operation and Maintenance

The Discharger must maintain in good working order and operate as efficiently as possible any facility or control system installed by the Discharger to achieve compliance with the waste discharge requirements.

20. Change in Discharge

The Discharger must promptly report to the Regional Water Board any material change in the character, location, or volume of the discharge.

21. Signatory Requirements

a. All applications, reports, or information submitted to the Regional Water Board Executive Officer shall be signed by either a principal executive officer, ranking elected official, or a responsible corporate officer. For purposes of this provision, a responsible corporate officer means:

i. a president, secretary, treasurer, or vice president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision making functions for the corporation; or

ii. the manager of one or more manufacturing, production, or operating facilities, if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures.

b. Reports required by this Order, other information requested by the Regional Water Board may be signed by a duly authorized representative provided:

i. The authorization is made in writing by a person described in paragraph (a) of this provision;

ii. the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company; and

iii. the written authorization is submitted to the Regional Water Board prior to or together with any reports, information, or applications signed by the authorized representative.

c. Any person signing a document under paragraph (a) or (b) of this provision shall make the following certification:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted, is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

22. Change in Ownership

In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger must notify the succeeding owner or operator of the following items by letter, a copy of which must be forwarded to the Regional Water Board:

a. existence of this Order, and
b. the status of the dischargers' annual fee account

23. Vested Rights

This Order does not convey any property rights of any sort or any exclusive privileges. The requirements prescribed herein do not authorize the commission of any act causing injury to persons or property, nor protect the discharger from his liability under federal, State, or local laws, nor create a vested right for the discharger to continue the waste discharge.

24. Accidental Spills, Incident Reporting and Monitoring

The Discharger must comply with the Contingency Planning and Notification Requirements Order No. 74-151 and the Monitoring and Reporting Program No. R1-2004-40 and any modifications to these documents as specified by the Executive Officer. Such documents are attached to this Order and incorporated herein. Chemical, bacteriological, and bioassay analyses must be conducted at a laboratory certified for such analyses by the State Department of Health Services.

a. Order No. 74-151 requires immediate incident reporting of unintentional or accidental spills (including Emergency Response actions) and diligent action to abate the effects of the discharge. Written confirmation of the incident is required within two weeks of notification.

b. General Monitoring and Reporting Provisions require sampling and analysis performance criteria in addition to compliance reporting criteria and timeframes.

25. Inspections

The Discharger shall permit authorized staff of the Regional Water Board:

a. to enter upon premises in which a waste source is located or in which any required records are kept;
b. to access and copy any records required to be kept under terms and conditions of this Order;
c. to inspect monitoring equipment or records; and
d. to sample any discharge.

26. Noncompliance

In the event the discharger is unable to comply with any of the conditions of this Order due to:

a) breakdown of waste management equipment;
b) accidents caused by human error or negligence; or
c) other causes such as acts of nature;

the Discharger must notify the Executive Officer by telephone as soon as he/she or his/her agents have knowledge of the incident and confirm this notification in writing within two weeks of the telephone notification. The written notification shall include pertinent information explaining reasons for the noncompliance and shall indicate the steps taken to correct the problem and the dates thereof, and the steps being taken to prevent the problem from recurring.

27. Adequate Capacity and Future Waste Management Units

Whenever a waste management unit will reach capacity within four years, the discharger shall notify the Regional Water Board in writing. A copy of such notification shall be sent to appropriate local elected officials, local permitting agencies, and the press. The discharger must demonstrate that adequate steps are being taken to address any capacity concerns. The Discharger shall submit a technical report to the Regional Water Board showing how fill volumes will be cell-sequenced for the remaining capacity and a schedule for reaching final elevations. The Discharger shall also submit a technical report summarizing the status of planned or future waste management units. Should the Discharger wish to pursue the “future” landfill expansion units, including the Rock Extraction Project and the West Canyon Landfill, a “Siting Element” proposal inclusive of

required fault studies and groundwater investigations, etc. shall be submitted for review and concurrence within 60 days of notification. Once approved, the study

shall be performed, as required under Title 27, CCR. The required investigation shall be initiated within 120 days of concurrence with the study. Should the Discharger choose to abandon plans for future expansion units, the Discharger shall report as much under the specified time frames above. This later demonstration must include a schedule for the construction closure of the site and discussion of plans to divert the municipal waste stream to another legal point of disposal following closure. The time frame for filing the required technical report may be extended in writing by the Executive Officer for good cause.

Certification

I, Catherine Kuhlman, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, North Coast Region, on June 23, 2004.

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Catherine E. Kuhlman
Executive Officer

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