California Regional Water Quality Control Board
North Coast Region

ORDER No. R1-2013-0003
WDID Nos. 1B801490SON and 1B99011RSON
WASTE DISCHARGE REQUIREMENTS

FOR
OPERATION, CORRECTIVE ACTION, NEW CONSTRUCTION, AND CLOSURE
AT THE
SONOMA COUNTY CENTRAL DISPOSAL SITE

COUNTY OF SONOMA

CLASS III WASTE MANAGEMENT UNITS
AND CLASS II SURFACE IMPOUNDMENTS

SONOMA COUNTY

The following Discharger is subject to waste discharge requirements as set forth in this Order:

Table 1. Facility Information

Discharger	County of Sonoma
Facility Address	500 Mecham Road
	Petaluma, CA 94952
	Sonoma County
Facility Contact, Title, and Phone	
Mailing Address	
Type of Facility	Class III Landfill
Facility Design Flow	Up to 2500 tons refuse received per day
Facility Threat and Complexity Rating	1A

Table 2. Waste Management Unit Information

Unit Name	Unit Type/Status	Liner System
Leachate Ponds (2)	**Class II Surface Impoundments (existing)**	**LP1- clay double liner with synthetic retrofit; includes an underdrain LP2- all synthetics; includes an underdrain**
Landfill 1 (upper)	**Class III MSW (Municipal Solid Waste) (Existing Unit, built 1971)**	**Unlined**
Landfill 1 (lower)	**Class III MSW (Existing Unit, built 1988)**	**Unlined**
Landfill 2 (Phases I and II)	**Class III MSW (Existing Subtitle D Unit, built 2000)**	**Single composite liner with an underdrain; engineered alternative design**
Landfill 2 (Phase III)	**Class III MSW, lateral expansion (proposed New Unit)**	**Double composite liner with an underdrain**
Landfill 2 (Phase IV)	**Class III MSW, lateral expansion (proposed New Unit)**	**Double composite liner with an underdrain**
Rock Extraction Area, bottom, sideslopes	**Class III MSW, lateral expansion (proposed New Unit)**	**Double composite liner with an underdrain; sideslopes: composite liner**
Rock Extraction Area, vertical expansion over Landfill 1	**Class III MSW, vertical expansion (proposed)**	**Single composite liner; engineered alternative design**
Compost Area	**Class III MSW, vertical expansion over Landfill 1(proposed)**	**Single composite liner**
Phase V	**Class III MSW, vertical expansion over Landfill 1(proposed)**	**Single composite liner; engineered alternative design**

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

A. Basis and Rationale for Requirements.

The Regional Water Board developed the requirements in this Order based on information submitted as part of the July 27, 2012 Amended Joint Technical Document for permit renewal and facility expansion, monitoring data, and other available information.

This Order implements:

i. The Water Quality Control Plan for the North Coast Region (Basin Plan);
ii. The minimum prescriptive standards (and, where deemed reasonable and appropriate, standards above and beyond those minimums) and performance goals of the California Code of Regulations, title 27, sections 20005-22278 (Non-Hazardous Solid Waste), and of Resource Conservation and Recovery Act (RCRA) Subtitle D, 40 CFR Part 258 (Criteria for Municipal Solid Waste Landfills); and
iii. State Water Resources Control Board Resolution No. 93-62, Policy for Regulation of Discharges of Municipal Solid Waste, adopted June 17, 1993.

B. Background and Project Description.

The County of Sonoma (County, owner and operator of record) is currently conducting activities, including landfilling wastes, at the Central Disposal site (Facility) pursuant to Waste Discharge Requirements Order No. R1-2004-0040.

C. The County has contracted for day-to-day disposal operations with Keller Canyon Landfill Company, Inc., a subsidiary of Republic Services, Inc. The parties are currently negotiating a long-term operations lease. The parties have advised Regional Water Board staff that they will provide formal notification of any change in operator status as required by regulation.

D. SCS Engineers submitted an Amended Joint Technical Document, dated July 27, 2012, and subsequent revisions, clarifications, and additional information (in sum referred to hereinafter as the JTD), on behalf of the County and the Keller Canyon Landfill Company, Inc. For the purposes of this Order, the County is hereinafter referred to as the Discharger.

The JTD describes a proposal to construct and place refuse in new Class III waste management units, to construct and place refuse in vertical expansion units over existing waste management units, to conduct partial final closure over portions of the existing waste management units, and to continue corrective action efforts associated with control of leachate and landfill gas from the existing waste management units.

The proposed volume of refuse to be received and landfilled at the site may be as much as 2500 tons per day, and the JTD specifies an estimated project life ranging from 11 to 22 years depending on the daily volume of refuse. The JTD package includes detailed plans and specifications for the expansion units referred to as Phases III and IV.

This Order specifically permits the discharge of waste onto those two units, once constructed and certified by the project Construction Quality Assurance (CQA) officer and approved by the Executive Officer, and provides conceptual approval

for the siting and general design concepts associated with the remaining proposed units. This Order also permits the construction of the partial final closure of a portion of Landfill 1 known as the "South Face," as described further in finding 32, below. Construction of and discharge of waste to the project areas described as the Rock Extraction Area, Phase V, and the Compost Area are conditioned upon submittal of detailed project designs, plans, and specifications, and require review and approval by the Regional Water Board, and appropriate certification following construction.

This Order rescinds and replaces Order No. R1-2004-0040.

E. Landfill Description and History

1. The existing disposal facility (Landfills 1 and 2) and proposed expansion units are located in a canyon at 500 Mecham Road, Petaluma (Property), less than 4 miles southwest of the City of Cotati in an unincorporated area of Sonoma County.

   The property is located on two unnamed tributaries to Stemple Creek in Sections 4 and 9, T5N, R8W, MDB&M (latitude 38 degrees, 18 minutes north, longitude 122 degrees, 45 minutes west), as shown in Attachment "A," incorporated herein and made part of this Order.

2. The facility has historically accepted, and will continue to accept, non-hazardous and inert solid waste from commercial haulers and private citizens. The site is open to the public six days per week, and closed on major holidays. Waste deliveries to the site are received at a Tipping/ Transfer Facility where they are loaded into transfer trailers and, if to be landfilled, hauled to the active landfill area, spread in lifts, and compacted using heavy equipment. A portion of the waste currently received at the site is outhauled to alternative disposal facilities. Outhauling may continue during future periods when there is not sufficient permitted space for waste disposal onsite. In accordance with the Solid Waste Facility Permit (SWFP) issued by Sonoma County Department of Health Services, Environmental Health Division (local enforcement agency, or LEA) and the California Department of Resources, Recycling and Recovery (Cal Recycle, the maximum waste tonnage at the facility is 2500 tons per day, the permitted maximum elevation of the site is 565 feet above mean sea level.

3. The total site area landfilled and/or to be landfilled under the proposed project (waste footprint) is 164.5 acres, and including Landfills 1 (lower and upper) and 2 (Phases I and II), the proposed Phase III and IV lateral expansion units of Landfill 2, and the proposed new Rock Extraction Area. Attachment "B" shows areas currently landfilled and proposed for landfilling under this project.

4. The disposal site as delineated in Attachment "C" meets the criteria contained in California Code of Regulations, title 27, section 20200-20220 as a Class III landfill for non-hazardous solid wastes.

5. Existing onsite support facilities include offices, a scalehouse, recycling facilities, landfill gas collection, landfill gas flaring and landfill gas to energy power plant facilities, compressed natural gas pilot-scale plant, wood and greenwaste diversion processing areas, the Tipping/Transfer Facility, composting operations (operated by the firm Sonoma Compost), material recovery and storage areas, two Class II surface impoundments for leachate storage, headworks for a leachate pipeline connecting the facility to the City of Santa Rosa's Laguna Wastewater Treatment facility, various sedimentation ponds, and a material borrow area referred to as the West Canyon.

6. Landfill 1 consists of an upper and a lower unit. The upper unit is within 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 comprises the "pre-1993 Subtitle D footprint," and is classified as an unlined "Existing Unit" by current standards (See 40 CFR 258.1, subdivision (d)(4) and 258.2 [defining "Existing MSWLF Unit"], SWRCB Resolution 93-62 [federal municipal solid waste regulations became effective 1993], and California Code of Regulations, title 27, section 20164 ["Existing Footprint," means the area of land covered by waste as of the date of federal regulations]).

   The lower canyon unit's capacity has been nearly filled; as shown/ discussed in the JTD, the Discharger is presently placing waste in this area and under the proposed project have also provided plans to construct final cap in a portion of this area (see Attachment "B").

   The upper canyon area has additional available capacity provided compost operations are removed or reconfigured. The JTD designates this latter area as the Compost Area, possibly slated for grading, liner construction, and refuse placement at some point during the life of the proposed project, although the Discharger has also indicated that composting may continue in this area through the life of the project and expand onto the lower canyon unit, as well.

   Landfill 1 is currently undergoing corrective action to control releases of leachate and landfill gas to receiving waters.

   Corrective action involves a leachate and landfill gas extraction program, intended to reduce liquid levels and to create and maintain an inward hydraulic gradient.

7. Landfill 2, the East Canyon expansion landfill, approved under Order No. R1-2000-62, was to consist of construction of a new Landfill 2 to be constructed in four phases to the east of and adjacent to Landfill 1, and to be completed by a fifth, final phase involving placement of waste over both Landfills 1 and 2. Waste management units were constructed with two engineered alternative designs (EADs), as defined in California Code of Regulations, title 27, section 20080(b)[1], specifically: 1) these units were to be constructed with less than five feet of separation between waste and high ground water (an underdrain system was used to meet the goal of this requirement); and 2) bottom liners were designed to substitute a geosynthetic clay layer (GCL) for 1 foot of low permeability clay and sideslope liners were designed to substitute a GCL layer for 2 feet of low permeability clay.

   Landfill 2 presently consists of the first two phases only, both constructed, and partially filled to interim grades, and covered by one foot of intermediate cover soil, graded for positive drainage. In 2003, the Discharger reported detections of pollutants in the ground water flowing through the landfill underdrain system attributable to landfill gas and landfill leachate. The Discharger identified a design failure in the construction of the landfill anchor trench as one possible source for landfill gas migration into ground water, and indicated that leachate may have entered ground water during repair work on a landfill gas condensate line. The Discharger also reported a number of breaches in the liner during operation and construction. The Discharger undertook corrective action efforts; subsequent testing indicates that the corrective actions undertaken have mitigated and reduced water quality impacts.

8. In June 2004, the Regional Water Board issued Order No. R1-2004-0040, directing cleanup and corrective action efforts with a goal of addressing releases from Landfill 2, controlling leachate formation and migration from Landfill 1 to reduce liquid levels in the fill and achieve hydraulic control, and requiring that the County provide a new JTD for any further proposed waste management unit construction/expansion at the site.

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[1] "**Engineered Alternatives Allowed—**Unless otherwise specified, alternatives to construction or prescriptive standards contained in the SWRCB-promulgated regulations of this subdivision may be considered. Alternatives shall only be approved where the discharger demonstrates that:
(1) the construction or prescriptive standard is not feasible as provided in ¶(c); and
(2) there is a specific engineered alternative that:
(A) is consistent with the performance goal addressed by the particular construction or prescriptive standard; and (B) affords equivalent protection against water quality impairment."

Subsequent remedial actions undertaken at Landfill 1 and Landfill 2 have mitigated and reduced water quality impacts associated with those Landfills.

9. Pursuant to the JTD, the currently proposed landfill expansion project will consist of construction of lateral expansion areas designated as Phases III and IV of Landfill 2, located between the existing Landfills 1 and 2, construction of a new waste management unit subject to 40 CFR Subtitle D (with a vertical expansion component) designated as the Rock Extraction Area (REA), and construction of vertical expansion areas designated as the Compost Area and Phase V. Siting and design details for these new units are described later in this Order.

   The Discharger indicates that continued operation of the leachate management systems, in particular the leachate extraction system, is critical to long term environmental management at the site. Installation of new and replacement of existing leachate and landfill gas extraction wells will be required, and may be constructed through the liner system overlying existing landfilled waste in the Landfill 1 footprint.

   The JTD indicates that leachate extraction points, gas wells, and monitoring wells will be taken offline, some temporarily, some permanently, as the proposed project progresses. The Discharger indicates that it does not propose to reduce overall leachate or landfill gas control capabilities, and that points surrounding those to be taken offline have sufficient capacity to compensate for the offline components. The Discharger indicates that well disconnections would be as part of normal operations, to avoid conflicts with day-to-day filling or as required during capital improvement projects such as liner or partial final cover construction. Finding 22 describes corrective action underway and expectations regarding continued corrective action as this project proceeds.

F. Landfill Setting

10. The area surrounding the property is primarily a rural grazing area on low rolling hills and valleys. Both the existing and the proposed landfill units occupy south-trending valleys that are drained by unnamed tributaries to Stemple Creek.

11. Surrounding land uses include rural residential and agricultural operations, including dairy and cattle ranches. The closest subdivision, "Happy Acres," is located about 0.5 miles northeast of the property and has about 90 residences.

12. 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, as well as contiguous residences to the north, east, and west of the property that rely solely on areal ground water supplies for both domestic and agricultural uses.

    In addition, numerous domestic and irrigation wells are located to the south of the property, along Mecham Road. The Happy Acres Mutual Benefit Water System (HAMBWS) well, located northeast of the site near Stony Point Road, serves as a sole source water supply for the residents of the Happy Acres subdivision.

G. Wastes and Their Classification

13. The Discharger proposes to continue to accept municipal solid wastes, commercial and industrial wastes, and special wastes, all classified as "nonhazardous" of "inert" under California Code of Regulations, title 27, sections 20220 and 20230 respectively. The Discharger does not propose to accept wastes defined as "hazardous waste" (Cal. Code Regs., tit. 27, §20164) or "designated waste" (Wat. Code, §13173), and these WDRs contain a prohibition against the disposal of such wastes.

14. The facility accepts nonhazardous grit and screening wastes (special wastes) from local wastewater treatment plants. Liquid waste generated onsite, such as landfill leachate, is transported via leachate pipeline to the Santa Rosa Laguna Subregional Sewage Treatment Plant (POTW) for treatment and disposal. Liquid waste may also be impounded in the onsite Class II surface impoundments and/or pumped and trucked to permitted offsite disposal location(s). Under this Order, liquid waste streams generated by non-landfilling activities occurring on the property, including from the composting operation, must be captured, contained, and disposed of in a manner that prevents their discharge to either surface or ground waters.

15. The facility accepts other wastes requiring special handling, including but not limited to 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 and other various special wastes or wastes suspected of being a hazard.

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

H. Landfill Siting

Pursuant to 40 CFR Subtitle D, municipal solid waste landfills which accept solid waste after October 9, 1993 are subject to siting criteria and restrictions related to airport safety (40 CFR §258.10; see also Cal. Code Regs., tit. 27, §20270), floodplains (40 CFR §258.11; see also Cal. Code Regs., tit. 27, §20260, subd.(c) and SWRCB Resolution 93-62), wetlands (40 CFR §258.12; see also Cal. Code Regs., tit. 27, §20260, subd.(c) and Resolution 93-62), fault areas (40 CFR §258.13; see also Cal. Code Regs., tit. 27, § 20260, subd. (d) & 20370), seismic impact zones (40 CFR §258.14), and unstable areas (40 CFR §258.15; see also Cal. Code Regs., tit. 27, §20260, subd.(e)).

17. Airports

The property is located approximately 8.4 miles (more than 10,000 feet) from the nearest airport, the Petaluma Airport, therefore, the facility is not subject to specific demonstration and notification requirements related to aircraft safety pursuant to California Code of Regulations, title 27, section 20270 and 40 CFR section 258.10.

18. Geology, Faults, and Areas of Rapid Geologic Change

a. 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:

i. 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 proposed to be removed from the landfill areas as part of the grading and cover operations.

ii. The Late Miocene to Pliocene-Wilson Grove Formation unconformably overlies the Franciscan Formation northeast and south of the landfill property. A remnant outcrop of Wilson Grove formation was mapped within the East Canyon Phase I and II area, but has since largely been removed during grading for those Phases. 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.
Landfill 2, Phases III and IV will require additional grading, blasting, and earthmoving in the area of mapped Wilson Grove deposits.

Geologic mapping will be conducted concurrent with earthmoving activities to determine the geologic formation remaining in the new footprint areas.

iii. 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 crops out southwest of the Dunham fault along the southwest boundary of the property.

iv. 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 facility. The formation is comprised of both massive (thick) and interbedded greywacke sandstones, with shales and metavolcanic rocks. The formation exhibits deformation ranging from fracturing and consolidation of layered units to complete mélange or mixed rock types.

The Wilson Grove Formation and Sonoma Volcanics Group overlie the Franciscan Formation and occur discontinuously throughout the region.

v. The Landfill 2 area is underlain by the Franciscan Complex. The unit is described as consisting of shales, sandstones, siltstones, and greenstones. The unit is fractured with the fracture strike varying from northeast to northwest. The fractures are described as being open at the surface and filled (mineralized) at depth. Alluvium/colluvium is present south and east of Landfill 2.

The JTD does not report any alluvium/colluvium in the Phases III and IV footprint. The proposed geologic and lithologic mapping to be conducted following excavation, blasting, and grading will help to identify any areas of colluvial deposits for overexcavation prior to liner construction.

vi. The REA is underlain by the Franciscan Complex. The bedrock consists primarily of variable cemented and silicified sandstones and shales. The shale is described as being clayey and is variably sheared. The unit is described as being massively bedded and highly fractured. Fractures are open at the surface, with some of the fractures likely due to the blasting that occurred during past material extraction activities in this area.

vii. The Facility is located near numerous regional active fault zones, including the Rodgers Creek-Healdsburg and San Andreas Fault zones. Global Seismic Hazard Evaluations have been performed using a maximum probable earthquake (MPE) occurring on the Rodgers Creek-Healdsburg Fault approximately 9.2 km from the site[2] with a moment[3] magnitude of 6.75 and a peak horizontal ground acceleration of 0.32 g at the landfill. When the factor of safety falls below 1.5, displacement analyses are performed using the Bray and Rathje method.

viii. Local faults include the Tolay, Dunham, Bloomfield, Americano, and an "unnamed fault." The Tolay fault is within 1 mile northwest of the property, and is considered potentially active. The Dunham fault and the "unnamed fault" lie within the property boundary.

GeoLogic Associates assessed the Dunham fault in 2002-03 (March 2003 Report), and reported that "[b]ased on the radiocarbon dates obtained during the study and 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. Rick Mitchell, RMC Geoscience, reports that "recent observations (RMC, 2003) supported the earlier conclusions."

Two additional features (referred to as the "Unnamed Fault Trace North of the REA" and the "Geophysical Anomaly Northwest of the REA" (January 21, 2011 Technical Memorandum from RMC Geoscience to SCS Engineers)) were reportedly identified by EBA Wastetechnologies (EBA 1997, 1998 Reports). RMC Geosciences reports that during its subsequent site investigations, RMC was unable to locate either of these features, concluding that the presence of an active fault in this area is unlikely.

[2] JTD, Appendix A, Page 8
[3] From Geosyntec, 2004

ix. According to the JTD, there are no known Holocene faults within 200 feet of the Landfill 2 expansion refuse footprint, nor within 200 feet of the REA expansions refuse footprint.

x. The JTD indicates that potential geologic conditions that could lead to rapid geologic change should not affect the development of new waste cells in Landfill 2 and the REA because 1) the new cells will not be sited over loose, saturated sands which might experience liquefaction, 2) subsidence due to rapid groundwater extraction is unlikely as there are no known significant groundwater extractions in the vicinity of the landfill, 3) onsite mapping and observations have not indicated the presence of pre-existing landslides, significant shear zones, zones of weakness, or other structural factors that could significantly affect stability of the expansion areas), and 4) the design team does not expect faulting to affect proposed new cell areas due to the distance from any known active and/or Holocene faults.

19. Groundwater Hydrology and Depth to Groundwater

a. 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.

b. 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.

c. 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. This Order requires submittal of a workplan to site and install monitoring wells around the REA footprint in order to collect pre-project ground water information related both to water levels and water quality; information gained from these wells may further refine contours in this area and illustrate localized effects on groundwater gradient associated with Landfill 1 corrective action efforts.

In addition, information gained from installing these wells may indicate the presence of a vadose zone, in which case, the Discharger will be required to prepare and submit a subsequent workplan to develop a vadose zone monitoring program for this area.

d. 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 property 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 property, underlying the Happy Acres subdivision. Domestic water supply wells within the subdivision draw water from both the upper Wilson Grove sandstone and the underlying Franciscan bedrock formation.

e. Beneficial uses of areal groundwaters include:

i. Domestic water supply
ii. Agricultural water supply
iii. Industrial service supply

f. New cell construction will involve excavation below the existing water table. 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.

As noted above, under Order No. R1-2000-62, the Regional Water Board approved an EAD to the 5 foot separation requirement for Landfill 2. However, monitoring and reporting information provided following construction and commencement of operation of Phases I and II indicated that this EAD was not adequately protective of water quality. The proposed project includes a groundwater intercept design that involves building in sufficient soil thickness beneath and within the liner system to ensure that the 5 foot separation requirement is met beneath the new Landfill 2 phases and the REA.

20. Surface Waters, Wetlands, Floodplains

a. The property is located 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.

b. The Water Quality Control Plan for the North Coast Region (Basin Plan) generally prohibits new point source discharges of waste to coastal streams and natural drainageways that flow directly to the ocean and requires that existing discharges to these waters be

eliminated at the earliest practicable date. Specific types of surface water discharges, such as discharges of stormwater, may be permitted under general NPDES permits. These WDRs do not cover such discharges; the Discharger is responsible for securing and/or enrolling for coverage under, and complying with the requirements of applicable general NPDES permits for any proposed discharges of water from the facility into surface waters.

c. Subtitle D (40 CFR §258.12) requires that any new construction or lateral expansion of municipal solid waste landfills not be located in wetlands unless certain demonstrations can be made. The JTD indicates that the proposed new waste management units will not be located in wetlands. It should be noted however that construction of Landfill 2 required removal of an existing Creek and permanent destruction of 0.98 acres of seasonal wetlands from the area upon which Phases III and IV will now be located.

Order No. R1-2000-62 included Clean Water Act section 401 Water Quality Certification for these impacts, and directed the County to monitor and report on 2.6 acres of mitigation wetlands constructed as part of the project.

The County has complied with these requirements, and, therefore is not, obligated to provide further demonstration to fulfill the requirements of 40 CFR §258.12 except that the project must be designed in a manner that ensures that any remaining wetland soils or wetland hydrology in this area do not impair the integrity of the new landfill units nor their ability to protect natural ecological resources.

d. The JTD provides a map showing the 100 year floodplain and the disposal facility location, and indicates that the Central Disposal Site is not located within a 100-year floodplain zone.

Therefore, the facility is not subject to demonstration requirements regarding floodplain siting pursuant to California Code of Regulations, title 27, and federal regulations.

21. Stormwater

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

b. Stormwater run-on and runoff from the facility 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

suspended sediments, slowing the velocity of the water prior to its discharge to the creek, and limited evaporation. The conveyances route stormwater around the facility and off the waste units through one or more sedimentation ponds prior to their discharge to two unnamed tributaries that flow to Stemple Creek. Runoff from industrial activities on the site, including the compost area, is also handled through this system.

c. 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).

d. The 100-year, 24-hour precipitation event for the property is 5.77 inches, according to the National Oceanic and Atmospheric Administration (NOAA) Atlas 2 website, which provides storm data given the latitude and longitude of the property.

e. The JTD indicates that HydroCAD analyses for a 100-yr, 24-hour storm event demonstrated that the onsite surface water drainage system and detention basins are adequately sized to accommodate peak anticipated flows and volumes. This Order requires that the Discharger report annually on the adequacy of onsite drainage collection, conveyance, treatment, and storage features.

f. The Discharger must ensure and certify that existing operations and proposed new construction and activities are at all times properly covered under and in compliance with relevant NPDES General Storm Water permits.

CEQA mitigations for the project include a requirement for preparing and maintaining a Stormwater Pollution Prevention Plan(s) (SWPPPs) designed to control and address erosion and sediment discharges associated with landfill construction activities as well as grading and excavation in the West Canyon area, designated as a source for earthen material for landfill construction and operations and partial final and final closure under the proposed project.

g. Corrective Action

22. Landfill 1

Dating from a detected and confirmed release of waste constituents from Landfill 1 in 1995, the County has conducted monitoring, investigative, and remediation activities as part of evaluation monitoring and corrective action programs for Landfill 1. Order R1-2004-0040 summarized those efforts from 1995 through 2004, and included a Time Schedule directing the County to increase its efforts to abate the build-up of leachate in Landfill 1 and to mitigate releases of leachate and landfill gas migration towards the East Canyon.

In compliance with the Time Schedule as directed under Order R1-2004-0040, the County and its consultants studied and assessed the presence and mechanisms for leachate generation and migration potential from Landfill 1.

In 2005, the County's consultant prepared a site conceptual model demonstrating that through a system including leachate extraction wells, gravity drains, collectors, sumps, and pumps, an inward hydraulic gradient can be maintained within Landfill 1, resulting in a net removal of approximately 2 million gallons of leachate per year from the Landfill.

The JTD indicates that continued operation of the leachate management system, in particular the leachate extraction system, is critical to long-term environmental management. This Order requires that the Discharger ensure and periodically certify that the leachate control system for Landfill 1, as maintained, modified, and operated under the proposed project, is continuing to provide an inward hydraulic gradient, that the net volume of liquid extracted from the Landfill is more than the volume entering the Landfill, and that there is a net reduction in leachate head within the landfilled waste.

In the interest of continuing efforts toward achieving the corrective action goals underway, as well as to confirm that the placement of further waste on Landfill 1 will not impede, interfere with, or prevent timely remediation of necessary corrective actions associated with that Landfill, this Order directs the Discharger to evaluate the effectiveness of current corrective action efforts, identify and review available additional measures that could be feasibly implemented to reduce liquid influx into the Landfill and to reduce the leachate head on the landfilled waste, and submit a plan and schedule to implement those measures.

Further, as part of that review, this Order directs the Discharger to conduct a point by point review of gas wells, piezometers, ground water monitoring wells, and leachate extraction wells to assess their function

and value with respect to facility monitoring and corrective action, to assess the implications of removing those features from service, to establish guidelines or time limits for temporary removal, to identify or site backup points if needed, and to confirm that short and long term monitoring and corrective action goals and objectives will continue to be met during and through construction, operation, and closure periods, and including any current or proposed activities on Landfill 1. Finally, the Monitoring and Reporting Program (MRP) R1-2013-0003 requires that the Discharger periodically report on and confirm the performance and effectiveness of the corrective action effort as it undergoes modification through the construction and operation of the proposed project.

23. Landfill 2

    a. In 2003, groundwater samples from the groundwater interception and diversion underdrain system began showing concentrations of waste constituents indicating a release or releases from Landfill 2, Phases I and II. Subsequent investigation attributed possible sources of these releases to a design failure in the liner anchor trench construction and leachate migration to groundwater during repair work to a landfill gas condensate line. The County also reported breaches in the Landfill 2 liner occurring both during liner construction as well as during active landfill operations. The proposed design and Construction Quality Assurance programs in the JTD include provisions to mitigate against future such problems.

       In 2004, the County submitted a Report of Waste Discharge that included proposed corrective actions for Landfill 2. Order No. R1-2004-0040 included a Time Schedule directing liner repairs and retrofit and corrective action for Landfill 2.

    b. In accordance with the Time Schedule as directed under R1-2004-0040, the County and its consultants have conducted corrective action efforts on Landfill 2. The JTD reports that recent groundwater monitoring reports show low or decreasing levels of constituents of concern and conclude that corrective actions undertaken by the County have been effective in mitigating and reducing water quality impacts.

       Monitoring required under this Order will include continued sampling from monitoring points used to date to measure and document contaminant concentrations associated with releases from Landfill 2.

24. The minimum standards prescribed under California Code of Regulations, title 27 and Subtitle D are intended to help prevent degradation of waters of the State. California Code of Regulations, title 27 also allows Regional Boards to impose more stringent standards to accommodate regional and site specific conditions (Cal. Code Regs., tit. 27, §20080, subd. (a)(1)). Accordingly, the Regional Water Board has deemed it reasonable and appropriate for the protection of water quality to enforce the requirement for a minimum 5 feet of separation between the bottom of waste (recognized by the North Coast Regional Water Board as being the bottom of the leachate collection and removal system/leakage detection system below the upper liner).

    Further, given the various construction and operational factors leading to the need for corrective action associated with Landfill 2, the Regional Water Board also deems it reasonable and appropriate to require a liner design that provides built-in redundancy and that is physically substantial enough to withstand anomalies in the normal range of field stresses that designers assume a Class III landfill liner is likely to encounter; such a liner design exceeds the regulatory minimum prescriptive standards.

I. Waste Management Unit Design

25. The federal liner design criteria for new MSW landfills, and lateral expansions of existing landfills, are as follows:

    a. leachate collection and removal system (LCRS)
    b. a single synthetic liner at least 30 mil thick (at least 60 mil if HDPE)
    c. two feet of compacted soil with a hydraulic conductivity of 1x10-7 cm/sec (0.1 feet/year) or less. (40 CFR §258.40).

    The LCRS must convey all leachate which reaches the liner to a sump, without relying on unlined or clay-lined conveyances.

26. California Code of Regulations, title 27, section 20260, subdivision (b)(1) provides that MSW landfills shall be sited where soil characteristics, distance from waste to ground water, and other factors will ensure no impairment of beneficial uses of surface water or of ground water beneath or adjacent to the landfill.

    If site characteristics alone do not ensure protection of the quality of ground water or surface water, Class III landfills shall be required to have a single clay liner with hydraulic conductivity of 1x10-6 cm/sec or less.

Resolution No. 93-62 finds that single clay liners will only delay, rather than preclude, the onset of leachate leakage and the use of composite liners represents the most effective approach for containment. (SWRCB Resolution 93-63 at 2 (finding 14.). Waste discharge requirements for MSW landfills, including lateral expansions shall implement California Code of Regulations, title 27 and federal regulations.

27. Resolution No. 93-62 also finds that where sideslopes are demonstrated to be too steep to allow construction of a composite liner meeting the minimum prescriptive standard design, an alternative composite liner or 60-mil synthetic liner may be substituted, provided it can be demonstrated that the liner design will meet the Subtitle D performance requirement, namely, that the design ensures that the concentration values of pollutants listed in Table 1 of 40 CFR section 258.40 will not be exceeded in the uppermost aquifer at the relevant point of compliance (SWRCB Resolution No. 93-62 at 4 [Section III.A.3]).

28. While the Landfill 1 footprint is unlined by both Subtitle D and Resolution 93-62 standards, it qualifies as an existing landfill and therefore is exempt from current state and federal containment criteria. However, since there has been a release from the WMU, it must comply with the Title 27 requirements for monitoring and corrective action. (California Code of Regulations, title 27, §20080).

    Furthermore, given the releases from the WMU, it is reasonable and appropriate that new waste placed on top of this landfill be contained separately from the existing wastes.

29. Orders R1-2000-62 and R1-2004-0040 describe design elements associated with the existing Landfills 1 and 2 (Phases 1 and 2). As described in the JTD, the Discharger proposes the following liner designs[4] for the new lateral expansion and vertical expansion waste management units.

    a. Base Liner Design, Landfill 2, Phases III, IV, and Rock Extraction Area

        From top to bottom:

        i. Minimum 2 feet of soil operations layer
        ii. 8-oz per square yard geotextile
        iii. 1 foot thick Leachate Collection and Removal System (LCRS) composed of granular material
        iv. 16-oz per square yard geotextile cushion
        v. 60-mil high-density polyethylene (HDPE)
        vi. 2 feet of 1x10-7 cm/sec compacted clay

[4] Refer to Attachment "E" for liner and cap cross section illustrations.

vii. 16-oz per square yard geotextile cushion
viii. 1 foot of sand (leak detection layer)
ix. 60-mil HDPE
x. 1 foot of 1x10-7 cm/sec compacted clay
xi. 4 feet of compacted foundation soil
xii. 8-oz geotextile separator
xiii. 1 foot thick layer of granular material (ground water underdrain)
xiv. 8-oz geotextile separator
xv. Prepared subgrade

b. Sideslope Liner Design, Phases III, IV, and Rock Extraction Area (where there is no existing waste beneath the liner)

From top to bottom:
i. Minimum 2 feet of soil operations layer
ii. Geocomposite (LCRS)
iii. 60-mil HDPE
iv. GCL
v. 60-mil HDPE
vi. GCL
vii. 60-mil HDPE
viii. 2-foot thick soil cushion layer (REA only)
ix. Geocomposite (underdrain)
x. Prepared subgrade

c. Liner Design In Locations where Waste Will be Placed Over Existing Unlined Waste Footprint in Landfill 1 (Referred to as Preferential Pathway in JTD documents)

From top to bottom:
i. Minimum 2 feet of soil operations layer
ii. Geocomposite drain net
iii. 60-mil HDPE
iv. GCL
v. Intermediate soil cover, depth variable

30. The sideslope liner design comprises a multi-layer composite liner that does not include a compacted clay layer, as required by Subtitle D and Resolution 93-62. However, as noted in finding 27, above, such a design change may be allowed where it can be shown that the sideslopes are too steep to allow for construction of a compacted clay layer meeting proper specifications and where the Subtitle D performance criteria can be met.

The JTD includes information indicating that the sideslopes are too steep to construct a compacted clay layer and the HELP modeling indicates that there will be no leakage through the proposed sideslope liner design. Assuming that the sideslope liner system is maintained free of breaches during construction and operations it appears that the relevant Subtitle D criteria will be met.

J. Partial Final Closure of Landfill 1

31. Concurrent with construction of expansion units, the Discharger proposes to implement partial final closure over 14.4 plan area acres of Landfill 1, in an area designated as the "South Face." Following completion of the cap construction, this area will be subject to post-closure care, but is not proposed for any type of post-closure operational uses.

32. South face final closure cap design consists of, from top to bottom:

- Minimum 18 inches vegetative soil layer
- Geocomposite drainage layer
- 60-mil HDPE liner
- 2 feet foundation layer, compacted to 90% minimum

The Partial Final Closure and Post Closure Maintenance Plan (PFCP) reports that intermediate cover thickness over Landfill 1 ranges from two to eighteen feet across the landfill. The Discharger proposes to rework the top 6 to 12 inches of the existing intermediate cover, stripping and then replacing and compacting these soils, and placing subsequent 6 to 12 inch lifts of soil from the existing onsite soil stockpile to create the foundation layer. The vegetative layer will also be obtained from the onsite soil stockpile.

The foundation layer will be compacted to the maximum density obtainable at optimum moisture content, which is reported to typically range from 90 to 92 percent of the maximum dry density.

33. The low-hydraulic conductivity layer of a 60-mil HDPE geomembrane meets the minimum barrier layer requirements of Section 21090(a)(2) of Title 27, CCR. Although considered "unlined", the Landfill in this area is reportedly underlain by a foot of clay with a hydraulic conductivity of 1x10-6 cm/sec.

Infiltration analysis for the cap in this area, using the HELP analysis, indicates that the estimated infiltration rate for the proposed final cover system in this area will be approximately 2.4 gallons per acre-year, less

than the infiltration rate that would be expected through underlying clay. The proposed closure grade for the cap is shown in Attachment "D."

34. All stormwater conveyance features for the area have reportedly been designed to maintain a positive drainage slope after settlement is complete. The cap surface has been designed to have a minimum 15 foot wide bench every 50 vertical feet.

35. Two survey monument control points will be placed on the closed area (outside of the cap) to provide both horizontal and vertical control points to allow monitoring of settlement of the final fill contours during the post-closure maintenance period.

36. Following partial final closure activities, a Construction Quality Assurance (CQA) report prepared and certified by the CQA Officer must be submitted under penalty of perjury to the Regional Water Board and other appropriate agencies. The report, at a minimum, will include the certificate of closure; daily summary reports; material acceptance reports; final CQA documentation; laboratory testing results; field testing results; and an as-built topographic map of the capped area, prepared at a scale of one-inch to 100 feet, with a contour interval of two feet.

37. This Order requires submittal of a final PFCP to include responses to RWQCB review comments on the March 30, 2011 submittal.

K. Construction

38. The Discharger indicates that the present construction and fill sequencing plan is to begin with Phases III and IV, leaving the option open from that point to continue on with Phase V or to construct and fill the REA or the Compost Area next.

    The JTD includes construction design calculations, drawings, CQA plans, notes and specifications for Phase III and IV construction only.

    Within each phase, construction will begin with surface preparation, construction of drainage layers, base liner, access roads and infrastructure, MSW placement, and incremental extensions first of an operations layer on the placed liner and then incremental installation of the preferential pathway liner over the adjacent Landfill 1, placement of daily, then eventually intermediate cover, and concurrent construction of interim and permanent surface water-management system features (including drainage ditches, piping, and sedimentation ponds).

39. Construction will involve significant soil excavation from the areas to be lined and stockpiling, and will also require additional earthen material sourced from offsite locations as well as the West Canyon.

    As noted in finding 21, the Discharger (and/or its contractors) will be responsible for developing and implementing a SWPPP to ensure that earthen materials disturbed, stored, placed, or otherwise managed in a manner that results or could result in the discharge of waste during the course of each construction project are properly located, contained, and controlled to prevent discharges to receiving waters located within and adjacent to the property.

40. California Code of Regulations, title 27, section 20200, et seq. specifies waste management unit construction standards, including a requirement to construct liner and cap components in accordance with an approved Construction Quality Assurance Plan, including a number of specific testing and reporting requirements. The JTD includes a preliminary CQA Plan for construction.

41. This Order requires submittal of a final CQA Plan to address RWQCB review comments on the preliminary Plan.

L. Operations

42. California Code of Regulations, title 27, subchapter 4, article 1 (§20510-20660) specifies landfill operations requirements, for the most part applicable to operational aspects subject to oversight by CalRecycle or by the Sonoma County Division of Environmental Health. The JTD includes an operations plan, which indicates, in part, that onsite personnel will be trained to ensure that they are well-versed in environmental controls.

    Operational areas on the property are subject to coverage under the NPDES General Industrial Stormwater Permit, which requires preparation and implementation of a General Industrial SWPPP and a Spill Response Plan intended to protect surface waters from releases associated with project operations.

    The CEQA Addendum (discussed in section O, below), indicates that operations will be conducted under an Operational Quality Assurance (OQA) plan that includes provisions intended to protect the liner at vulnerable times (initial waste placement over the operations layer) and locations (e.g., anchor trench).

    This Order directs the Discharger to develop and/or provide information about proposed operator training and oversight to increase operator awareness about the need for liner protection, to confirm that

operations on the liner are being conducted in a protective manner, and to identify any damage and/or potentially damaging activity that should be corrected.

M. Monitoring

43. Groundwater, surface water, and unsaturated zone monitoring must comply with the requirements of California Code of Regulations, title 27, sections 20380-20435. The Discharger is presently monitoring existing units at the facility under Monitoring and Reporting Program No. R1-2004-0062, and the JTD includes proposed changes to the monitoring program to reflect current facility and site conditions, to accommodate construction of the new waste management units, and to provide additional monitoring points for those new waste management units.

    Attachment "F" shows surface, groundwater, and landfill gas monitoring locations for both the existing and the proposed waste management units. The facility monitoring program does not currently include a vadose zone monitoring component, however should a vadose zone be identified in the course of continued facility development or investigation, it may be appropriate and necessary to modify the facility monitoring program and MRP to include a vadose zone monitoring element.

    This Order includes provisions related to monitoring in accordance with Title 27, and the accompanying MRP describes the elements of the monitoring system and monitoring programs for the facility.

N. Closure and Financial Assurances

44. With the exception of the South Face of Landfill 1, slated for partial final closure concurrent with new waste management unit construction, the remainder of the fill mass comprised of Landfill 1, the REA, and Landfill 2, Phases III, IV, and V is to be closed collectively when the units reach their final design grades. Accordingly, the JTD includes Preliminary Closure and Post-Closure Maintenance Plans for this portion of the landfill. Noting that the liner varies under different portions of the fill mass, the Discharger proposes two different cap configurations depending upon which portion of the fill mass the cap overlies.

45. California Code of Regulations, title 27, section 21090 requires that landfill caps include an impermeable layer comprised of a minimum of 1 foot of compacted soil with a permeability equal to or less than 1x10-6 cm/sec, but no more permeable than the liner beneath that portion of the cap. Alternative designs meeting this standard may be proposed.

46. The Discharger proposes using 60-mil HDPE as the low permeability barrier over Landfill 1 and the REA and using a composite liner comprised of 60-mil HDPE and GCL over Landfill 2. Both designs would include a 2 foot thick soil foundation layer.
Final closure design is subject to further review and Board consideration at a future date prior to and closer to execution.

47. Per the JTD, perimeter slopes will be 3:1 or less, and drainage channels and the top deck will have minimum 3% slopes. The JTD also indicates that 15 foot wide benches will be installed at spacings of 50 feet vertical height or less.

48. The JTD includes slope stability analyses for the final closed landfill configuration demonstrating acceptable factors of safety and displacement under seismic loadings and saturated conditions.

49. 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 current financial assurance estimates for the proposed partial final closure of the South Face and final closure for the entire facility, as estimated in 2011 dollars are:

    a. 14.4 Acre South Face
        - Partial Final Closure Construction - $2,759,800 (Enterprise Fund)
        - Partial Final Closure Maintenance Cost - $1,137,000 (Pledge of Revenue).

        Both financial assurance mechanisms for this phase of closure are reportedly funded and available.

    b. 150.1 Acres, Remaining Facility
        - Preliminary Closure Construction Estimate - $28,243,200 (Enterprise Fund)
        - Preliminary Post Closure Maintenance Costs, 30-Year - $24,147,000 (Pledge of Revenue)

    In the event that the Discharger and Keller Canyon Landfill Company negotiate a long-term operations lease, it may be necessary for the Discharger to fund financial assurance through alternative

mechanism(s), such as a Letter of Credit or Surety Bond, as appropriate and acceptable to the Regional Water Board and CalRecycle.

50. The Discharger is required to update approved cost estimates annually to account for inflation and to recalculate the closure costs every five years using current costs (typically concurrent with the LEA/CalRecycle 5-year Solid Waste Facilities Permit review). In accordance with California Code of Regulations, title 27, §21820, subdivision (a), cost estimates shall be based on the cost of hiring a third party to close the landfill in accordance with the submitted closure plan.

    For the first annual revision following the completion of the partial final closure of the South Face area, the cost estimates for future areas proposed for preliminary or final closure shall, where applicable, reflect actual unit costs as incurred in the construction of that closure project.

51. The Discharger has provided $825,000 to cover the costs of corrective action for a known or reasonably foreseeable release (KRFR) at the facility. The JTD includes an updated potential release scenario and costs, accounting for substantial capital improvements that have been previously constructed, primarily the leachate pipeline connection to the sanitary sewer, thus substantially reducing leachate trucking costs.

    The cost estimate includes future additions to the leachate extraction well system and potential future corrective action monitoring wells. Board staff have approved the plan and amount funded. The financial assurance mechanism is planned as a Pledge of Revenue.

52. The Discharger must review the KRFR scenario and cost estimate annually, update as appropriate, and so document in the annual monitoring report.

O. CEQA and Other Considerations

53. In 1998, Sonoma County Board of Supervisors (County), the lead agency under the California Environmental Quality Act (CEQA), certified two separate Environmental Impact Reports (EIRs) (August 18, 1998 and December 15, 1998).

    The EIRs identified significant environmental impacts associated with the landfill expansion project and the reasonably foreseeable REA project, and included a site mitigation plan for each significant impact. As responsible agency, the Regional Water Board considered the EIRs when it adopted Order No. R1-2000-62.

54. Pursuant to California Code of Regulations, title 14, section 15164, the County developed an Addendum to the 1998 EIRs dated May 25, 2012, and on June 13, 2012, the County posted its Notice of Determination for that Addendum.

    The Addendum includes an analysis of the factors that would trigger the need to prepare a subsequent EIR under California Code of Regulations, title 14, section 15162, subdivision (a). The County concluded that although there are some minor changes in the project and project circumstances, these changes will not result in any new significant effects, or substantially more severe significant effects than previously examined. The Addendum reports no anticipated new or worsened water quality impacts. The Regional Water Board concurs with this determination, and has considered the Addendum and previous EIRs in making its decision on this Order.

    A Notice of Determination will be filed within five (5) days after adoption of this Order.

55. The Regional Water Board has considered the collective CEQA documentation and mitigation measures for the facility and for the currently proposed project and has determined that compliance with this Order will mitigate any potential adverse water quality impacts.

P. Procedural Requirements

56. 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 facility for the discharges of waste to land stated herein.

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

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

59. State Water Board Resolution No. 68-16 ("Statement of Policy with Respect to Maintenance of High Quality Waters in California") requires that whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality must be maintained. Any change in the existing high quality is allowed by that policy only if it has been demonstrated to the Regional Water Board that any change will be consistent with maximum benefit to the people of the state, and will not unreasonably affect present and anticipated beneficial use of such

water and will not result in water quality less than that prescribed in the policies. The policy further requires that dischargers meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that pollution or nuisance will not occur and that the highest water quality consistent with maximum benefit to the people of the state will be maintained.

The antidegradation policy measures the baseline water quality as that existing in 1968 and defines high quality waters as the best quality achieved since that date. Landfill 1 began accepting waste in 1971; the County confirmed water quality impacts associated with that landfill in 1995. In the early 2000s, the County built landfill 2, with more protections, in compliance with newer state and federal standards, and started accepting waste in 2003; releases to ground water were detected and confirmed shortly thereafter. The County has been investigating and implementing corrective action measures for releases associated with both Landfills 1 and 2 as releases have been identified and has demonstrably reduced and mitigated the impacts associated with those releases. The County has been diligent in implementing and refining its corrective action efforts associated with past releases and degradation to receiving waters.

The new landfill design implements current state and federal standards intended to protect human health and the environment and to protect against water quality impairment.

The Regional Water Board has required containment measures above the minimum prescriptive standards contained in those regulations and has required that the discharger maintain a 5 foot separation to ground water in the bottom of the new waste management units, and the discharger has provided modeling information indicating that this design will result in no release and, therefore, no degradation to underlying State waters.

The discharger is implementing additional operational controls to protect new liner at locations and during periods when it may be vulnerable to damage and rupture (as had occurred during construction and operation of Landfill 2, Phases I and II). Furthermore, the Discharger is implementing detection monitoring intended to identify and correct the effects of a release as early as possible and the Discharger is implementing sentry monitoring between the landfill footprint and known sensitive receptors (residential and agricultural wells) to provide an additional level of protection for those receptors. Finally, this Order directs the Discharger to review present corrective action and monitoring efforts to confirm their comprehensive effectiveness in meeting their objectives and to identify and implement improvements to those efforts where appropriate and

feasible. Accordingly, the permitted discharge is consistent with the antidegradation provision of State Water Resources Control Board Resolution No. 68-16, and the net impact on existing water quality will be insignificant.

THEREFORE, IT IS HEREBY ORDERED that Waste Discharge Requirements Order No. 2004-0040 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 to areas other than 1) the portion of Landfill 1 designated as Areas 8 and 9 on Attachment C, and as described in the April 2011 cell sequencing plan and 2) Landfill 2, Phases III and IV, once constructed and certified, and approved by the Executive Officer, is prohibited.

   As noted in the findings, disposal of waste to any other portion of the property, including the remaining proposed waste management units described in the JTD, is conditioned upon submittal of detailed project designs, plans, and specifications, and require review and approval by the Regional Water Board, and appropriate certification following construction.

2. The discharge of "hazardous waste" and "designated waste" at this facility is prohibited. The discharge of leachate from the landfill units and LCRSs to receiving waters is prohibited.

   For the purposes of this Order, the terms "hazardous waste" and "designated waste" are as defined in title 27 of the California Code of Regulations

3. The discharge of waste including solids, liquids, 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[5] 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 analysis will be performed in accordance with the MRP.

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.

[5] Constituent of Concern means any waste constituent(s), reaction product(s), and hazardous constituent(s) that is reasonably expected to be in or derived from waste contained in a waste management unit. (Cal. Code Regs., tit.27, §20164.)

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 California Code of Regulations, title 27, §20220, subdivision (c) may be disposed of on lined areas, and

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

7. The discharge of solid waste containing free liquid or moisture in excess of the waste's moisture holding capacity to any portion of the Class III waste management units permitted under this Order 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 more than one percent (>1%) by weight friable asbestos is prohibited.

14. The discharge of landfill wastes, including VOC-impacted groundwater, to a stormwater sedimentation basin, is prohibited.

15. The discharge of wastes from activities occurring upon or within the landfill footprint, including composting activities, to stormwater sedimentation basins, surface, and/or ground water is prohibited.

This Order requires submittal of a plan and schedule to eliminate discharges of wastewater from the composting area to receiving waters. The plan and schedule must be submitted by no later than **May 15, 2013**.

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 Water Code section 13050, is prohibited.

18. The retention of more than 30 centimeters of leachate over the liner in any Subtitle D lined Waste Management Unit is prohibited. (Pursuant to 40 CFR §258.40, subdivision (a)(2).)

B. Discharge Specificiations

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 the MRP.

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 leachate sump pump. If leachate generation exceeds this value or if the depth of fluid in an LCRS exceeds the volume allowing 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 Board in writing within seven days. Notification shall include a timetable for corrective action necessary to reduce leachate production and/or for increasing leachate removal capacity.

4. Waste discharged at this facility shall be provided with approved daily and intermediate cover material. The active face shall receive an appropriate daily cover to minimize contact water runoff and leachate production. All inactive areas (as defined in California Code of Regulations, title 27, §20164) shall be capped with at least one foot of clean, earthen material or approved intermediate cover material, compacted and graded to drain from the active area.

5. All rainfall that contacts waste in the open face and then leaves the open face as runoff is contact water and shall be collected and controlled as leachate. Contact water shall not be allowed to pond on the waste surface.

General WMU Construction

6. Clay liners shall have a maximum hydraulic conductivity of 1 x 10-7 cm/sec and, a minimum relative compaction of 90% or as practical and specified in the JTD and construction documents to avoid damage to the underlying geosynthetic liner. Compacted clay layers in landfill caps shall have a maximum hydraulic conductivity of 1 x 10-6 cm/sec or be equal to the hydraulic conductivity of the bottom liner system or underlying geologic material, whichever is less permeable, and a minimum relative compaction of 90%. Hydraulic conductivities of liner materials shall be measured by laboratory tests using solutions with similar properties as the fluids that will be contained. Hydraulic conductivities of cap materials shall be measured by laboratory tests using water. Hydraulic conductivities measured 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.

7. LCRSs shall be designed, constructed, and maintained to collect and transmit twice the anticipated daily volume of leachate generated by the WMU and to prevent the buildup of hydraulic head exceeding a depth of one foot on the underlying liner at any time. The depth of fluid in any LCRS sump shall be kept at or below the level needed to ensure efficient pump operation.

8. Landfill 2, Phases III and IV, shall be constructed in accordance with the applicable provisions of Title 27 and this Order and approved by the Executive Officer prior to operation. Specifically, a final construction CQA report shall be submitted for approval by the Executive Officer after each phase of construction and prior to the discharge of waste into the constructed phase.

   The final construction CQA report shall include, but not be limited to, as-built plans for the WMU, 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.

   Each additional landfill unit phase included in the project shall be designed and constructed in accordance with the applicable provisions of Title 27 and this Order and approved by the Regional Water Board.

   At least six months prior to the beginning of construction for each new construction phase, a Final Design Report shall be submitted to the Executive Officer for review and consideration and approval by the Regional Water Board, and shall include, but not be limited to, the engineered design calculations and plans for the WMU, the contract specifications, a construction quality assurance (CQA) plan to verify that construction specifications will be met, and a revised water quality monitoring plan.

Landfill Specifications

9. All WMU containment structures installed after October 9, 1993, shall meet the requirements of Subtitle D, at a minimum, and shall be more stringent, as and where herein specified.

10. All WMU containment structures shall meet the general criteria set forth in California Code of Regulations, title 27, §20320.

11. WMU containment structures 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 having been constructed in accordance with 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 according to the specifications and plans approved by the Board.

    b. Provide quality control on the material and construction practices used to construct the waste management unit and prevent the use of inferior products and/or materials which do not meet the approved design plans and specifications.

12. Materials used to construct 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.

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

Surface Impoundment Specifications

14. 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 permit does not specify a daily discharge volume limit.

    The leachate conveyance system is regulated under general WDR Order No. 2006-0003-DWQ, with WDID number 1SSO11652. The Discharger must provide written notification to the Regional Water Board prior to making any proposed change in the legal point of disposal.

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

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

17. The Discharger shall notify Regional Water Board staff within 2 hours of discovery of any violations in freeboard requirements in either LP1 or LP2 any time.

18. Leachate ponds 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 include a complete report of findings, including a statement as to the presence or absence of leachate in the leak detection layer, steps taken to remove any leachate from this layer, and provisions for completion of all necessary maintenance, repairs, and submittal of CQA reports for repairs.

19. 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.

20. In the event any inspection or integrity tests indicate a release beyond the containment system, the Discharger shall notify the Regional Water Board by telephone within 2 hours of discovery, and initiate corrective action.

Landfill Closure Specifications

21. At closure, each landfill shall receive a final cover in accordance with the state and federal prescriptive standards, or an approved Engineered Alternative Design.

22. Materials used for final cover construction or repair shall have appropriate physical and chemical properties to ensure containment of wastes over the closure and post-closure maintenance period. Construction quality assurance information and as-built drawings shall be submitted to the Regional Water Board within 60 days of the completion of any phase of final cover construction or repair.

23. Construction methods and quality assurance procedures shall be sufficient to ensure that all parts of the final cover meet the permeability and stability requirements (40 CFR §258.60, California Code of Regulations, title 27, §21090, et seq.).

24. 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 not in excess of the vegetative layer thickness. Vegetation shall be maintained to allow for inspection of the cap and its integrity.

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

26. The final WMU slopes shall not exceed a horizontal-to-vertical ratio of 3:1, 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.

27. Closure of each waste management unit shall be performed under the direct supervision of a registered civil engineer or California certified engineering geologist. Appropriate documents shall be maintained by the Discharger, and provided at the request of the Executive Officer, to document that supervision.

Protection from Storm Events

28. 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.

29. Precipitation and drainage control systems shall be constructed on both active and closed WMUs. They 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.

30. By **August 15, annually** the Discharger shall submit to the Executive Officer a Winterization Plan describing measures planned to prepare the site and conduct operations during the wet season.

    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 **December 15, annually**, the Discharger shall submit a report to the Executive Officer describing measures taken to comply with this specification.

31. Surface drainage shall be designed to minimize infiltration and shall not be allowed to contact wastes. Internal drainage conveyances shall be located to the maximum extent practicable, such that they do not cross over landfill areas. 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 x 10-6 or less or an engineered alternative that provides equivalent or better protection from storm-water infiltration.

32. 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 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 2013-0003. A violation of the MRP is a violation of these waste discharge requirements. The Discharger shall further comply with all applicable provisions of California Code of Regulations, title 27 and 40 CFR Part 258, 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.

3. The Discharger shall perform and/or comply with all CEQA mitigation measures as specified in the EIRs and subsequent CEQA documentation for the project (see Findings 53. and 54.)

4. Prior to landfill liner construction, the discharger shall obtain any and all permits required under federal, state, or local laws.

5. The Discharger shall maintain waste containment facilities and precipitation and drainage control systems throughout the construction, operations, and post-closure maintenance period, and shall notify the Board by telephone within 2 hours of discovery of any flooding, equipment failure, slope failure, or other change in 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 the MRP throughout the post-closure maintenance period, and shall continue until the Board determines that the wastes remaining at the site no longer threaten water quality.

7. In the event waste constituents are detected within the discharge from any landfill underdrain area, the Discharger shall propose and implement appropriate corrective action and collect all underdrain flow as leachate for discharge to the Class II surface impoundments and/or into the leachate disposal pipeline or other legal point(s) of disposal as authorized by the Executive Officer.

8. The Discharger shall continue Corrective Action measures as described in MRP No. 2013-0003, shall maintain overall leachate and landfill gas control capabilities during project construction and implementation, and shall assess current level of leachate control in Landfill 1, and develop an evaluation of the effectiveness of current corrective action efforts, identification and review of available additional

measures that could be feasibly implemented to reduce liquid influx into the Landfill and to reduce the leachate head on the landfilled waste, and a plan and schedule to implement those measures.

9. 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 periods of the facility and during subsequent use of the property for other purposes.

10. 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.

11. 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.

12. 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 the MRP, as required by Water Code sections 13750 through 13755.

13. The Discharger shall provide a copy of this Order to all contractors and all subcontractors conducting the work, and require that a copy of the Order remain in their possession at the work site. The Discharger shall be responsible for work conducted by its contractors or subcontractors.

14. 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 a waste management unit at the facility in accordance with California Code of Regulations, title 27, sections 20380, subdivision (b) and 22222. The Discharger shall provide an updated corrective action cost estimate to the Regional Water Board for review by **February 15, 2018,** and every five years thereafter, for the term of this permit.

15. In the event the Regional Water Board determines that the County of Sonoma has failed or is failing to perform corrective action as required by law, the Regional Board may request that CalRecycle direct the County of Sonoma to pay from the pledged revenue such amounts as 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.

16. In accordance with California Code of Regulations, 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 Board by **February 15, annually,** that it has demonstrated financial responsibility to CalRecyle.

    The preliminary closure cost estimate shall be updated after completion of the partial final closure of Landfill 1 so that current cost are included in the estimate for remaining uncapped area. The closure and postclosure cost estimates shall be updated every 5 years thereafter or during each 5-year Solid Waste Facility Permit review.

17. During times of active closure construction or any periods of repair to the waste containment, drainage, or monitoring facilities, legible copies of the daily CQA field notes and summary reports shall be submitted to the Regional Water Board via facsimile at (707) 523-0135 or via email to terri.cia@waterboards.ca.gov (or the email of the staff person assigned to the facility at that time, if different) by noon the following weekday. The facsimile or email shall be addressed to the Regional Water Board, Land Disposal Unit, and include the name of the staff person assigned to the facility.

18. A closure report for each construction season of closure activities and a full closure CQA report once final closure is achieved shall be prepared and certified by the CQA Officer and submitted, under penalty of perjury, to the Regional Water Board and other appropriate agencies in accordance with California Code of Regulations, title 27, sections 20324, subdivision (c); 20324, subdivision (d); and 21880.

    The reports, at a minimum, shall include the certificate of closure; daily summary reports; material acceptance reports; final CQA documentation; laboratory testing results; field testing results; and an as-built topographic map of the capped area (for each construction season then for the completed project), prepared at a scale of one-inch to 100 feet, with a contour interval of two feet.

19. By January 2018, January 2023, and at least every five years thereafter, the Discharger shall produce and submit to the Regional Water Board an iso-settlement map accurately depicting the estimated total change in elevation of the final cover's low-hydraulic-conductivity layer. If full closure has not been achieved by October 2017, the iso-settlement map may include just the portion of the landfill that has had the final cap placed.

    For each portion of the landfill, this map shall show the total lowering of the surface elevation of the final cover, relative to the baseline topographic map to be submitted in the Closure Report, and shall indicate all areas where visually noticeable differential settlement may have been obscured by grading operations. The map shall be drawn to the same scale and contour interval as the topographic map in the Closure Report, but showing the current topography of the final cover, and featuring overprinted isopleths indicating the total settlement to date. Land surveying to a one-foot contour interval rather than aerial surveying may be substituted to produce the iso-settlement map (Cal. Code Regs., tit. 27, §21090, subd. (e) (2).)

20. Each winter or spring when ponding is most likely to be present, the Discharger shall inspect the closed portions of the cap for ponding and then stake and/or survey the perimeter of the ponded areas so that they can be repaired during drier conditions. The Discharger shall also note any areas of differential settlement that warrant future observation. After repairs are made during drier weather, the Discharger shall survey the revised surface of the repair. The Discharger shall outline the repaired areas on the initial as-built drawings or last isosettlement survey map and show the updated contours. Approximate locations of areas that have been identified for future observation shall also be noted (Cal. Code Regs., tit. 27, § 21090, subd. (e)(4)).

    If no areas of settling are found, state so in the report. This information shall be included in the Annual Monitoring Report as well as each five-year iteration of the iso-settlement map. The map shall show all areas where differential settlement has been noted since the previous map submittal, and shall highlight areas of repeated or severe differential settlement and repairs. Such notation and delineation shall be made by, or under the supervision of, a California registered professional civil engineer or California registered professional civil engineer or registered geologist.

21. All activities covered by this Order must comply with local, state, and federal law.

22. In the event of any violation or threatened violation of the conditions of this Order, the violation or threatened violation shall be subject to any remedies, penalties, process or sanctions as provided for under applicable state law.

Additional Conditions

23. Deliverable Reports, Plans, and Technical Information:

Item	Name	Due Date
a.	Industrial Stormwater Pollution Prevention Plan (SWPPP)	Annually, August 15
b.	Construction SWPPP	For Phases III, IV, and Partial Final Closure on South Face, as soon as available. For future work, at least 60 days prior to start of any new landfill or closure construction activities
c.	Leachate management plan	Annually, February 15, or in advance of new cell construction.
d.	Financial assurance assessment and update	Annually, February 15 commencing 2014; revision due following completion of Partial Final Closure project; 5-Year Revision due June 15, 2018, and every five years thence
e.	Spill contingency plan	Annually, February 15 commencing 2013
f.	Landfill 1 corrective action effectiveness review, infiltration reduction plan, and monitoring/corrective action point analysis and specification plan (CAR)	May 15, 2013
g.	Landfill 2, Phase III construction plans	As soon as available, prior to the start of construction of this phase
h.	Design report for Landfill 2, Phase IV	6 months prior to the start of construction of this phase
i.	Design Reports for REA, Phase V, and Compost Area	6 months prior to the start of construction of specific phase
j.	Blasting plan – required CEQA mitigation	For Phases III and IV, as soon as available, if

		applicable. For future work, at least 60 days prior to start of any new construction requiring blasting
k.	Field assessment and verification of geologic and hydrologic site features, and kinematic stability analysis for cut slope(s)	Concurrent with excavation in the Phase III, Phase IV, and/or REA areas.
l.	Pre-project monitoring plan for Rock Extraction Area	At least 15 months prior to anticipated placement of waste on the bottom liner
m.	Plan and schedule to cease all discharges of compost wastewater to receiving waters	Plan by May 15, 2013
n.	Liner protection, inspection, and awareness training plan (Operational Quality Assurance Plan as referenced in K.42 above)	May 15 commencing after first new cell is constructed; annual confirmation
o.	Preferential pathway plan	6 months prior to construction of any phase involving preferential pathway
p.	Winterization plan	Annually, August 15
q.	Soil availability plan for next year's soil needs	Annually, August 15
r.	Confirmation of winterization implementation	Annually, December 15
s.	Leachate Pond inspection report	Annually, February 15
t.	Closure Construction Quality Assurance (CQA) report	Within 90 days of completion of Closure Construction

Description of/Comments Regarding Deliverables:

a. Industrial Stormwater Pollution Prevention Plan (SWPPP)

The SWPPP should be reviewed annually, and updated if needed. The review should include a review of all onsite contractors' operations to identify any changes in location(s), activity(ies), and waste discharge(s). If no changes are needed, the Discharger may so advise Regional Water Board staff rather than submitting a new copy of the unchanged SWPPP. However whether or not changes are made, the Discharger must annually provide a statement stamped by a registered professional that the current drainage features (collection, conveyance, containment, treatment, disposal, etc.), at the time of SWPPP preparation/review, meet the requirements of California Code of

Regulations, title 27, and either reference past calculations for the drainages in place, provide new calculations, or provide amended calculations for those drainage structures (if any) that have been changed in the past year.

Prior to August 15, 2013, the Discharger shall update the SWPPP including providing calculations verifying that the existing drainages and drainage structures are sized for the design storm described in California Code of Regulations, title 27 and this Order. Once every five years thereafter, the Discharger must provide a statement stamped by a registered professional verifying sizing of any drainages and drainage structures that have been installed over the previous five years.

b. Construction SWPPP

This may be provided by the contractor(s) or by the Discharger.

c. Leachate management plan

Provide a property/facility map showing leachate collection, conveyance, storage, and disposal features. Provide diameter and design flow for each line, valve, and pump within the facility and where it connects to the sewer line. The plan should be updated (1) as part of the design report, each time a phase is added (including Landfill 2 phases, the REA and filling at the north end of Landfill 1), or (2) whenever significant modifications to the leachate collection system are made. The plan should include information about actual recorded volumes of leachate inputs from all sources over the period since the last update.

Note that "LCRSs shall be designed, constructed, and maintained to collect twice the anticipated daily volume of leachate generated by the WMU and to prevent the buildup of hydraulic head on the underlying liner at any time."

Updated leachate management plans must include a statement stamped by a registered professional certifying that the leachate management system meets the performance criteria as required under this Order.

d. Financial assurance assessment and update

The cost estimate should be reviewed and updated annually, as appropriate. The cost estimate should also be revised and submitted after construction of the partial final closure cap, using site specific unit costs based on the actual cost for all tasks, elements, and features incurred under that construction project.

e. Spill Contingency Plan/Spill Prevention, Countermeasure, and Control (SPCC) Plan

Updated plan due annually, however if no changes are needed, the Discharger may so advise Regional Water Board staff rather than providing a new copy of the unchanged plan.

f. Landfill 1 corrective action effectiveness review, infiltration reduction plan, and monitoring/corrective action point analysis and specification plan (CAR)

The CAR should include an evaluation of the effectiveness of current corrective action efforts, identification and review of available additional measures that could be feasibly implemented to reduce liquid influx into the Landfill and to reduce the leachate head on the landfilled waste, and a plan and schedule to implement those measures.

The latter element of the plan shall comprise a point by point review of gas wells, piezometers, ground water monitoring wells, and leachate extraction wells to assess their function and value with respect to facility monitoring and corrective action, to assess the implications of removing those features from service, to establish guidelines or time limits for temporary removal, to identify or site backup points if needed, and to confirm that short and long term monitoring and corrective action goals and objectives will continue to be met during and through construction, operation, and closure periods. It is recommended that the Discharger develop this element of the plan using a multidisciplinary team including members with expertise and familiarity with the gas control system, leachate control efforts in Landfill 1, monitoring (detection, evaluation, corrective action, sentry, etc.) needs and objectives, and construction schedules and plans. The final product of this effort should include a schedule for removal and reinstallation (if applicable) for each point; the schedule may consist of specific dates or of anticipated/allowable number of days associated with construction activities on different phases.

g. Landfill 2, Phase III Construction Plans

Because the drawings provided to the staff to satisfy the requirements of design report submittal are currently incomplete, pending minor revisions for clarification of the leachate collection system piping configuration, the Discharger shall provide a copy of the final design plans and bid documents for Landfill 2, Phase III prior to construction. The Discharger shall notify the RWQCB Staff member at least one week prior to the pre-bid job walk and then the pre-construction job walk. The staff member may or may not elect to attend. Staff may comment on the drawings prior to or during the bidding period.

h. Design Report for Landfill 2, Phase IV.

Because the design drawings for Landfill 2, Phase IV are incomplete pending submittal of drawings better depicting the leachate system and calculation demonstrating the perforations in the LCRS piping will transmit the require flow, the Discharger shall provide an amended design report at least 6 months prior to anticipated construction of Landfill 2, Phase IV for review by staff. The report shall clearly cite calculations already provided as part of the JTD and provide any changes developed since the JTD submittal and Phase III construction. The report must clearly state that the requirements of the alternative liner design have been met.

i. Design Reports for REA, Phase V, and Compost Area

The Discharger shall submit design reports for each phase of REA, Phase V, and the Compost Area construction at least 6 months prior to anticipated start of construction. The design reports shall clearly reference calculations , equivalence demonstrations, and/or slope stability evaluations previously provided in the JTD and provide any additional information needed to support the design for the specific phase of construction, including, but not limited to, where appropriate, intermediate fill slope stability calculations, revised global slope stability calculations, design drawings, technical specifications, a CQA Plan, and recommendations for filling over the liner area to promote slope stability and protect the liner system from damage. The drawings and specifications shall be the equivalent to an 80 to 90% completion level submittal.

j. Blasting plan

Staff require a copy of this plan for the file record, as it is one of the elements necessary to demonstrate that CEQA mitigations associated with potential water quality impacts have been met.

k. Field assessment and verification of geologic and hydrologic site features, and rock slope stability evaluations and kinematic analysis of steep cut slope(s)

Field assessment and verification for assumptions made regarding geologic composition and integrity, springs, seeps, and other water features (plan, schedule, contingency plan). Rock slope stability evaluations and kinematic analysis of steeper cut slopes (e.g., 2:1 or 2.5:1), prior to placement of bottom liner, “as near surface instability in other areas of the site has been associated with steeper slopes.” (RMC 2002).

Provisions for the field portion of this effort may be incorporated into the CQA plan as appropriate; the Discharger should submit a copy of the revised, amended, or appended text.

l. Pre-project monitoring plan, REA

Workplan to install wells and/or other monitoring points around the REA, intended to provide four quarters of pre-project monitoring as required by California Code of Regulations, title 27. Monitoring points should include well(s) and/or other feature(s) located so as to serve as point of compliance monitoring points consistent with California Code of Regulations, title 27. (That is, the Point of Compliance is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the Unit.) The workplan should include an element to assess presence of vadose zone monitoring and, should such be identified, include a provision to submit a subsequent workplan to develop a vadose zone monitoring program/plan for this area.

m. Plan and schedule to cease all discharges of compost wastewater to receiving waters

Plan deadline shown in the table above. Note that this Order specifies that: "The discharge of wastes from activities occurring upon or within the landfill footprint, including composting activities, to stormwater sedimentation basins, surface, and/or ground water is prohibited."

n. Liner protection, inspection, and awareness training plan

Develop (or provide if already available) a training module for facility operators that emphasizes the importance of operating heavy equipment, placing waste, and performing any other activities on the lined portions of the facility in a manner that minimizes the risk of damage to the liner.

In addition, develop (or provide if already available) a plan to inspect the lined areas regularly to identify any evidence of damage or threatened damage, and to regularly or periodically observe facility operator performance in conducting activities on the lined portions of the facility.

o. Preferential pathway plan

To ensure that cut and prepared slopes will provide for unimpeded leachate drainage, a preferential leachate pathway plan with step-by-step instructions for construction field staff must be prepared prior to the start of construction.

p. Winterization plan

The winterization plan should describe measures planned to prepare the facility and/or other active areas on the property, and to conduct operations during the wet season.

q. Soil availability plan

This plan may be submitted with the site winterization plan, and must demonstrate that sufficient soil is secured onsite or available from an offsite provider for next year's proposed activities, uses, and needs (intermediate cover, erosion control, vegetative cover, roads, operations layers, foundation, etc.).

r. Confirmation of winterization implementation

This information may be included in the Annual Monitoring Report per the monitoring program, and must confirm that measures described in the winterization plan have been installed/implemented as proposed.

s. Leachate Pond inspection report

As directed under this Order: "Leachate ponds LP1 and LP2 shall be fully inspected annually and integrity tested, as needed, in accordance with the applicable provisions of California Code of Regulations, title 27. Inspection reports or testing results shall be submitted by **February 15, annually** and include a complete report of findings and provisions for completion of all necessary maintenance, repairs, and submittal of CQA reports for repairs."

t. The closure Construction Quality Assurance (CQA) report

As directed under this Order, the report shall be prepared and certified by the CQA Officer and must be submitted under penalty of perjury to the Regional Water Board and other appropriate agencies. The report, at a minimum, will include the certificate of closure; daily summary reports; material acceptance reports; final CQA documentation; laboratory testing results; field testing results; and an as-built topographic map of the capped area, prepared at a scale of one-inch to 100 feet, with a contour interval of two feet.

24. 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.

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

26. 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.

27. 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.

28. 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 Discharger's annual fee account.

29. 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 Dischargers from liability under federal, State, or local laws, nor create a vested right for the Discharger to continue the waste discharge.

30. Accidental Spills, Incident Reporting and Monitoring

The Discharger must comply with the Contingency Planning and Notification Requirements Order No. 74-151 and the MRP 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.

31. Inspections

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

a. entry upon premises in which an effluent or waste source is located or in which any required records are kept;

b. access to copy any records required to be kept under terms and conditions of this Order;

c. inspection of monitoring equipment or records; and

d. sampling of any discharge.

32. 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 within 2 hours of discovery 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.

33. Revision of Requirements

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

34. Annual Fees

Authorization under this Order is conditioned upon payment of annual fees as required and when due, pursuant to California Water Code, section 13260.

CERTIFICATION

I, Matthias St. John, 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 March 14, 2013.

Original Signed By

_____
Matthias St. John
Executive Officer

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