CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

MEETING OF FEBRUARY 10-11, 2016
APPLE VALLEY

ITEM: **2**

SUBJECT: **REVISED WASTE DISCHARGE REQUIREMENTS - BOARD ORDER NO. R6V-2016-[PROPOSED] FOR KERN COUNTY PUBLIC WORKS DEPARTMENT, BORON SANITARY LANDFILL, KERN COUNTY**

CHRONOLOGY:

February 1, 1973	Waste Discharge Requirements – Adopted (Board Order No. 6-73-11)
May 11, 1984	Revised Waste Discharge Requirements – Adopted (Board Order No. 6-84-47)
September 9, 1993	Amended Waste Discharge Requirements – Adopted (Board Order No. 6-93-10022)
June 8, 1995	Amended Waste Discharge Requirements – Adopted (Board Order No. 6-84-47A1)
November 9, 1995	Revised Waste Discharge Requirements – Adopted (Board Order No. 6-95-114)
September 11, 2002	Revised Waste Discharge Requirements – Adopted (Board Order R6V-2002-052)

ISSUE: Should the Water Board adopt Revised Waste Discharge Requirements and associated Monitoring and Reporting Program to: (1) provide general updates to the permit to address current site conditions; (2) incorporate Facility-specific storm water management, monitoring, and reporting requirements; and (3) include an engineered alternative final cover in the Preliminary Closure and Post-Closure Maintenance Plan (CPCMP)?

DISCUSSION: The Boron Sanitary Landfill is an active Class III municipal solid waste landfill ("Facility") owned by the County of Kern and operated by the Kern County Public Works Department (Discharger) since 1973. The Landfill is unlined with no leachate or landfill gas collection system and is the only authorized waste disposal site within the Facility. The

Discharger is currently implementing a Corrective Action Program (CAP) to remediate a known release of volatile organic compounds (VOCs) to groundwater from the Landfill.

The Discharger has shown that landfill gas migration is the source of this release, and the approved CAP is monitored natural attenuation (MNA). Since the CAP was initiated in 2002, concentrations of VOCs in groundwater have been decreasing over time. The Discharger has shown that favorable MNA conditions continue to exist beneath the Landfill and proposes continuation of the CAP. This Order provides general updates to the Waste Discharge Requirements and associated Monitoring and Reporting Program based on current site conditions.

Based on an approved Jurisdictional Determination issued by the United States Army Corps of Engineers for Rogers Dry Lake on November 15, 2012, there are no waters of the United States within the Facility boundary or in the vicinity of the site and, therefore, the Facility is not subject to National Pollutant Discharge Elimination System (NPDES) storm water requirements. However, because wastes in discharges of storm water have the potential to degrade water quality, this Order requires Facility-specific storm water management, monitoring, and reporting consistent with statewide NPDES storm water requirements.

The Discharger has revised the Preliminary CPCMP for the Landfill to incorporate an engineered alternative final cover, specifically an evapotranspirative (ET) soil cover. The main concept of this type of landfill cover is to store moisture between the soil particles during the rainy season and release that moisture during the dry season through plant uptake and evaporation. The proposed ET cover is consistent with the performance goal of the prescriptive final cover, which is to minimize the infiltration of water into the waste. This Order approves the engineered alternative final cover as described in the Preliminary CPCMP. Water Board staff has solicited comments from the Discharger and interested parties.

RECOMMENDATION: Adoption of Order as proposed.

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ENCLOSURE 1

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

BOARD ORDER NO. R6V-2016-[PROPOSED]
WDID NO. 6B150303003

REVISED WASTE DISCHARGE REQUIREMENTS
FOR

KERN COUNTY PUBLIC WORKS DEPARTMENT
BORON SANITARY LANDFILL

Kern County

The California Regional Water Quality Control Board, Lahontan Region (Water Board) finds:

1. Discharger

On July 1, 2015, the Kern County Public Works Department (formerly Kern County Waste Management Department) submitted a complete revised Report of Waste Discharge (RWD) for the Boron Sanitary Landfill that included a Storm Water Pollution Control Plan (SWPCP) and a Preliminary Closure and Post Closure Maintenance Plan (CPCMP). An updated Water Quality Protection Standard (WQPS) was later submitted on October 29, 2015. For the purposes of this Order, the Kern County Public Works Department is referred to as the "Discharger."

2. Facility

The Boron Sanitary Landfill is an active Class III municipal solid waste landfill ("Facility") owned by the County of Kern and operated by the Discharger since 1973. The Facility is comprised of a waste management unit (WMU) and ancillary facilities including a gatehouse, hazardous waste storage locker, a waste oil and filter recycling collection area, recycling diversion and staging areas, and a storm water sump. For purposes of this Order, the WMU is referred to as the "Landfill." The Landfill is unlined with no leachate or landfill gas (LFG) collection system and is the only authorized waste disposal site within the Facility. A map of the Facility is included as Attachment "A."

3. Facility Location

The Facility is located at 11400 Boron Avenue, approximately one-half mile south of the town of Boron in Kern County. The Facility is within portions of Sections 5 and 6 of Township 10 North, Range 7 West, San Bernardino Baseline and Meridian, as shown on Attachment "A," which is made part of this Order.

4. Reason for Action

The Water Board is revising these Waste Discharge Requirements (WDRs) and updating the Monitoring and Reporting Program (MRP) to: (1) increase the permitted Facility boundary from 20.53 acres to 120.21 acres to include additional buffer area; (2) refine the aerial extent of the limits of waste ("footprint") within the Landfill from

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14 acres to 14.1 acres based on the results of a waste mapping study; (3) incorporate Facility-specific storm water management, monitoring, and reporting requirements; (4) approve an engineered alternative final cover in the Preliminary CPCMP; and (5) provide general updates to the WDRs and MRP based on current site conditions.

5. Order History

a. WDRs were established for the Facility under Board Order No. 6-73-11, which was adopted on February 1, 1973.

b. Board Order No. 6-84-47 was adopted on May 11, 1984, and revised the WDRs to update Facility information and discharge specifications.

c. Board Order No. 6-93-10022 was adopted on September 9, 1993, and amended the WDRs to incorporate the requirements of Title 40, Code of Federal Regulations (40 CFR), Parts 257 and 258 (Subtitle D) as implemented in the State of California under State Water Resources Control Board (State Water Board) Resolution No. 93-62.

d. Board Order No. 6-84-47A1 was adopted on June 8, 1995, and amended the WDRs to incorporate a time schedule proposed by the Discharger for compliance with specific requirements of Subtitle D and California Code of Regulations (CCR), title 23, chapter 15, and to incorporate requirements of the previously adopted Board Order No. 6-93-10022.

e. Board Order No. 6-95-114 was adopted on November 9, 1995, and revised the WDRs to incorporate requirements of the previously adopted Board Order Nos. 6-93-10022 and 6-84-47A1, and to document a new time schedule for compliance with State and Federal regulations.

f. Board Order R6V-2002-052 was adopted on September 11, 2002, and revised the WDRs to require the Discharger to implement a corrective action program (CAP) to remediate a detected release from the Landfill.

6. Volatile Organic Compounds Detected in Groundwater

The Discharger is currently implementing a CAP to remediate a known release from the Landfill. The CAP is ongoing and required due to detected concentrations of volatile organic compounds (VOCs) in groundwater beneath the Facility. Specifically, dichlorodifluoromethane (Freon 12), 1,1,2-trichloro-1,2,2-trifluoromethane (Freon 113), methyl-tert-butyl-ether (MTBE), tetrachloroethene (PCE), trichlorofluoromethane (Freon 11), and trichloromethane have been detected in groundwater at concentrations that exceed the background value of non-detect. The Discharger has shown that LFG migration is the source of this release. VOCs have not been detected in point of compliance groundwater monitoring wells since 2002.

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The approved CAP is monitored natural attenuation (MNA). Since implementation of the CAP in 2002, VOC concentrations in groundwater have been decreasing over time and are currently non-detect in all but one of the onsite groundwater monitoring wells (well BO1-06). The Discharger proposes continuation of the CAP, which is more specifically described in Finding No. 28.

7. Waste Management Unit Classification

Pursuant to CCR, title 27, section 20260, the Landfill is classified as a Class III waste management unit and is the only authorized waste disposal site within the Facility boundary. The Landfill is classified as a Small Landfill in Subtitle D (40 CFR Parts 257 and 258).

8. Waste Classification

The waste discharged to the Landfill is defined in the CCR, title 27, sections 20220 and 20230, as non-hazardous and inert solid waste, respectively. The waste discharged to the Landfill is defined as municipal solid waste in Subtitle D.

9. Subtitle D Compliance Status

Subtitle D requirements became effective for this Landfill on April 9, 1994. Board Order amendments No. 6-93-10022 and No. 6-84-47A1 required the submittal of several items in order to comply with Subtitle D for the Landfill. The Discharger submitted complete information regarding the acceptance of liquids, the existing waste footprint, the distance from the Landfill to the nearest drinking water source, and whether the Landfill is located in a 100-year floodplain or a wetland. These items fulfilled the submittal requirements of Subtitle D, as implemented by State Water Board Resolution No. 93-62.

In 2003, the Discharger performed an “Edge of Waste Study” to more accurately define the aerial extent of the limits of waste (“footprint”) of the Landfill. Based on the results of that study, the Discharger has determined that the waste footprint more precisely totals 14.1 acres, as compared to the previously reported 14-acre footprint. The additional 0.1 acre is within an acceptable margin of error from the original footprint area. This Order recognizes the refined 14.1-acre footprint of the Landfill as the limits of waste exempt from Subtitle D requirements for composite liners. The footprint is shown on Attachment "B,” which is made part of this Order.

10. Hazardous Waste Management

The solid waste is screened for household, commercial, and industrial hazardous waste. The Discharger implements measures to prevent the acceptance and disposal of hazardous wastes at the Landfill. Wastes received at the Facility are visually inspected to ensure that potentially hazardous materials are identified and removed from the waste stream. The visual inspection occurs at the gatehouse and at the active face. All hazardous wastes identified from visual inspections are placed in portable hazardous waste containers and moved temporarily to the permitted hazardous waste storage locker

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for off-site disposal at an appropriate facility. The Facility has an active diversion program for inert materials, cathode ray tubes, used automotive oil, drained used oil filters, and appliances. These items are collected and stockpiled in designated areas until a sufficient quantity has been accumulated for economic recycling offsite.

11. Land Uses

The land uses surrounding the Facility consist of residential and commercial uses associated with the town of Boron, open desert land, industrial activities at the US Borax open pit borate mine, and military activities associated with Edwards Air Force Base.

12. Site Topography

The Antelope Valley, in which the Facility is located, is a closed topographic basin. The Facility is situated within a relatively low point of the valley with Saddleback Mountain to the northeast, Kramer Hills to the southeast, and Leuhman's Ridge to the southwest of the Facility. Topography of the site is generally flat, sloping less than 5 percent in a northwest direction. Pre-Facility elevations ranged from 2,490 to 2,509 feet above mean sea level (msl).

The existing topography of the Facility is shown on Attachment "B". Surface elevation of the Landfill ranges from approximately 2,492 feet above msl in the northwest corner of the site to nearly 2,530 feet above msl in the center of the top of refuse. The proposed final fill plan has a maximum elevation of 2,540 feet above msl. The Discharger is not proposing a vertical expansion at this Landfill.

13. Climatology

The Antelope Valley has an arid climate characterized by infrequent rainfall, cold winters and hot summers, low relative humidity, and gusty winds. The mean annual temperature is 62.7 degrees (°) Fahrenheit (F) and ranges from an average high temperature in July of 97° F to an average high temperature of 45° F in January. The precipitation in the area of the Facility averages 6.37 inches annually. The maximum expected precipitation for a 24-hour, 100-year frequency design storm event is approximately 3.66 inches. The annual average evaporation rate is approximately 114 inches or 9.5 feet per year.

14. Site Geology

The Antelope Valley is situated within the northwest portion of the larger Mojave Desert geomorphic province. This province is a wedge-shaped tectonic block bounded to the southwest by the San Andreas Fault Zone and on the northwest by the Garlock Fault Zone. The San Andreas and Garlock Fault Zones are approximately 39 miles southwest and 27 miles northwest of the Facility, respectively. There are no known active (Holocene-age) faults beneath Facility or within a 5-mile radius of the Facility. The closest Holocene active fault is the Helendale-Lockhart Fault located approximately 8 miles northeast of the Facility.

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The geologic units beneath the Facility consist of the following, from oldest to youngest.

a. Pre-Tertiary intrusive igneous rocks of quartz monzonite and quartz diorite composition form the crystalline basement rock beneath the site at depths ranging from 1,500 to 3,000 feet below ground surface (bgs).

b. The Tertiary Tropico Group nonconformably overlies the basement rock and consists of interbeds of shales, limestones, and coarse fluvial sedimentary rocks with basalts and pyroclastic deposits. The Tropico Group is known to be up to 2,600-feet thick in the vicinity of the site.

c. Unconformably overlying the Tropico Group is Quaternary-age older and recent alluvium composed of unconsolidated and poorly sorted sands, silts, and gravels. Based on bore log data from the Facility, the recent alluvial sediments are discontinuous and up to 10-feet thick with the older alluvial deposits being in excess of 220-feet thick in the vicinity of the site. Waste in the Landfill is in contact with the underlying recent alluvium and, in places, the older alluvium.

15. Site Hydrogeology and Groundwater Quality

The Facility is within the Antelope Valley Groundwater Basin. Groundwater beneath the Facility occurs in the unconsolidated older alluvium at a depth of approximately 185 feet bgs and flows in a northwesterly direction with an average hydraulic gradient of 0.004 feet per feet and an average velocity of 7.31 feet per year.

The Discharger has been monitoring groundwater quality beneath the Facility since 1993. In general, the inorganic and dissolved metal water chemistry in groundwater beneath the Facility is consistent with the available water quality data for public supply wells within the vicinity of the Facility. Nitrate as nitrogen, copper, selenium, vanadium, and zinc show little spatial variation in water quality across the site; whereas, chloride, sulfate, total dissolved solids (TDS), arsenic, and barium do show some spatial variation in water quality across the site. Over the last ten years, TDS concentrations have ranged from 700 milligrams per liter (mg/L) to 1,100 mg/L, and arsenic concentrations have ranged from 2 micrograms per liter (µg/L) to 6 µg/L.

Groundwater beneath the Facility has been impacted with VOCs. The Discharger has shown that LFG is the source of this release. The release was initially detected in 1994 and VOCs continue to be detected in groundwater at concentrations that exceed the background value of non-detect. The effected groundwater is being remediated with a CAP, and VOC concentrations are showing a decreasing trend over time. Historical and current VOC concentrations in groundwater are more specifically described in Finding Nos. 23 and 28.

16. Site Hydrology

The Facility is within the North Muroc Hydrologic Area of the Antelope Hydrologic Unit. The Antelope Valley region is a closed topographic basin. All water that enters the

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region either infiltrates into the groundwater basin, evaporates, or flows overland toward three dry lakes: Rosamond Lake, Buckhorn Lake, and Rogers Lake.

Dudek prepared a "Jurisdictional Waters Delineation Report" for the Facility in March 2013, and concluded that there are no surface waters (stream channels, wetlands, etc.) within the Facility boundary. Several ephemeral stream channels are within a one-mile radius of the Facility; however, in the immediate vicinity of the Facility, surface flows drain to the north-northwest and occur as sheet flow following rain events. A drainage ditch between Boron Avenue and the western edge of the Landfill captures storm water run-off from the roadway and sheet flow from adjacent desert areas. Due to a combination of low rainfall and high permeability of the soil in the vicinity of the Facility, most surface flows generally either evaporate or percolate into the groundwater basin. With sufficient volume, surface water in the vicinity of the Facility would flow toward Rogers Dry Lake, which is approximately 6 miles west of the Facility.

An approved Jurisdictional Determination was issued by the United States Army Corps of Engineers (USACE) for Rogers Dry Lake on November 15, 2012. The USACE determined that Rogers Dry Lake and its tributaries are isolated, non-navigable water bodies that do not exhibit a substantial interstate or foreign commerce connection and, as a result, are not waters of the United States. Based on the USACE determination for Rogers Dry Lake, the surface waters in the vicinity of the Facility are not subject to federal regulation.

17. Site Storm Water Management

The Discharger has prepared a site-specific Storm Water Pollution Control Plan (SWPCP) that describes the Best Management Practices (BMPs) that are implemented at the Facility to mitigate potential pollution of storm water discharges. Storm water protection at the Facility is primarily accomplished through drainage control based on the following objectives: protection from run-on; minimize infiltration of precipitation into the waste; minimize exposure of pollutants to precipitation; manage run-off to minimize erosion and sedimentation; and minimize offsite migration of storm water. To achieve these objectives, the Discharger implements structural and non-structural BMPs and performs site compliance inspections to evaluate the effectiveness of the program. The Discharger will implement the SWPCP (as amended) throughout the life of the Landfill.

Based on the approved Jurisdictional Determination issued by the USACE for Rogers Dry Lake on November 15, 2012, there are no waters of the United States within the Facility boundary or in the vicinity of the site and, therefore, the Facility is not subject to National Pollutant Discharge Elimination System (NPDES) storm water requirements. This Order requires prohibitions, limitations, and provisions for storm water and non-storm water discharges associated with both construction and industrial activities at the Facilitiy, similar to the NPDES storm water requirements.

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18. Basin Plan

The Water Board adopted a *Water Quality Control Plan for the Lahontan Region* (Basin Plan) which became effective on March 31, 1995. This Order implements the Basin Plan, as amended.

19. Receiving Waters

The receiving waters are the groundwaters of the Antelope Valley Groundwater Basin (Department of Water Resources, Groundwater Basin No. 6-44; Basin Plan, Plate 2B).

20. Beneficial Uses

The present and probable beneficial uses of the groundwaters of the Antelope Valley Groundwater Basin No. 6-44, as set forth and defined in the Basin Plan, are:

a. Municipal and Domestic Supply (MUN);
b. Agricultural Supply (AGR);
c. Industrial Service Supply (IND); and
d. Freshwater Replenishment (FRSH).

21. Human Right to Water

Water Code section 106.3 establishes a state policy that every human being has the right to safe, clean, affordable, and accessible water adequate for human consumption, cooking, and sanitary purposes and directs state agencies to consider this policy when adopting regulations pertinent to those uses of water. This Order promotes that policy by requiring discharges of waste only to the Landfill and requires monitoring to assess impacts to water quality.

22. Water Quality Protection Standard and Compliance Period

The WQPS consists of constituents of concern (COCs), concentrations limits, monitoring points, and the point of compliance. The COCs, monitoring points, and point of compliance for groundwater and unsaturated zone monitoring are described in MRP No. R6V-2016-PROPOSED, which is attached to and made part of this Order. The Discharger submitted an updated WQPS on October 29, 2015, as part of the RWD.

The WQPS applies over the compliance period of the Facility. The compliance period is the number of years equal to the active life of the WMU plus a minimum of 30 years. The compliance period is the minimum period during which the Discharger must conduct a water quality monitoring program subsequent to a release from the Landfill. The compliance period must begin anew each time the Discharger initiates an evaluation monitoring program (EMP). The compliance period may be extended if the Facility is not in compliance with its WQPS.

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23. Concentration Limit Greater than Background

CCR, title 27, section 20400, allows for establishing a concentration limit greater than background (CLGB) for a given COC only if a finding can be made such that (1) it is either technologically or economically infeasible to achieve the background value for that constituent, and (2) the constituent will not pose a substantial present or potential hazard to human health or the environment as long as the CLGB is not exceeded. However, in no instance shall a CLGB exceed the lowest concentration that the discharger demonstrates and the Water Board finds is technologically and economically achievable, nor shall a CLGB exceed the maximum concentration that would be allowed under other applicable statutes or regulations. Further, if the concentration of a given COC is lower than its associated CLGB by a "measurably significant" amount, the concentration limit for that constituent shall be lowered to reflect current water quality.

In 2002, CLGBs were established for three VOCs detected in groundwater beneath the Facility (Freon 12, Freon 113, and MTBE). The CLGB levels approved in 2002 under Board Order R6V-2002-052 were as follows: 1,000 μg/L for Freon 12 (California Department of Public Health Notification Level in which there is no drinking water Maximum Contaminant Level [MCL] for a given constituent); 1,200 μg/L for Freon 113 (MCL based on drinking water standards in CCR, title 22); and 13 μg/L for MTBE (MCL based on drinking water standards in CCR, title 22).

Actual concentrations of VOCs in the groundwater have remained significantly lower than the CLGB levels since the CAP was initiated in 2002. Freon 12 has been the most consistently detected VOC in groundwater beneath the Facility with concentrations ranging from 0.53 μg/L to 2.9 μg/L. The highest concentration of Freon 113 (1.3 μg/L) was detected in groundwater beneath the site in 1998 and the highest concentration of MTBE (1.0 μg/L) was detected in groundwater beneath the site in 1999. Neither Freon 113 nor MTBE have been detected in groundwater beneath the Facility at concentrations greater than the method detection limit (MDL) since 1998 and 1999, respectively.

The Discharger has re-evaluated the CLGB for Freon 12 and proposes to lower the CLGB from 1,000 μg/L to 1.5 μg/L. The lower CLGB for Freon 12 is reasonable and more accurately reflects existing water quality. Freon 113 and MTBE have not been detected in groundwater at concentrations greater than the MDL since the CAP was initiated. Therefore, the Discharger has demonstrated that it is technically and economically feasible to reduce Freon 113 and MTBE concentrations in groundwater to background levels (below the MDL) and recommends that the CLGB be removed for these constituents. This Order approves the revised CLGBs as part of the updated WQPS.

24. Groundwater Monitoring Frequency

The Discharger proposes to reduce the groundwater monitoring frequency from quarterly to semi-annually as a cost-savings measure. The Discharger has evaluated the last ten years of quarterly groundwater monitoring data and has determined that

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there are no seasonality trends, monitoring parameters have remained stable, and VOC concentrations are decreasing over time. Therefore, no loss in data would occur under a semi-annual monitoring frequency and the effectiveness of the CAP could still be evaluated. The proposed semi-annual monitoring frequency is considered protective of water quality.

25. Statistical and Non-Statistical Methods

Statistical and non-statistical analyses of monitoring data are necessary for the earliest possible detection of measurably significant evidence of a new release of waste from the Landfill. CCR, title 27, section 20415, subdivision (e)(7), requires statistical data analyses to determine when there is "measurably significant" evidence of a release from the WMU. CCR, title 27, section 20415, subdivision (e)(8) allows non-statistical data analyses methods that can achieve the goal of the monitoring program at least as well as the most appropriate statistical method. The monitoring parameters listed in MRP No. R6V-2016-PROPOSED are believed to be the best indicators of a release from the Facility.

26. Detection Monitoring Program

Pursuant to CCR, title 27, sections 20385 and 20420, the Discharger is implementing a detection monitoring program (DMP) for the Facility. The DMP successfully detected significant evidence of a release from the Landfill. The Discharger conducted an EMP to evaluate the extent of the impacts to water quality and designed a CAP. The Discharger is currently implementing the CAP and will continue to implement the DMP in order to monitor for significant evidence of any new releases from the Landfill, as specified in MRP No. R6V-2016-PROPOSED.

27. Evaluation Monitoring Program

An EMP may be required, pursuant to CCR, title 27, sections 20385 and 20420(k)(6), in order to evaluate evidence of a new release if detection monitoring and verification procedures indicate evidence of a release. The Discharger must delineate the nature and extent of the release and develop a suite of proposed corrective action measures within 90 days on initiating an EMP, unless the Discharger proposes and substantiates a longer time period for implementing the EMP. If the EMP confirms measurably significant evidence of a release, then the Discharger must submit an Engineering Feasibility Study report proposing corrective action measures pursuant to CCR, title 27, section 20425, subdivision (b), and MRP No. R6V-2016-PROPOSED.

28. Corrective Action Program

The Discharger has been implementing a CAP since 2002 to remediate a known release from the Facility pursuant to CCR, title 27, section 20430. VOCs were initially detected in groundwater beneath the Facility in 1994 and continue to be detected in groundwater beneath the Facility at concentrations that exceed the background value of non-detect. Those VOCs include Freon 12, Freon 113, MTBE, PCE, Freon 11, and

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trichloromethane. The Discharger has shown that LFG migration is the source of this release.

The approved CAP is MNA. MNA allows natural processes to degrade contaminants in the unsaturated zone and groundwater, which include biological degradation (biodegradation) of these contaminants by naturally occurring microorganisms and by chemical transformation of inorganic constituents through chemical reactions with naturally occurring constituents found in subsurface soils. The Discharger has shown that MNA is the most technically and economically feasible corrective action and proposes continuation of the CAP.

Since the CAP was initiated in 2002, concentrations of VOCs in groundwater have been decreasing over time with quantifiable VOC concentrations (detections above the practical quantitation limit [PQL]) being detected in only one groundwater monitoring well (well BO1-06). Trace VOC concentrations (detections between the MDL and PQL) have only been detected in point of compliance groundwater monitoring wells on two occasions (BO1-07 in 1999 and BO1-10 in 2002). VOCs have not been detected in any point of compliance groundwater monitoring well since 2002.

The most common VOCs currently detected in groundwater beneath the Facility are Freon 12, PCE, and Freon 11. For the last 10 years, concentrations of Freon 12 in the groundwater have fluctuated between 1.8 µg/L and the PQL of 0.50 µg/L. The historical maximum concentration of Freon 12 was detected in 2003 at 2.9 µg/L. Concentrations of PCE and Freon 11 in the groundwater have fluctuated between trace levels and non-detect since 2002, with PCE being more consistently detected compared to Freon 11. The historical maximum concentration of PCE was detected in 2001 at 3.7 µg/L. Freon 11 has not been detected in groundwater at quantifiable concentrations above the PQL (0.50 µg/L). Neither Freon 113 nor MTBE have been detected in groundwater beneath the Facility at concentrations greater than the MDL (i.e. non-detect) since 1998 and 1999, respectively.

Water Board staff has evaluated the proposed continuation of the CAP with MNA as the corrective action to remediate the known release from the Landfill and has determined that: 1) the CAP meets the requirements of CCR, title 27, section 20430; 2) MNA has been and will likely continue to be an effective remedial option to reduce VOC concentrations in groundwater; and 3) that remedial goals will likely be achieved within a reasonable timeframe. The following site-specific factors were considered in the evaluation.

a. Favorable MNA conditions continue to exist beneath the Landfill based on evidence provided by the Discharger's water quality monitoring program.

b. The Landfill will continue to generate LFG until all waste in the WMU has fully decomposed. The more chemicals disposed of in the Landfill, the more likely VOCs will be produced in the decomposition process. To reduce the potential for VOCs to be generated, the Discharger is implementing source controls including

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load checking and waste diversion programs to prevent potentially hazardous substances from being disposed of in the Landfill.

c. The plume appears to be stable with quantifiable VOC concentrations limited to only one groundwater monitoring well (well BO1-06). VOC concentrations in groundwater have been decreasing over time since the CAP was initiated in 2002, and VOCs have not been detected in any point of compliance groundwater monitoring well since 2002.

d. Implementation of MNA poses no threat to human health or the environment. Detectable VOC concentrations in groundwater have not exceeded their respective MCL or California Department of Public Health Notification Level (for those VOCs for which there is no MCL) since the release was detected in 1994.

e. The Discharger has shown that remedial goals will likely be achieved within a reasonable timeframe of 35 years. A graphical trend-line projection of Freon 12 concentrations in groundwater suggests that concentration levels will fall below the PQL of 0.50 µg/L by the year 2023, and will continue to decline to below the MDL of 0.099 µg/L by the year 2037.

This Order approves continuation of the CAP, as proposed by the Discharger. The CAP may be terminated when the Discharger demonstrates to the satisfaction of the Water Board that the concentrations of all VOCs are reduced to levels below their respective concentration limits throughout the entire zone affected by the release.

29. Unsaturated Zone Monitoring

LFG is created by the bacterial decomposition of organic refuse within a landfill and consists primarily of methane and carbon dioxide with lesser amounts of nitrogen, oxygen, hydrogen sulfide, and other gases. In general, the more organic waste and moisture present in the landfill, the more LFG produced by the bacteria during decomposition. Similarly, the more chemicals disposed of in the landfill, the more likely VOCs and other gases will also be produced. In landfills that have average moisture content, the decomposition process occurs at a relatively rapid rate initially and approaches zero asymptotically approximately 20 years after waste placement occurs with approximately 50 percent of the decomposition occurring after 5 years and 90 percent of the decomposition occurring after 10 years. However, actual decomposition rates vary as a result of site-specific environmental influences and the chemical composition of discrete zones within the landfill. Of these environmental influences, the moisture content of the waste is one of the primary factors in LFG production. The decomposition of waste in the Boron Landfill, and subsequent generation of LFG, is expected to continue at a slow rate for an extended period time given the low annual rainfall in the region and relatively low moisture content of the waste compared to similar landfills in less arid regions.

The original unsaturated zone monitoring program consisted of five vacuum lysimeters (BO1-01 through BO1-05) located around the perimeter of the landfill. The lysimeters

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are used to collect samples of soil-pore liquids to evaluate the chemical composition and quality of soil-pore moisture in the unsaturated zone, and lysimeters have been monitored on a quarterly basis since they were installed in 1987. BO1-04 has yielded sufficient fluid for sampling on two occasions (May 2009, August 2012), and BO1-05 has yielded sufficient fluid for sampling on four occasions (second, third, and fourth quarters 1995, August 2013). Lysimeters BO1-01, BO1-02, and BO1-03 have never yielded sufficient fluid for sampling. Freon 12 and PCE were detected in the fluid sampled from lysimeter BO1-04 in August 2012 at concentrations of 0.85 µg/L and 0.75 µg/L, respectively. PCE was detected at trace concentrations in the fluid sampled from lysimeter BO1-05 in August 2013. While only a handful of soil-pore liquid samples have been collected from the lysimeters since 1987, those samples did contain detectable concentrations of VOCs and serve as an indication that the lysimeters continue to be an effective method to monitor and evaluate the chemical composition and quality of soil-pore moisture in the unsaturated zone beneath the Landfill.

In 1997, the Discharger installed LFG monitoring well BO1-11 as part of the EMP to evaluate the extent and nature of the release of VOCs to groundwater. LFG monitoring well BO1-11 is completed with isolated probes at depths of 48 feet, 86.5 feet, and 170 feet bgs. The deepest probe in well BO1-11 is completed near, but above, the soil-groundwater interface. LFG well BO1-11 is located adjacent to groundwater monitoring well BO1-06, which is located within the VOC plume. In July 2008, five additional LFG monitoring wells (BO1-12 through BO1-16) were installed and completed with isolated probes at depths of 10 feet and 25 feet below ground surface. The probe interval at 25 feet is placed at the deepest depth of waste at each well location. LFG monitoring wells BO1-12 through BO1-16 were installed primarily to comply with CalRecycle requirements, but serve a dual purpose as a LFG perimeter monitoring network and as sampling points for unsaturated zone soil-gas monitoring.

The Discharger proposes to augment the unsaturated zone soil-pore liquid monitoring by monitoring soil-gas for LFG constituents in LFG monitoring well BO1-11. While few studies have evaluated the relationship between soil-pore VOC concentrations and the potential threat to the quality of underlying groundwater, the Discharger proposes to monitor VOC concentrations in the unsaturated zone and use that data to characterize the relationship, if any, between soil-pore VOC concentrations and the potential threat to water quality at the soil-groundwater interface.

30. <u>Discharge of Monitoring Well Purge Water</u>

As part of the regularly scheduled groundwater sampling events, groundwater monitoring wells are purged until parameters of pH, temperature, and electrical conductivity are sufficiently stabilized to assure collection of a representative sample. Because VOCs pollute the aquifer beneath the Landfill, the purge water may also contain these constituents at concentrations greater than background. The best practicable treatment technology can remove VOCs from water to non-detectable concentrations. This Order prohibits the discharge to the ground of purge water containing concentrations of VOCs which exceed the WQPS.

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31. Preliminary Closure and Post-Closure Maintenance and Engineered Alternative

The Discharger has submitted an updated Preliminary CPCMP, dated January 2014. This plan generally proposes in-place closure of the waste and monitoring of the unsaturated zone, groundwater, and final cover materials. Revisions to the Preliminary CPCMP consist of a proposal for an engineered alternative final cover, specifically an evapotranspirative (ET) soil cover. The proposed ET cover is a 3-foot thick monolithic cover over the entire Landfill surface upon closure. The main concept of this type of cover is to store moisture between the soil particles during the rainy season and release that moisture during the dry season through plant uptake and evaporation. The RWD provided rationale to support that the ET cover is consistent with the performance goal of the prescriptive final cover, which is to minimize the infiltration of water into the waste.

Regulations contained in CCR, title 27, section 20080, subsection (b), allows for an engineered alternative provided that the Discharger demonstrates that the construction of the prescriptive standard is not feasible and that the engineered alternative is consistent with the performance goal of the prescriptive standard and affords equivalent protection against water quality impairment. Based on the information contained in the RWD, the proposed ET cover meets the requirements of CCR, title 27, section 20080, subsection (b), as summarized below:

a. The prescriptive standard will be unnecessarily burdensome and cost substantially more to construct than the proposed ET cover. The Discharger has identified a potential onsite soil borrow source for the ET cover. An onsite availability of soil material translates into a reduction in material costs and transportation-related impacts to the environment. Additionally, ET covers are easier to construct than multi-component prescriptive covers, with no significant potential for construction or installation related damage. Construction cost savings for the proposed ET cover are estimated to be approximately $750,000 when compared to the prescriptive standard for the Landfill.

b. To maximize the “store and release” characteristics of the ET cover, the proposed alternative will be designed to utilize the most effective combination of the physical properties of the soil source materials, the native vegetative communities that will be growing on the final cover, and site-specific climatic conditions. While the theoretical total volume of precipitation that will percolate through a final cover designed to prescriptive standards is considered negligible (less than 0.1 inch per acre per year), the actual amount of percolation is controlled by several variables including defects in the materials (if using a geosynthetic liner), quality control during installation, the plasticity of the soil materials (clayey soils tend to shrink and crack in arid environments and under differential settlement conditions), and post-closure maintenance and repair. Based on site-specific conditions, the proposed ET cover will provide, at minimum, equal performance with respect to minimizing infiltration of water into the waste when compared to the prescriptive standard for the Landfill.

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c. Prescriptive final covers constructed with a low-permeability layer can trap LFG thereby resulting in the potential for LFG to migrate laterally and vertically and potentially impact groundwater and the unsaturated zone. ET covers do not significantly affect LFG dynamics, but rather will allow for some movement of LFG through the cover system. When compared to the prescriptive standard, the proposed ET cover will provide superior protection against water quality impairment from LFG migration for the Landfill.

Water Board staff has evaluated the proposed engineered alternative final cover and has determined that the alternative meets the CCR, title 27 requirements, is consistent with the performance goal of the prescriptive standards, and affords equivalent or better protection against water quality impairment. This Order provides Water Board approval of the Preliminary CPCMP and the proposed engineered alternative final cover.

32. Financial Assurance

The Discharger has provided documentation that a financial assurance fund has been developed for closure, post-closure maintenance, and potential future corrective action requirements. This Order requires the Discharger to report the amount of money available in the fund as part of the annual self-monitoring report. This Order also requires the Discharger to demonstrate, in an annual report, that the amount of financial assurance is adequate or to increase the amount of financial assurance, as appropriate, for inflation.

33. Other Considerations and Requirements for Discharge

Pursuant to CWC, section 13241, the requirements of this Order take into consideration:

a. Past, present, and probable future beneficial uses of water. This Order identifies existing groundwater quality and past, present, and probable future beneficial uses of water, as described in Finding Nos. 15 and 20, respectively. The proposed discharge will not adversely affect present or probable future beneficial uses of water including municipal and domestic supply, agricultural supply, industrial service supply, and freshwater replenishment, because the discharge is authorized only to Landfill and monitoring is required to assess water quality.
b. Environmental characteristics of the hydrographic unit under consideration including the quality of water available thereto. Finding No. 15 describes the environmental characteristics and quality of water available.

c. Water quality conditions that could reasonably be achieved through the coordinated control of all factors that affect water quality in the area. The requirements of this Order will not affect groundwater quality. The Water Board will use its existing authority and these WDRs to ensure protection of water quality from these discharges.

d. Economic considerations. Water Quality Objectives established in the Basin Plan for the Antelope Valley Groundwater Basin and North Muroc Hydrologic

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Area do not subject the Discharger to economic disadvantage as compared to other similar discharges in the Region. This Order will require the Discharger to submit proposals compliant with the requirements of CCR, title 27, and is reasonable.

e. The need for developing housing within the region. The Discharger is not responsible for developing housing within the region. This Order provides for capacity to dispose of municipal solid waste in the Landfill.

f. The need to develop and use recycled water. The Discharger does not propose the use of recycled water at this Facility.

34. California Environmental Quality Act

The Kern County Waste Management Department prepared a Mitigated Negative Declaration (MND) for the Project. The MND was prepared pursuant to the California Environmental Quality Act (CEQA Public Resources Code 21000, et seq.) and circulated under State Clearinghouse No. 1997081087. The MND was adopted by the Kern County Board of Supervisors on December 3, 2013, following public review. The Lahontan Water Board, acting as a CEQA Responsible Agency in compliance with CCR, title 14, section 15096, has exercised its independent judgment when considering the MND for the Project and has incorporated into this Order mitigation measures from the MND to reduce potential impacts to hydrology and water quality to a less than significant level. The Lahontan Water Board finds that, with the mitigation measures incorporated into this Order, the Project will not have a significant effect on the environment.

35. Technical and Monitoring Reports

The Discharger must submit technical and monitoring reports in compliance with this Order as described in MRP No. R6V-2016-PROPOSED, which is attached to and made part of this Order.

36. Notification of Interested Parties

The Water Board notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for this discharge and has provided them with an opportunity to submit their written views and recommendations.

37. Right to Petition

Any person aggrieved by this action of the Water Board may petition the State Water Board to review the action in accordance with California Water Code, section 13320, and CCR, title 23, sections 2050 et sec. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day.

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Copies of the law and regulations applicable to filing petitions may be found on the internet at http://www.waterboards.ca.gov/public_notices/petitions/water_quality, or will be provided in hard copy or electronic format upon request.

38. Consideration of Public Comments

The Water Board, in a public meeting held on February 11, 2016, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED that the Discharger shall comply with the following:

I. RECEIVING WATER LIMITATIONS

The discharge shall not cause the existing water quality to be degraded nor shall the discharge cause a violation of any applicable water quality standard for receiving water adopted by the Water Board or the State Water Board as required by the California Water Code (Water Code) and regulations adopted hereunder.

A. Under no circumstances shall the discharge cause the presence of the following substances or conditions in groundwaters of the Antelope Valley Groundwater Basin.

1. Bacteria – Groundwaters designated as MUN, the median concentration of coliform organisms, over any seven-day period, shall be less than 1.1 Most Probable Number per 100 milliliters (MPN/100 mL).

2. Chemical Constituents – Groundwaters designated as MUN shall not contain concentrations of chemical constituents in excess of the Primary MCL or Secondary MCL based upon drinking water standards specified in the following provisions of CCR, title 22: Table 64431-A of section 64431 (Inorganic Chemicals), Table 64444-A of section 64444 (Organic Chemicals), Table 64449-A of section 64449 (Secondary MCLs – Consumer Acceptance Contaminant Levels), and Table 64449-B of section 64449 (Secondary MCLs – Consumer Acceptance Contaminant Level Ranges). This incorporation-by-reference is prospective including future changes to the incorporated provisions as the changes take effect.

   Groundwaters shall not contain concentrations of chemical constituents that adversely affect the water for beneficial uses.

3. Radioactivity – Groundwater designated MUN shall not contain concentrations of radionuclides in excess of limits specified in CCR, title 22, section 64442, Table 64442, and section 64443, Table 64443, including future changes as the changes take effect.

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4. Taste and Odors – Groundwaters shall not contain taste or odor-producing substances in concentrations that cause a nuisance or that adversely affect beneficial uses. For groundwaters designated as MUN, at a minimum, concentrations shall not exceed adopted Secondary MCLs as specified in CCR, title 22, section 64449, Table 64449-A (Secondary MCLs – Consumer Acceptance Contaminant Level) and Table 64449-B (Secondary MCLs – Consumer Acceptance Contaminant Levels Ranges) including future changes as the changes take effect.

5. Color – Groundwaters must not contain color-producing substances from tracers in concentrations that cause a nuisance or that adversely affect beneficial uses.

6. Toxic Substances – Any presence of toxic substances in concentrations that individually, collectively, or cumulatively cause a detrimental physiological response in humans, plants, animals, or aquatic life is prohibited.

II. REQUIREMENTS AND PROHIBITIONS

A. General

1. The discharge must not cause or threaten to cause a condition of pollution or nuisance as defined in CWC, section 13050.

2. The discharge of waste, as defined in CWC, section 13050, subdivision (d), that causes a violation of any narrative Water Quality Objective (WQO) contained in the Basin Plan, including the Nondegradation Objective, is prohibited.

3. Where any numeric or narrative water quality objective contained in the Basin Plan is already being violated, any discharge which causes further degradation or pollution is prohibited.

4. The discharge of waste, except to the authorized disposal site (Landfill), is prohibited.

5. No hazardous or designated wastes shall be discharged to or used as alternative daily cover at the Landfill as defined in CCR, title 23, chapter 15, section 2521 and CCR, title 27, section 20210, respectively.

6. The ponding of any liquid on the Landfill is prohibited.

7. Water used for dust control shall be limited to a minimal amount. A "minimal amount" is defined as that amount which will not result in run-off.

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8. All purge water discharged to the ground at the Landfill shall not contain concentrations of VOCs in excess of the WQPS.

9. The discharge of waste that contains liquid in excess of the moisture-holding capacity of the Landfill, or which contains liquid in excess of the moisture-holding capacity as a result of waste management operations, compaction, or settlement, is prohibited.

10. The discharge of solid or liquid waste, leachate, or any other deleterious material to surface waters or groundwater is prohibited.

11. The Landfill must be protected from inundation, washout, or erosion of wastes and erosion of covering materials resulting from a 24-hour, 100-year storm or a flood having a 100-year return period.

12. The Discharger must notify the Water Board within one business day of any flooding, slope failure or other change in site conditions that could impair the integrity of the Landfill or of precipitation and drainage control structures. The Discharger shall correct any failure that threatens the integrity of the Landfill, after approval of the method, in accordance with a schedule established by the Water Board as specified in CCR, title 27, section 21710, subdivision (c)(2).

13. Surface drainage from offsite areas and internal site drainage from surface or subsurface sources, must not contact or percolate through solid wastes discharged at the site.

14. The exterior surfaces of the Landfill must be graded to promote lateral run-off of precipitation and to prevent ponding.

15. The Discharger must maintain in good working order any control system or monitoring device installed to achieve compliance with these WDRs.

16. Two years prior to the anticipated closure of the Landfill, the Discharger shall submit to the Water Board, for review and approval, a Final Closure and Post Closure Monitoring Plan in accordance with CCR, title 27, section 21780.

17. The Discharger must at all times maintain adequate and viable financial assurances acceptable to the Water Board Executive Officer for costs associated with closure, post-closure monitoring, and corrective action for all known or reasonably foreseeable releases.

B. Storm Water Discharges

Waste in discharges of storm water must be reduced or prevented to achieve the best practicable treatment level using controls, structures, and management

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practices. The applicant shall comply with all storm water monitoring, response, and reporting requirements described in MRP No. R6V-2016-PROPOSED.

C. Electronic Submittal of Information

Pursuant to CCR, title 23, section 3890, the Discharger must submit all reports, including soil, soil vapor, and water data, prepared for the purpose of subsurface investigation or remediation of a discharge of waste to land subject to Division 2 of title 27 electronically over the internet to the State Water Board's Geotracker system. This requirement is in addition to, and not superseded by, any other applicable reporting requirement.

III. WATER QUALITY MONITORING AND RESPONSE PROGRAMS

A. Detection Monitoring Program

The Discharger must maintain a DMP as required in CCR, title 27, section 20420. In conjunction with a CAP, the Discharger shall continue to conduct a DMP, as necessary, to provide the best assurance of the detection of subsequent releases from the Landfill.

B. Evaluation Monitoring Program

The Discharger shall re-establish a revised EMP whenever there is measurably significant evidence and/or significant physical evidence of a new release from the Landfill pursuant to CCR, title 27, section 20425. Within 90 days of initiating an EMP, the Discharger must delineate the nature and extent of the release, as well as develop, propose, and support corrective action measures to be implemented in a CAP.

C. Corrective Action Program

The Discharger is implementing a CAP as required pursuant to CCR, title 27, section 20430(c). The Discharger shall continue implementing the CAP until it can be demonstrated to the satisfaction of the Water Board that the concentrations of all COCs are reduced to levels below their respective concentration limits throughout the entire zone affected by the release. Any modifications to the CAP shall be submitted to the Water Board for review prior to implementation.

D. Water Quality Protection Standard

1. The WQPS consists of COCs, concentration limits, monitoring points, and the point of compliance. The COCs, concentration limits, monitoring points, and point of compliance for groundwater and unsaturated zone monitoring are described in MRP No. R6V-2016-PROPOSED.

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2. At any given time, the concentration limit for each COC must be equal to the background data set of that constituent unless a CLGB has been established.

3. If the Discharger or Water Board Executive Officer determines that concentration limits were or are exceeded, the Discharger may immediately institute verification procedures upon such determination as specified below or, within 90 days of such determination, submit a technical report pursuant California Water Code section 13267, subdivision (b), proposing an EMP meeting the provisions of CCR, title 27, section 20420, subdivision (k)(5). In the event of a new release, unless the technical report proposing an EMP recommends and substantiates a longer period, the Discharger will only have 90 days, once the Water Board authorizes the initiation of the EMP, to complete the delineation, develop a suite of proposed corrective action measures, and submit a proposed CAP for adoption by the Water Board.

4. Monitoring of the groundwater and unsaturated zone must be conducted to evaluate the effectiveness of the CAP and to provide the best assurance of the early detection of any new releases from the Landfill.

E. Concentration Limits Greater Than Background

CLGB shall be re-evaluated during each review of WDRs or at minimum every two years. If the Water Board, upon re-evaluation, determines that the concentration of a COC in groundwater, surface water, or the unsaturated zone is lower than its associated concentration limit by a “measurably significant” amount (as defined in CCR, title 27, section 20164), the concentration limit for that constituent shall be lowered to reflect current water quality (CCR, title 27, section 20400(c)(i)).

F. Data Analysis

Within 45 days of receipt of laboratory results, the Discharger must determine at each Monitoring Point whether there is measurably significant evidence and/or significant physical evidence of a new release from the Landfill. The analysis must consider all monitoring parameters and COCs. The Executive Officer may also make an independent finding that there is measurably significant evidence and/or significant physical evidence of a new release.

1. To determine whether there is "measurably significant" (as defined in CCR, title 27, section 20164) evidence of a new release from the Landfill, the Discharger must use approved statistical data analysis methods to evaluate point of compliance groundwater data, as required by CCR, title 27, section 20415, subdivision (e).

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2. To determine whether there is significant physical evidence of a new release from the Landfill, the Discharger must use non-statistical methods. Significant physical evidence may include, but is not limited to, unexplained volumetric changes in the Landfill, unexplained stress in biological communities, unexplained changes in soil characteristics, visible signs of leachate migration, unexplained water table mounding beneath or adjacent to the Facility, and/or any other change in the environment that could be reasonably be expected to be the result of a new release from the Landfill. Other non-statistical evidence of a release may include trends of increasing concentrations of one or more constituents over time.

3. If there is measurably significant evidence and/or significant physical evidence of a new release, the Discharger must immediately notify the Water Board verbally by telephone as to the monitoring points and constituent(s) or parameters involved followed by written notification sent certified mail within seven days (see "Unscheduled Reports to be Filed With the Water Board," MRP No. R6V-2016-PROPOSED). The Discharger must initiate the verification procedures, as specified in section III.G below.

G. Verification Procedures

Whenever there is a determination by the Discharger or Executive Officer that there is measurably significant evidence or significant physical evidence of a new release, the Discharger must initiate verification procedures as specified below.

1. The Discharger must either conduct a composite retest using data from the initial sampling event with all data obtained from the resampling event or must conduct a discrete retest in which only data obtained from the resampling event must be analyzed to verify evidence of a release. Alternatively, the Discharger may perform a pass 1-of-3 retesting approach using quarterly samples, as an engineered alternative.

2. The verification procedure need only be performed for the constituent(s) that has shown a measurably significant evidence of a release, and must be performed for those monitoring points at which a release is indicated.

3. Within seven days of receiving the results of the last laboratory analyses for the retest, the Discharger must report to the Water Board, by certified mail, the results of the verification procedure, as well as all data collected for use in the retest.

4. If the Discharger or Executive Officer verifies that there is or was evidence of a release, the Discharger is required to submit a technical report to the Water Board within 90 days of such a determination, pursuant to Water Code, section 13267, subdivision (b). The report must propose an evaluation monitoring program (see section III.C above) or make a

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demonstration to the Water Board that there is a source other than the Landfill that caused evidence of a release (see "Unscheduled Reports to be Filed With the Water Board," MRP No. R6V-2016-PROPOSED).

5. If the Discharger declines to conduct verification procedures, the Discharger must submit a technical report, as specified in section III.H below.

H. Technical Report Without Verification Procedures

If the Discharger chooses not to initiate verification procedures after there has been a determination made for evidence of a release, a technical report must be submitted pursuant to Section 13267(b) of the California Water Code. The report must propose an EMP or attempt to demonstrate that the release did not originate from the Facility.

I. Monitoring and Reporting

1. Pursuant to Water Code, section 13267, subdivision (b), the Discharger must comply with the monitoring and reporting requirements as established in the attached MRP No. R6V-2016-PROPOSED, and as specified by the Executive Officer. The MRP may be modified by the Water Board Executive Officer.

2. The Discharger must comply with the "General Provisions for Monitoring and Reporting," dated September 1, 1994, which is attached to and made part of MRP No. R6V-2016-PROPOSED.

IV. PROVISIONS

A. Rescission of Waste Discharge Requirements

Board Order No. R6V-2002-052 and MRP No. R6V-2002-052 are hereby rescinded.

B. Standard Provisions

The Discharger must comply with the "Standard Provisions for Waste Discharge Requirements," dated September 1, 1994, in Attachment "C," which is attached to and made part of this Order.

C. Closure and Post-Closure

This Order provides Water Board approval of the Preliminary CPCMP and the proposed engineered alternative final cover. The Discharger must submit a report to the Water Board on or before **March 30, 2016**, and by **March 30** every year thereafter, indicating that the Preliminary CPCMP is in conformance with

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existing Facility operations. The Preliminary CPCMP and/or cost estimates shall be updated if/when there is a significant change in design or operation of the Landfill or there is substantial change in costs for closure, and to reflect changes in inflation rates (see IV.D below).

A Final CPCMP shall be submitted at least two years prior to the anticipated date of closure for any or all parts of the Landfill. The Final CPCMP must be prepared by or under the supervision of either a California registered civil engineer or a certified engineering geologist and be in compliance with CCR, title 27, sections 20950 and 21769.

D. Financial Assurance

The Discharger must submit to the Water Board a financial assurance report on or before **March 30, 2016**, and by **March 30** every year thereafter, providing evidence that adequate financial assurances have been provided for closure, post-closure maintenance, and known and reasonably foreseeable releases. Evidence shall include the total amount of money available in the fund developed by the Discharger. In addition, the Discharger shall either provide evidence that the amount of financial assurance is still adequate or increase the amount of financial assurance by an appropriate amount. An increase may be necessary due to inflation, change(s) in regulatory requirements, change(s) in the approved closure plan, or other unforeseen events.

E. Modifications to the Facility

If the Discharger intends to expand the capacity of the Landfill, a report shall be filed no later than 90 days after the total quantity of waste discharged at this site equals 75 percent of the reported capacity of the site. The report shall contain a detailed plan for site expansion. This plan shall include, but is not limited to, a time schedule for studies, design, and other steps needed to provide additional capacity. If site expansion is not undertaken prior to the site reaching the reported capacity, the total quantity discharged shall be limited to the reported capacity.

I, Patty Z. Kouyoumdjian, 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 Board, Lahontan Region, on February 11, 2016.

_____
PATTY Z. KOUYOUMDJIAN
EXECUTIVE OFFICER

Attachments: A. Boron Sanitary Landfill Facility and Site Vicinity Map
B. Boron Sanitary Landfill Footprint of Waste and Site Topography Map
C. Standard Provisions for Waste Discharge Requirements

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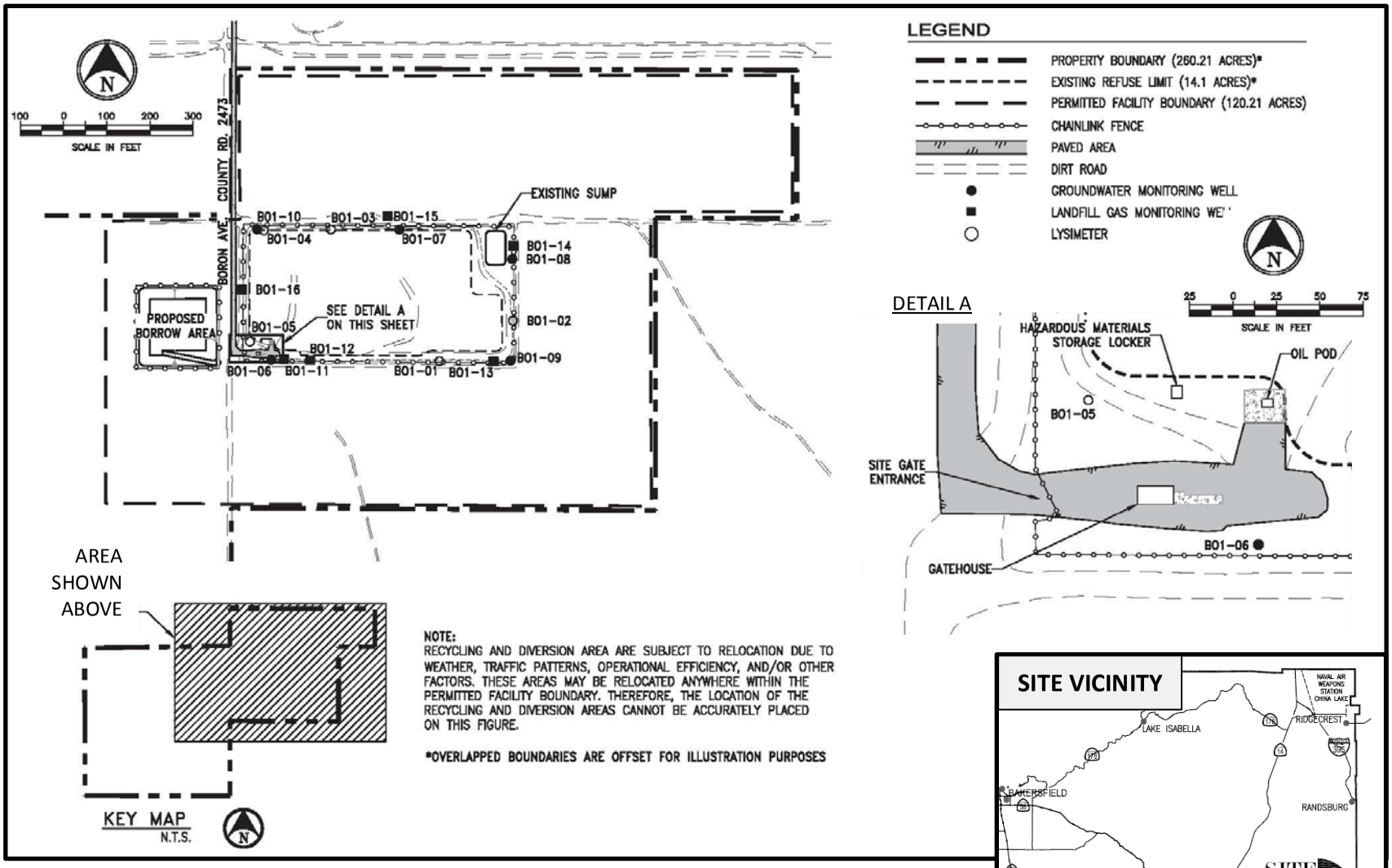
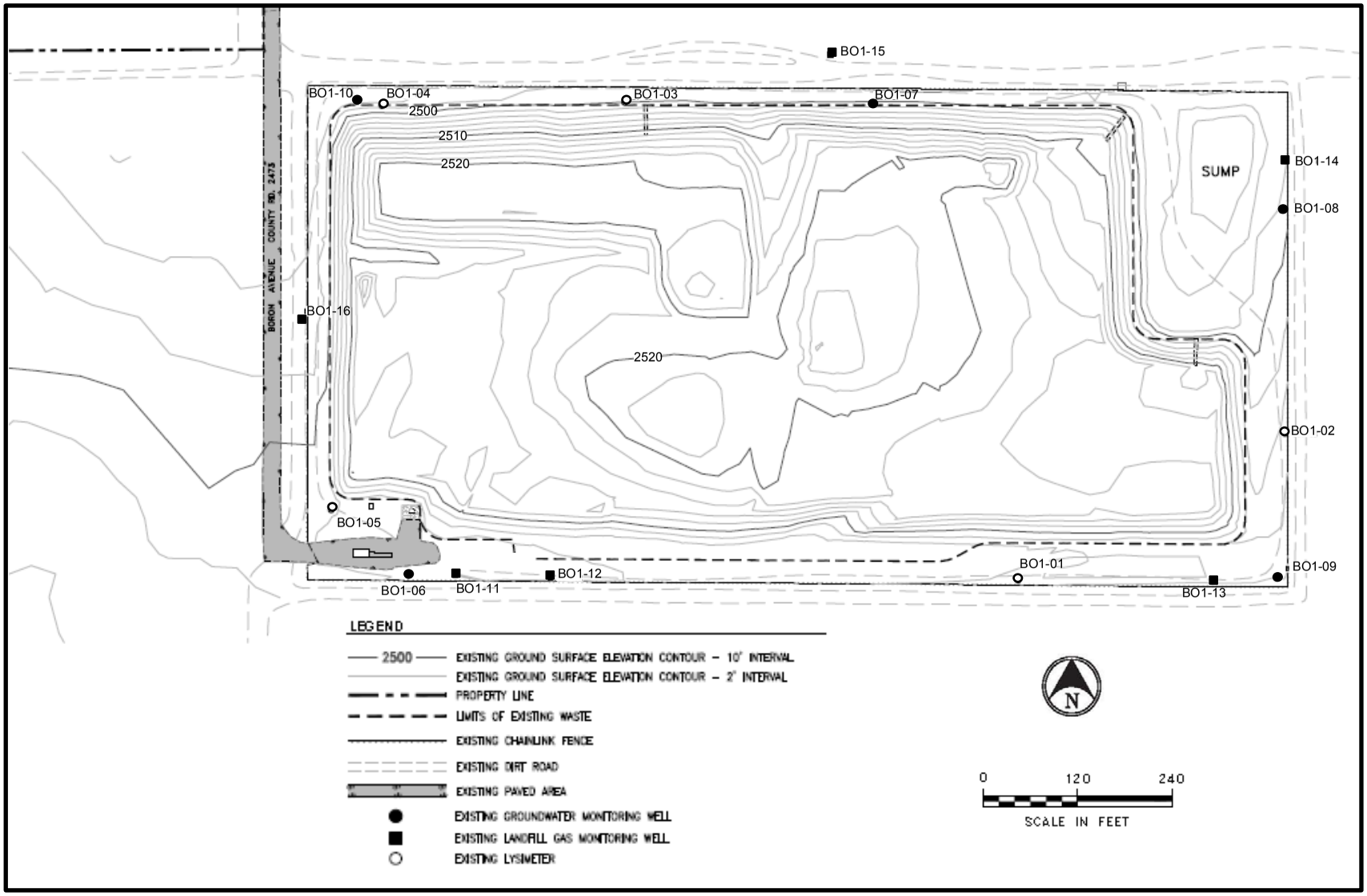


BORON SANITARY LANDFILL FACILITY AND SITE VICINITY MAP



BORON SANITARY LANDFILL FOOTPRINT OF WASTE AND SITE TOPOGRAPHY MAP

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

STANDARD PROVISIONS
FOR WASTE DISCHARGE REQUIREMENTS

1. Inspection and Entry

The Discharger shall permit Regional Board staff:

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

b. to copy any records relating to the discharge or relating to compliance with the Waste Discharge Requirements (WDRs);

c. to inspect monitoring equipment or records; and

d. to sample any discharge.

2. Reporting Requirements

a. Pursuant to California Water Code 13267(b), the Discharger shall immediately notify the Regional Board by telephone whenever an adverse condition occurred as a result of this discharge; written confirmation shall follow within two weeks. An adverse condition includes, but is not limited to, spills of petroleum products or toxic chemicals, or damage to control facilities that could affect compliance.

b. Pursuant to California Water Code Section 13260 (c), any proposed material change in the character of the waste, manner or method of treatment or disposal, increase of discharge, or location of discharge, shall be reported to the Regional Board at least 120 days in advance of implementation of any such proposal. This shall include, but not be limited to, all significant soil disturbances.

c. The Owners/Discharger of property subject to WDRs shall be considered to have a continuing responsibility for ensuring compliance with applicable WDRs in the operations or use of the owned property. Pursuant to California Water Code Section 13260(c), any change in the ownership and/or operation of property subject to the WDRs shall be reported to the Regional Board. Notification of applicable WDRs shall be furnished in writing to the new owners and/or operators and a copy of such notification shall be sent to the Regional Board.

d. If a Discharger becomes aware that any information submitted to the Regional Board is incorrect, the Discharger shall immediately notify the Regional Board, in writing, and correct that information.

e. Reports required by the WDRs, and other information requested by the Regional Board, must be signed by a duly authorized representative of the Discharger. Under Section 13268 of the California Water Code, any person failing or refusing to furnish technical or monitoring reports, or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in an amount of up to one thousand dollars ($1,000) for each day of violation.

f. If the Discharger becomes aware that their WDRs (or permit) are no longer needed (because the project will not be built or the discharge will cease) the Discharger shall notify the Regional Board in writing and request that their WDRs (or permit) be rescinded.

3. Right to Revise WDRs

The Regional Board reserves the privilege of changing all or any portion of the WDRs upon legal notice to and after opportunity to be heard is given to all concerned parties.

4. Duty to Comply

Failure to comply with the WDRs may constitute a violation of the California Water Code and is grounds for enforcement action or for permit termination, revocation and re-issuance, or modification.

5. Duty to Mitigate

The Discharger shall take all reasonable steps to minimize or prevent any discharge in violation of the WDRs which has a reasonable likelihood of adversely affecting human health or the environment.

6. Proper Operation and Maintenance

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the Discharger to achieve compliance with the WDRs. Proper operation and maintenance includes adequate laboratory control, where appropriate, and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by the Discharger, when necessary to achieve compliance with the conditions of the WDRs.

7. Waste Discharge Requirement Actions

The WDRs may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for waste discharge requirement modification, revocation and re-issuance, termination, or a notification of planned changes or anticipated noncompliance, does not stay any of the WDRs conditions.

8. Property Rights

The WDRs do not convey any property rights of any sort, or any exclusive privileges, nor does it authorize any injury to private property or any invasion of personal rights, nor any infringement of federal, state or local laws or regulations.

9. Enforcement

The California Water Code provides for civil liability and criminal penalties for violations or threatened violations of the WDRs including imposition of civil liability or referral to the Attorney General.

10. Availability

A copy of the WDRs shall be kept and maintained by the Discharger and be available at all times to operating personnel.

11. Severability

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

12. Public Access

General public access shall be effectively excluded from treatment and disposal facilities.

13. Transfers

Providing there is no material change in the operation of the facility, this Order may be transferred to a new owner or operation. The owner/operator must request the transfer in writing and receive written approval from the Regional Board's Executive Officer.

14. Definitions

a. "Surface waters" as used in this Order, include, but are not limited to, live streams, either perennial or ephemeral, which flow in natural or artificial water courses and natural lakes and artificial impoundments of waters. "Surface waters" does not include artificial water courses or impoundments used exclusively for wastewater disposal.

b. "Ground waters" as used in this Order, include, but are not limited to, all subsurface waters being above atmospheric pressure and the capillary fringe of these waters.

15. Storm Protection

All facilities used for collection, transport, treatment, storage, or disposal of waste shall be adequately protected against overflow, washout, inundation, structural damage or a significant reduction in efficiency resulting from a storm or flood having a recurrence interval of once in 100 years.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

MONITORING AND REPORTING PROGRAM
NO. R6V-2016-[PROPOSED]
WDID NO. 6B150303003

KERN COUNTY PUBLIC WORKS DEPARTMENT
BORON SANITARY LANDFILL

Kern County

I. WATER QUALITY PROTECTION STANDARD

A Water Quality Protection Standard (WQPS) is required by California Code of Regulations (CCR), title 27, section 20390 through 20410, to assure the earliest possible detection of a release from a waste management unit to the underlying soil and/or groundwater. The WQPS shall consist of all constituents of concern, the concentration limits for each constituent of concern, the point of compliance, and all water quality monitoring points. The Executive Officer shall review and approve the WQPS, or any modification thereto, for each monitored medium.

The Kern County Public Works Department (Discharger) submitted an updated WQPS Report for the Boron Sanitary Landfill (Landfill) on October 29, 2015. The Discharger is currently implementing a corrective action program (CAP) to remediate a release from the Landfill. Volatile organic compounds (VOCs) have been detected in groundwater beneath the Landfill. A WQPS is necessary to evaluate the effectiveness of the CAP and, as part of the detection monitoring program (DMP), to determine if a new release occurs.

A. Constituents of Concern

The constituents of concern (COCs) include all the waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste contained in a waste management unit. The COCs for each monitored medium at the Landfill are listed in Attachment A.

B. Monitoring Parameters

Monitoring parameters are those COCs that provide a reliable indication of a release from the Facility. The monitoring parameters for each monitored medium at the Landfill are listed in Attachment A.

C. Concentration Limits

Concentration limits are established for each COC and are intended to reflect background ambient conditions of surface and subsurface media that are unaffected by a release from the waste management unit. At any given time, the concentration limit for each COC must be equal to the background data set of that constituent unless a concentration limit greater than background (CLGB) has

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been established. Title 27 allows for various options to determine concentration limits including statistical interwell and intrawell methods and non-statistical methods.

1. The Discharger is using the following methodologies to determine concentration limits for the groundwater monitoring program.

   a. Intrawell Comparisons – The Discharger is using historical water quality data from individual groundwater monitoring wells to develop well-specific concentration limits for chloride, sulfate, total dissolved solids, arsenic, and barium. Intrawell comparisons for these COCs are appropriate because these COCs show spatial variation in water quality across the site and are not involved in the known release from the Landfill.

   b. Interwell Comparisons – The Discharger is using historical water quality data from the upgradient groundwater monitoring wells to develop concentration limits for nitrate as nitrogen, copper, selenium, vanadium, and zinc. Because there is little to no spatial variation in water quality across the site with respect to these COCs, interwell comparisons are appropriate.

   c. Non-Statistical Comparisons – For inorganic COCs either not detected in background wells or only detected at trace concentrations and for man-made organic COCs, with the exception of dichlorodifluoromethane (Freon 12), the concentration limit has been set at either the respective practical quantitation limit (PQL) or the method detection limit (MDL) for the analytical method used. For the CAP, the PQL is selected as the concentration limit because this is the lowest concentration (or value) that can be reliably achieved and used to determine a statistically significant or measurable increase. For the DMP, the MDL is selected as the concentration limit, as this will allow for early detection of any future or new release from the Landfill.

   d. Concentration Limit Greater than Background – The Discharger has established a CLGB of 1.5 micrograms per liter (μg/L) for Freon 12 as part of the CAP. At minimum, the CLGB shall be reviewed by the Discharger every two years and if the actual concentration of Freon 12 is lower than its associated CLGB by a “measurably significant” amount, the concentration limit shall be lowered to reflect current water quality.

2. The concentration limits for all man-made COCs in soil-pore liquids shall be the MDL. At this time, the Discharger is not required to have concentration limits for all other soil-pore liquid monitoring parameters listed in Attachment A. Historically, soil-pore liquid sample volume has

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been insufficient to monitor for COCs other than VOCs. Therefore, development of concentration limits for chloride, sulfate, total dissolved solids, and nitrate as nitrogen in soil-pore liquid is technically infeasible at this time. However, should sample volume be sufficient enough to analyze for the additional monitoring parameters (chloride, sulfate, total dissolved solids, and nitrate as nitrogen), these data could allow for the establishment of concentration limits for these parameters in the future.

3. The Discharger is not required to have concentration limits for soil-pore gas methane, carbon dioxide, nitrogen, and oxygen COCs. These COCs exist naturally in soil with a high degree of variability such that development of background concentrations would be technically infeasible. While VOCs are not naturally occurring in the soil, establishing concentration limits for VOCs in the unsaturated zone is technically infeasible at this time because few studies have evaluated the relationship between soil-pore gas VOC concentrations and the potential threat to water quality. The Discharger proposes to continue to collect soil-pore gas data in the unsaturated zone and use that data to characterize the relationship, if any, between landfill gas (LFG) migration, soil-pore gas VOC concentrations, and the potential threat to water quality at the soil-groundwater interface.

If subsequent sampling of the background monitoring point(s) indicates significant water quality changes due to either seasonal fluctuations or other reasons unrelated to waste management activities at the Facility, the Discharger may request modification of the WQPS's concentration limits to provide season-specific concentration limits (background data sets) for each COC at each monitoring point.

D. Point of Compliance and Monitoring Points

The point of compliance is a vertical surface located at the hydraulically downgradient limit of the Landfill that extends through the uppermost aquifer underlying the Landfill. The point of compliance is monitored by the existing groundwater monitoring wells B01-07 and B01-10. Additional monitoring points include upgradient (background) groundwater monitoring wells B01-08 and B01-09 and cross-gradient groundwater monitoring well B01-06. The unsaturated zone is monitored for soil-pore liquids with five vacuum lysimeters (BO1-01 through BO1-05) located around the perimeter of the Landfill. The soil-pore gas in the unsaturated zone is monitored for LFG concentrations with a series of six LFG wells located around the perimeter of the Landfill (BO1-11 through BO1-16).

E. Compliance Period

The compliance period is the number of years equal to the active life of the Landfill plus a minimum of 30 years. The compliance period is the minimum

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period during which the Discharger must conduct a water quality monitoring program subsequent to a release. The compliance period must begin anew each time the Discharger initiates an evaluation monitoring program (EMP). The compliance period may be extended if the facility is not in compliance with its WQPS.

II. MONITORING

The Discharger must comply with the monitoring requirements outlined below. All monitoring and inspecting activities must be documented, and all sampling must be conducted in accordance with an approved Sampling and Analysis Plan (SAP) that includes quality assurance and quality control standards and procedures.

A. Detection Monitoring and Corrective Action Program

The Discharger must operate and maintain a detection and corrective action monitoring system that complies with the DMP and CAP monitoring provisions contained in CCR, title 27, section 20385 through 20430. Monitoring of the groundwater and unsaturated zone must be conducted to evaluate the effectiveness of the CAP and to provide the best assurance of the early detection of any new releases from the Landfill. The monitoring system must be designed and certified by a California-licensed professional civil engineer or professional geologist as meeting the requirements of CCR, title 27, section 20415(e)(1). The Discharger must collect, preserve, and transport samples in accordance with an approved SAP.

1. Groundwater Monitoring

The groundwater monitoring program monitors the quality of groundwater that passes through the point of compliance as well as monitors the quality of groundwater upgradient and cross-gradient of the Landfill through the collection of groundwater samples for laboratory analysis and field measurement of water quality parameters.

a. Monitoring Points

The point of compliance is monitored by existing groundwater monitoring wells B01-07 and B01-10. Additional monitoring points at the site include upgradient (background) groundwater monitoring wells B01-08 and B01-09 and cross-gradient groundwater monitoring well B01-06.

b. Depth to Groundwater

Prior to purging and sampling, the Discharger must measure and record the depth below the ground surface of the static

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groundwater surface elevation in all groundwater monitoring wells. The measurements shall be accurate to the nearest 0.01 foot.

c. Groundwater Purging and Sampling

Prior to sampling, all groundwater monitoring wells must be purged using either standard or low-flow techniques until temperature, electrical conductivity, and pH of extracted well water have stabilized. These parameters will be considered stable when three consecutive readings have pH values within +/- 0.3 pH units and temperature and electrical conductivity values within +/- three (3) percent.

All groundwater samples, with the exception of field parameters, are to be analyzed by a California state-certified laboratory using the United States Environmental Protection Agency (USEPA) analytical methods listed in Attachment A or the most recently approved SW-846 USEPA method or other equivalent USEPA method. An alternate method may be proposed and used if acceptable to the Executive Officer.

d. Constituents of Concern and Monitoring Parameters

The Discharger shall monitor, at each groundwater monitoring well, all COCs and monitoring parameters in accordance with the frequencies listed in Attachment A. Should any non-monitoring parameter COC exceed their respective concentration limit by a measurably significant amount at any given monitoring point, that non-monitoring parameter COC will become a monitoring parameter.

e. Field Parameters and Supplemental Parameters

The Discharger shall monitor, at each groundwater monitoring well, all field parameters and supplemental parameters in accordance with the frequencies listed in Attachment A.

f. Aquifer Characteristics

The Discharger must calculate and illustrate on a site plan and/or aerial photograph, the following aquifer characteristics: the static groundwater surface elevation (feet above mean sea level) in each groundwater monitoring well; the groundwater gradient (feet/feet); the direction of the groundwater gradient beneath and around the Facility; the velocity of groundwater flow (feet/year); and the current groundwater isocontours for that monitoring period.

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g. Calibration Documentation

Annually, the Discharger must submit documentation of instrument calibration and performance checks to verify proper operation of the field monitoring equipment.

2. Unsaturated Zone Monitoring

The unsaturated zone monitoring program monitors the composition of soil-pore liquids and soil-pore gases near the Landfill through the collection of pore liquid and pore gas samples for laboratory analyses and field measurements.

a. Monitoring Points

The unsaturated zone is monitored for soil-pore liquids with five vacuum lysimeters located around the perimeter of the Landfill (BO1-01 through BO1-05). Each lysimeter is completed to a depth of 50 feet below ground surface.

The unsaturated zone is monitored for soil-pore gas using a series of six LFG monitoring wells, each having isolated multi-level (nested) probes, located around the perimeter of the landfill (BO1-11 through BO1-16). LFG monitoring well BO1-11 is completed with isolated probes at depths below ground surface of 48 feet (shallow probe), 86.5 feet (middle probe), and 170 feet (deep probe). LFG monitoring wells BO1-12 through BO1-15 are completed with isolated probes at depths below ground surface of 10 feet (shallow probe) and 25 feet (deep probe).

b. Field Calibration

Prior to beginning gas collection at the Facility, the instrument(s) will be calibrated using laboratory-grade calibration gases and procedures according to manufacturer recommendations and the approved SAP. This will be done each day the instrument is used and whenever an instrument has been transported from one facility to another to ensure that the field calibration is performed at the same atmospheric pressure at which the soil-gas samples are collected.

c. Soil-Pore Liquid Sampling

Prior to sampling, a vacuum will be applied on the system pressure line for each lysimeter to within a range of 70 to 80 centibars. The lysimeter port is then closed and allowed to remain under vacuum

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for a minimum of 24 hours. The vacuum draws pore liquid into the ceramic cup for sample collection.

All soil-pore liquid samples are to be analyzed by a California state-certified laboratory using the USEPA analytical methods listed in Attachment A or the most recently approved SW-846 USEPA method or other equivalent USEPA method. An alternate method may be proposed and used if acceptable to the Executive Officer.

d. Soil-Pore Gas Purging and Sampling

Prior to sampling, each LFG probe must be purged of the gas that has been standing inside the casing until methane, oxygen, and carbon dioxide concentrations have stabilized. These parameters will be considered stable when continuous readings have stopped fluctuating. Atmospheric pressure will also be recorded during the purging process.

All soil-gas samples, with the exception of field parameters, are to be collected in Summa canisters and analyzed by a California state-certified laboratory using the USEPA analytical methods listed in Attachment A or the most recently approved SW-846 USEPA method or other equivalent USEPA method. An alternate method may be proposed and used if acceptable to the Executive Officer.

e. Constituents of Concern and Monitoring Parameters

The Discharger shall monitor the vacuum lysimeters for all COCs and monitoring parameters in accordance with the frequencies listed in Attachment A. If the lysimeter sample volume is limited, the Discharger shall monitor for VOCs first and then, if sufficient sample volume exists, monitor for the remaining monitoring parameters listed in Attachment A.

The Discharger shall monitor the shallow, middle, and deep probes of LFG monitoring well BO1-11 for all COCs and monitoring parameters in accordance with the frequencies listed in Attachment A.

f. Field Parameters

The Discharger shall monitor each lysimeter for all field parameters in accordance with the frequencies listed in Attachment A. If the lysimeter sample volume is limited, the Discharger shall monitor for COCs first and then, if sufficient sample volume exists, monitor for the field parameters listed in Attachment A.

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The Discharger shall monitor all probes in each LFG monitoring well for all field parameters in accordance with the frequencies listed in Attachment A.

g. Calibration Documentation

Annually, the Discharger must submit documentation of instrument calibration and performance checks to verify proper operation of all field monitoring equipment.

B. Solid Waste Discharge

The following data shall be collected and reported, as specified below, for each semi-annual reporting period specified in MRP section IV.A.

1. The volume of solid waste (in-place and compacted volume in cubic yards) discharged to the Landfill.

2. The percent of the total Landfill volume used for solid waste disposal, including waste disposed.

3. An evaluation of the effectiveness of the Facility's load checking program including total number of vehicles, total number of vehicles checked, the amount rejected and returned to the customer, and the amount transported to the Special Waste Facility for coordination of appropriate recycling or disposal.

4. A summary of the inspections for the integrity of the cover material, drainage structures, potential erosion areas, and groundwater and/or unsaturated zone monitoring devices. Any problem areas, special occurrences, or corrective actions taken should be included in the regularly schedule reports.

C. Storm Water Monitoring and Response Program

Waste in discharges of storm water must be reduced or prevented to achieve the best practicable treatment level using controls, structures, and best management practices (BMPs). At minimum, the Discharger must: develop and implement a site-specific storm water pollution control plan (SWPCP); conduct monitoring, including visual observations and periodic collection of samples for analytical analysis; evaluate storm water monitoring data; implement appropriate response actions when monitoring data indicate non-compliance with the storm water monitoring program; and provide annual reports to the Water Board.

1. Storm Water Pollution Control Plan

The Discharger shall develop and implement a site-specific SWPCP (or

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equivalent document) that contains, at minimum, the following elements. A copy of the SWPCP (and amendments thereto) shall be maintained at the Facility so as to be available to site personnel at all times. The Discharger is required to submit a copy of the SWPCP to the Water Board in accordance with the schedule specified in MRP section IV.E.1.

a. Facility Information

A list of site contacts including those persons responsible for assisting with the implementation of the SWPCP.

b. Site Map

A site map that illustrates: the Facility boundary; all storm water drainage areas within the Facility and the flow direction of each drainage area; locations of storm water collection and conveyance systems, including associated discharge locations and directions of flow; locations of storm water monitoring points; locations of structural control measures that affect run-on; and locations of all industrial storage areas and storage tanks, shipping and receiving areas, fueling areas, vehicle and equipment storage/maintenance areas, material handling and processing areas, waste treatment and disposal areas, cleaning and material reuse areas, and other areas of industrial activity that may have potential pollutant sources.

c. List of Industrial Materials

A list of industrial materials handled at the Facility, the locations where each material is stored and handled, as well as the typical quantities and handling frequency.

d. Potential Pollutant Sources

A description of all potential pollutant sources including industrial processes, material handling and storage areas, dust and particulate generating activities, non-storm water discharges, and erodible surfaces.

e. Best Management Practices

A narrative description of each minimum and/or advanced BMP being implemented at the Facility, as well as a summary table that identifies each area of industrial activity, the associated pollutant sources and pollutants, and the specific BMPs being implemented.

The following minimum BMPs must be implemented and maintained to reduce or prevent pollutants in industrial storm water

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discharges: good housekeeping; preventative maintenance; spill and leak prevention response; material handling and waste management; erosion and sediment controls; an employee training program; and quality assurance and record keeping.

Advanced BMPs may be necessary to reduce or prevent discharges of pollutants in storm water discharges in a manner that reflects best industry practice considering technological availability and economic practicability and achievability. Advanced BMPs may include: exposure minimization BMPs; storm water containment and discharge reduction BMPs; treatment control BMPs; or other advanced BMPs based on site-specific criteria.

f. Storm Water Monitoring Plan

The SWPCP shall include a storm water monitoring plan that meets the requirements outlined in MRP section II.C.2 below.

2. Storm Water Monitoring

a. Monitoring Points

The storm water discharge monitoring locations shall be selected such that samples collected are representative of storm water discharge leaving each drainage area identified for the Facility. The storm water discharge monitoring locations must be identified on the site plan in the SWPCP.

b. Storm Water Sampling

The Discharger shall collect storm water samples, from each storm water discharge monitoring location, and analyze for all monitoring parameters in accordance with the frequencies listed in Attachment A.

All storm water samples, with the exception of pH, are to be analyzed by a California state-certified laboratory using the USEPA analytical methods listed in Attachment A or the most recently approved SW-846 USEPA method or other equivalent USEPA method. An alternate method may be proposed and used if acceptable to the Executive Officer.

c. Visual Observations

Monthly, the Discharger shall visually observe and document, during normal operating hours, each drainage area for the following: the presence or indications of prior, current, or potential

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non-storm water discharges and their sources; authorized non-storm water discharges, their sources, and associated BMPs; and all potential pollutant sources.

Visual observations shall also be conducted at the same time that storm water sampling occurs. At the time a storm water sample is collected, the Discharger shall observe and document the discharge for the following.

i. Visually observe and record the presence or absence of floating and suspended materials, oil and grease, discolorations, turbidity, odors, trash/debris, and source(s) of any discharged pollutants.

ii. In the event that a discharge location is not visually observed during the sampling event, the Discharger shall record which discharge locations were not observed during sampling or that there was no discharge from the discharge location.

d. Monitoring Parameters

The Discharger shall monitor, at each storm water discharge monitoring location, all parameters in accordance with the frequencies listed in Attachment A.

e. Water Quality Thresholds

The specific water quality thresholds that apply to the storm water monitoring parameters are listed in the table below.

STORM WATER MONITORING	
Parameter	**Water Quality Thresholds**
pH	Measured pH shall not be lower than 6.0 nor greater than above 9.0.
Turbidity	Storm water discharges shall not exceed 500 nephelometric turbidity units (NTUs).
Oil and Grease, Total	Storm water discharges shall not contain oils and greases at concentrations in excess of 15 mg/L.
Iron, Total	Storm water discharges shall not contain dissolved iron at concentrations in excess of 1.0 mg/L.

f. Calibration Documentation

Annually, the Discharger must submit documentation of instrument calibration and performance checks to verify proper operation of the field monitoring equipment.

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3. Data Evaluation and Response Actions

The storm water monitoring data (storm water sampling and analytical data and visual observations) must be evaluated to determine the following: the effectiveness of BMPs in reducing or preventing pollutants in the storm water discharges; compliance with the monitoring parameter water quality thresholds; and the need to implement additional BMPs and/or SWPCP revisions.

The results of all storm water sampling and analytical results from each distinct sample must be directly compared to the water quality threshold for the corresponding monitoring parameter. An exceedance of one or more water quality threshold requires the Discharger to implement the following response actions:

i. The Discharger shall notify the Water Board, verbally or via email, within 30 days of obtaining laboratory results whenever a determination is made that a water quality threshold is exceeded for one or more storm water monitoring parameters;

ii. Identify the pollutant sources that may be related to the exceedance and whether the BMPs in the SWPCP have been properly implemented and perform BMP maintenance, if necessary;

iii. Assess the SWPCP and its implementation to determine whether additional BMPs or SWPCP measures are necessary to reduce or prevent pollutants in storm water discharges; and

iv. Revise or amend the SWPCP, as appropriate, to incorporate the additional BMPs or SWPCP measures necessary to reduce or prevent pollutants in storm water discharges and implement the revised SWPCP no later than 60 days following the reported exceedance; or

v. Demonstrate, to the satisfaction of the Executive Officer, that the exceedance(s) is attributed solely to non-industrial pollutant sources and/or to natural background sources.

III. DATA ANALYSES

All groundwater and unsaturated zone data, with the exception of soil-pore gas data, must be analyzed using statistical and non-statistical methods that meet the requirements of CCR, title 27, sections 20415, subdivisions (e)(8) and (9).

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A. Statistical Data Analysis Method

In order to determine whether there is "measurably significant" evidence any new releases have occurred from the Facility, evaluation of data will be conducted using statistical methods. For Detection Monitoring, the Discharger shall use statistical methods to analyze COCs and monitoring parameters that exhibit concentrations that equal or exceed their respective concentration limit. The Discharger may propose and use any data analyses that meets the requirements of California Code of Regulations, title 27, section 20415, subdivision (e)(7). *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities, Unified Guidance* (USEPA, 2009) or subsequent versions may also be used to select the statistical test to use for comparing detection monitoring data to background monitoring data.

The Discharger has established concentration limits for detection and evaluation of compliance with the CAP. The limits may be revised every two years.

B. General Non-Statistical Data Analysis Methods

In order to determine if any new releases have occurred from the Facility, evaluation of data will also be conducted using non-statistical methods. Non-statistical analyses shall be as follows.

1. Physical Evidence

Physical evidence can include unexplained stress in biological communities such as vegetation loss, soil discoloration, or groundwater mounding. Each semi-annual and annual report must comment on such physical elements.

2. Time-Series Plots

Non-statistical evidence of a release may include trends of increasing concentrations of one or more constituents over time, as depicted in time-series plots. Time series plots are not required for parameters that have never been detected above their MDL (as specified by the applicable USEPA method). Each semi-annual and annual report must include these time-series plots.

IV. REPORTING REQUIREMENTS

The Discharger must comply with the following reporting requirements.

A. Scheduled Reports to be Filed with the Water Board

The following periodic reports, including all water and soil vapor monitoring data collected during the corresponding reporting period, must be submitted

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electronically to the Water Board by uploading to the State Water Board's Geotracker system, per the following schedule.

REPORTING SCHEDULE		
Sampling and Reporting Frequency	**Sampling and Reporting Period**	**Report Due Date**
First Semi-Annual DMP/CAP Monitoring Report	January 1 – June 30	August 15
Second Semi-Annual DMP/CAP Monitoring Report	July 1 – December 31	February 15
Annual DMP/CAP Monitoring Report	January 1 – December 31	March 30
Annual Storm Water Report	July 1 – June 30	August 15
Five-Year Constituent of Concern Monitoring Report[1]	January 1 – June 30 July 1 – December 31	August 15 February 15
Five-Year Corrective Action Program Evaluation Report[2]	January 1 – December 31	March 30

[1] Sampling and reporting period will alternate between January 1 through June 30 for one five-year sampling event and July 1 through December 31 for the next five-year sampling event. The August 15 report due date corresponds to the January 1 through June 30 sampling and reporting period; the February 15 report due date corresponds to the July 1 through December 31 sampling and reporting period. The next 5-year report is due February 15, 2018.

[2] Sampling and reporting period is the most recent five calendar years prior to the report due date. The next 5-year report is due March 30, 2018.

1. Semi-Annual DMP/CAP Monitoring Reports

Each semi-annual report must include, but not be limited to, the following information.

a. All data collected during the reporting period in accordance with the approved SAP for the Landfill's groundwater and unsaturated zone monitoring systems, as outlined in MRP section II.A.

b. Tabulated results of sampling and laboratory analyses for each groundwater monitoring point, including historic (last ten years) and current reporting period data, as well as the concentration limit for each monitoring parameter and an identification of each sample that exceeds its respective concentration limit by a measurably significant amount at any given monitoring point.

c. Tabulated results of sampling and laboratory analyses for each unsaturated zone monitoring point, including historic (last ten years) and current reporting period data.

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d. A map and/or aerial photograph showing the Landfill perimeter and ancillary facilities as well as locations of all monitoring points, observation stations, and the surface trace of the point of compliance.

e. Calculate and illustrate on a map and/or aerial photograph the static groundwater surface elevation (feet above mean sea level) in each groundwater monitoring well, the groundwater gradient (feet/feet) and the direction of the groundwater gradient beneath and around the Facility, the velocity of groundwater flow (feet/year), and the current groundwater isocontours for that monitoring period.

f. Copies of all field monitoring and well sampling data sheets.

g. Time-series plots of the analytical results from the groundwater and unsaturated zone monitoring at each monitoring point for each COC detected during the monitoring period as well as available historical data (minimum of last ten years of data). Time-series plots must include, as horizontal lines, the COCs concentration limit as derived in accordance with the WQPS for the respective COC/monitoring point pair, as well as the PQL and MDL for the analytical method used.

h. A letter transmitting the essential points of each report, including a discussion of any violations found since the last report was submitted and describing actions taken or planned for correcting those violations.

i. If the Discharger has previously submitted a detailed time schedule for correcting violations, a reference to the correspondence transmitting this schedule will suffice.

ii. If no violations have occurred since the last submittal, this must be stated in the letter of transmittal.

i. All data collected in accordance with MRP section II. B.

2. <u>Annual DMP/CAP Monitoring Reports</u>

Annual Monitoring Reports must be submitted to the Water Board no later than **March 30** of each year, and may be combined with the second semi-annual DMP/CAP monitoring report for the last reporting period of that year. The annual report must include the items described in the General Provisions for Monitoring and Reporting (Attachment B to this MRP), the information required under MRP section IV.A.1, and the following information.

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a. A list of all monitoring point/monitoring parameter pairs (pairs), by medium, which have exhibited a verified measurably significant increase, together with the respective date (for each) when that increase occurred. Any pairs that have shown an increase within that (prior) year shall be bold-underlined. In addition, by medium, list any non-monitoring parameter COCs that, during testing that year (tested every five years), have exceeded their respective concentration limit by a measurably significant amount and, as a result, have become monitoring parameters, together with the date when the transition occurred.

b. Two maps, one for each semi-annual monitoring period of the last reporting year, showing the groundwater isocontours determined for that reporting period, the Landfill and all ancillary facilities, all groundwater and unsaturated zone monitoring points, and the surface trace of the point of compliance.

c. Calibration methods and any discrepancies of any meters used for field parameter evaluations after calibration is performed.

d. An evaluation of the effectiveness of both the groundwater and unsaturated zone monitoring programs and any proposed modifications necessary to improve the DMP and/or CAP. The evaluation of corrective action activities should also include a map showing the extent of impacted groundwater (plume maps) and/or cross sections.

e. A brief chronological summary of dates of any operational problems and maintenance activities that may impact water quality at the site.

f. The compliance record and the corrective actions taken or planned, which may be needed to bring the Facility into full compliance with the discharge requirements.

g. Evidence that adequate financial assurance for closure, post-closure maintenance, and corrective action is still in effect. Evidence may include a copy of the renewed financial instrument or a copy of the receipt for payment of the financial instrument.

h. Evidence that the financial assurance amount is adequate or increase the amount of financial assurance by an appropriate amount if necessary, due to inflation, a change in the approved closure plan, or other unforeseen events.

i. The Discharger must review the preliminary closure and post-closure maintenance plan annually to determine if significant changes in the operation of the Facility warrant an update to any of

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these plans. Proposed changes to these plans must be outlined in the annual report.

3. Annual Storm Water Reports

Annual storm water reports must be submitted to the Water Board no later than **August 15** of each year in accordance with the frequencies listed in Attachment A, and may be combined with the first semi-annual DMP/CAP monitoring report. Annual storm water reports must include, but not be limited to, the following information:

a. All data collected during the reporting period in accordance with the storm water monitoring plan, as outlined in MRP section II.C.2.

b. Tabulated results of sampling and laboratory analyses for each storm water discharge monitoring location, including historic and current reporting period data, as well as the water quality threshold for each monitoring parameter and an identification of each sample that exceeds its respective water quality threshold at any given discharge monitoring location.

c. A copy of the current site map from the SWPCP.

d. Copies of all field monitoring, storm water sampling, and visual observation data sheets. An explanation shall be provided in the Annual Report for uncompleted sampling event visual observations.

e. Calibration methods and any discrepancies of any meters used for field parameter evaluations after calibration is performed.

f. A summary of the actions taken in response to a water quality threshold exceedance, including monitoring parameter and pollutant source(s) involved, additional BMP and/or SWPCP measures taken, and associated dates and timelines for implementing the response action; or a demonstration that the exceedance(s) is attributed to a non-industrial pollutant source and/or to a natural background source.

g. A copy of any SWPCP amendments and/or revisions for the reporting period.

h. A summary of significant spills and/or leaks that occurred at the Facility during the reporting period and the response taken by the Discharger, including dates.

i. A summary of employee trainings performed during the reporting period, including dates and content.

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4. Five-Year Constituent of Concern Monitoring and Reporting Program

Pursuant to CCR, title 27, section 20420, subdivision (g), every five years the Discharger must sample for COCs. Groundwater samples must be collected and submitted for laboratory analyses at all monitoring points once every five years for all monitoring parameters and COCs listed in Appendix II of 40 CFR, Part 258. Successive monitoring efforts must be carried out alternately during January 1 through June 30 of one five-year sampling event and July 1 through December 31 of the next five-year sampling event, and every fifth year, thereafter. The five-year COC sampling event must be reported no later than 45 days following the monitoring period. The last five-year sampling event occurred in first half of 2012; therefore, the next five-year sampling event is scheduled to occur in second half of 2017 and reported to the Water Board no later than **February 15, 2018**.

5. Five-Year Corrective Action Program Evaluation Report

During the life of the CAP, the Discharger shall submit to the Water Board every five years a Five-Year Corrective Action Program Evaluation Report. This report will be submitted to the Water Board **by March 30th beginning with year 2018**, and can be combined with the Annual Monitoring Report for that reporting period. The Five-Year Corrective Action Program Evaluation Report shall include the following.

a. A detailed evaluation of the CAP and recommendations to continue, modify or discontinue the CAP, including recommendations for other remedial alternatives.

b. Status information regarding CAP progress with supporting evidence collected as part of the groundwater and unsaturated zone monitoring programs.

c. Review of the WQPS for the Landfill and recommendations regarding any updates to the WQPS including concentration limits. At minimum, CLGB shall be reviewed by the Discharger at a frequency of no greater than every two years. Updated concentration limits shall be reported in the Annual Monitoring Report for the respective reporting period. If it is determined that the concentration of a COC is lower than its associated CLGB by a “measurably significant” amount (CCR, title 27, section 20164), the CLGB for that constituent shall be lowered to reflect current water quality.

PROPOSED

d. A chronological summary of any contingency remedies and/or triggers that were identified and the additional corrective actions taken or planned during the previous five years of implementing the CAP.

B. Unscheduled Reports to be Filed with the Water Board

The following reports must be submitted to the Water Board as specified below.

1. Notice of Tentative Release from the Landfill

The Discharger must perform the procedures contained in this subsection whenever there is evidence of a release from the Landfill.

a. Physical or Measurably Significant Evidence of a Release from the Landfill

The Discharger must immediately notify the Water Board verbally whenever a determination is made that there is physical or "measurably significant" evidence of a release from the Landfill. This verbal notification must be followed by written notification via certified mail within seven days of such determination. Upon such notification, the Discharger may initiate verification procedures or demonstrate that another source other than the Landfill caused evidence of a release in accordance with MRP section IV.B.1.b.

The notification must include the following information:

i. The potential source of the release;

ii. General information including the date, time, location, and cause of the release;

iii. An estimate of the flow rate and volume of waste involved;

iv. A procedure for collecting samples and description of laboratory tests to be conducted;

v. Identification of any water body or water-bearing media affected or threatened;

vi. A summary of proposed actions; and

vii. For a measurably significant evidence of a release – the monitoring parameters and/or COCs that are involved in the measurably significant evidence of a release from the Landfill; or

PROPOSED

viii. For a physical evidence of a release – the physical factors that indicate evidence of a release.

b. Other Source That May Cause Evidence of a Release From the Landfill

The Discharger may make a demonstration that a source other than the Landfill caused evidence of a release. For this case, the Discharger must notify the Water Board of the intention to make this demonstration. The notification must be sent to the Water Board by certified mail within seven days of determining physical or measurably significant evidence of a release.

2. Evaluation Monitoring

The Discharger must, within 90 days of verifying a release, submit a technical report pursuant to California Water Code section 13267, subdivision (b), proposing an EMP meeting the provisions of CCR, title 27, section 20420, subdivision (k)(5). If the Discharger decides not to conduct verification procedures, or decides not to make a demonstration that a source other than the Landfill is responsible for the release, the release will be considered verified. The EMP must include the following information:

a. COC Concentrations – the maximum concentration of each COC at each Monitoring Point as determined during the most recent COC sampling event (i.e., under CCR, title 27, section 20420, subdivision (g) or (k)[1]). Any COC that exceeds its concentration limit is to be retested at that monitoring point. Should the results of the retest verify that the COC is above the concentration limit, then that COC will become a monitoring parameter at all monitoring points;

b. Proposed Monitoring System Changes – any proposed changes to the groundwater and unsaturated zone monitoring systems necessary to meet the provisions of CCR, title 27, section 20425;

c. Proposed Monitoring Changes – any proposed additions or changes to the monitoring frequency, sampling and analytical procedures or methods, or statistical methods used at the Facility necessary to meet the provisions of CCR, title 27, section 20425; and

d. Proposed Delineation Approach – a detailed description of the measures to be taken by the Discharger to assess the nature and extent of the release from the Landfill.

PROPOSED

3. Engineering Feasibility Study Report

Within 180 days of verifying the existence of a release, the Discharger must submit an Initial Engineering Feasibility Study report meeting CCR, title 27, section 20420, subdivision (k)(6), proposing corrective action measures that could be taken to achieve background concentrations for all COCs involved in the release. This report will be the basis for a later expanded Engineering Feasibility Study, submitted under the Evaluation Monitoring Program, per CCR, title 27, section 20425, subdivision (b).

4. Monitoring Well Logs

Pursuant to CCR, title 27, section 20415, subdivision (e)(2) all monitoring wells (including groundwater and unsaturated zone monitoring wells) and all other borings installed to satisfy the requirements of this Monitoring and Reporting Program shall be drilled by a licensed drilling contractor and shall be logged during drilling under the direct supervision of either a California-licensed professional geologist or civil engineer with expertise in stratigraphic well logging. These logs shall be submitted to the Water Board within 90 days following completion of fieldwork.

5. Significant Earthquake Event

After a significant[1] or greater earthquake event, the Discharger shall notify the Water Board within 48 hours, and within 45 days submit to the Water Board a detailed written post-earthquake report describing any physical damages to the containment features or groundwater and/or unsaturated zone monitoring systems. The Discharger shall closely examine the Landfill cover, vegetative cover, slope conditions, drainage control system, and surface grading for signs of cracking or depressed/settled areas, following the earthquake event. If cracking or depressed areas of the cover is identified, the Discharger shall make repairs to those areas within 30 days from the date of the earthquake event.

C. General Provisions

The Discharger must comply with Attachment B, "General Provisions for Monitoring and Reporting," dated September 1, 1994, which is attached to and made a part of this MRP.

D. Violations

If monitoring data indicate violation of the WDRs, the Discharger must report the violation in the scheduled report for the corresponding reporting period and

[1] A significant earthquake is a seismic event classified according to the United States Geological Survey Earthquake Hazard Program as a moderate earthquake measuring between 5 and 5.9 on the Richter scale.

PROPOSED

provide information indicating the cause of violation(s) and the action taken or planned to bring the discharge into compliance.

E. Technical Reports

Pursuant to California Water Code, section 13267, subdivision (b):

1. By **April 1, 2016**, the Discharger must submit a SWPCP that meets the requirements outlined in MRP section II.C.2. The report must be certified by a California-licensed registered civil engineer or professional geologist.

Ordered by: _____ Dated: February 11, 2016
PATTY Z. KOUYOUMDJIAN
EXECUTIVE OFFICER

Attachments: A. Water Quality Monitoring Program
B. General Provisions for Monitoring and Reporting (September 1, 1994)

R6V-2016-PROP_Boron Sanitary Landfill_MRP_Boron

PROPOSED

ATTACHMENT A – WATER QUALITY MONITORING PROGRAM

GROUNDWATER MONITORING					
Parameter		**Units**	**USEPA Method[1]**	**Sampling Frequency**	**Reporting Frequency**
Field Parameters					
Depth to Groundwater		feet below measuring point	--	semi-annually	semi-annually
Temperature		degrees Farenheit or Celsius	--	semi-annually	semi-annually
Electrical Conductivity		micromhos/cm	--	semi-annually	semi-annually
pH		pH Units	--	semi-annually	semi-annually
Turbidity		NTUs	--	semi-annually	semi-annually
Dissolved Oxygen[2]		milligrams/liter	--	semi-annually	semi-annually
Oxidation Reduction Potential[2]		milliVolts	--	semi-annually	semi-annually
Alkalinity[2]		milligrams/liter	--	semi-annually	semi-annually
Carbon Dioxide[2]		milligrams/liter	--	semi-annually	semi-annually
Ferrous Iron[2]		milligrams/liter	--	semi-annually	semi-annually
Manganese[2]		milligrams/liter	--	semi-annually	semi-annually
Constituents of Concern					
Monitoring Parameters	Total Dissolved Solids	milligrams/liter	E160.1	semi-annually	semi-annually
	Chloride	milligrams/liter	300	semi-annually	semi-annually
	Sulfate	milligrams/liter	300	semi-annually	semi-annually
	Nitrate as Nitrogen	milligrams/liter	300	semi-annually	semi-annually
	Volatile Organic Compounds[3]	micrograms/liter	8260	semi-annually	semi-annually
Antimony		micrograms/liter	7062	5 year	5 year
Arsenic		micrograms/liter	7062	5 year	5 year
Barium		micrograms/liter	6010	5 year	5 year
Beryllium		micrograms/liter	6010	5 year	5 year
Cadmium		micrograms/liter	7131	5 year	5 year
Chromium		micrograms/liter	6010	5 year	5 year
Cobalt		micrograms/liter	6010	5 year	5 year
Copper		micrograms/liter	6010	5 year	5 year
Lead		micrograms/liter	7421	5 year	5 year
Mercury		micrograms/liter	7471	5 year	5 year
Nickel		micrograms/liter	7521	5 year	5 year
Selenium		micrograms/liter	7742	5 year	5 year
Silver		micrograms/liter	6010	5 year	5 year
Thallium		micrograms/liter	7841	5 year	5 year

Constituents of Concern				
Tin	micrograms/liter	6010	5 year	5 year
Vanadium	micrograms/liter	6010	5 year	5 year
Zinc	micrograms/liter	6010	5 year	5 year
Volatile Organic Compounds[3]	micrograms/liter	8260	5 year	5 year
Semi-volatile Organic Compounds[4]	micrograms/liter	8270	5 year	5 year
Polychlorinated Biphenyls and Pesticides[4]	micrograms/liter	8141	5 year	5 year
Chlorinated Herbicides[4]	micrograms/liter	8151	5 year	5 year
Supplemental Parameters				
Calcium	milligrams/liter	6010	semi-annually	semi-annually
Magnesium	milligrams/liter	6010	semi-annually	semi-annually
Sodium	milligrams/liter	6010	semi-annually	semi-annually
Potassium	milligrams/liter	6010	semi-annually	semi-annually
Carbonate	milligrams/liter	310.1	semi-annually	semi-annually
Bicarbonate	milligrams/liter	310.1	semi-annually	semi-annually
Hardness	milligrams/liter	SM-2340B	semi-annually	semi-annually
Ortho-phosphate	milligrams/liter	365.1	semi-annually	semi-annually
Total Alkalinity[2]	milligrams/liter	310.1	semi-annually	semi-annually
Sulfide	milligrams/liter	376.2	5 year	5 year
Non-volatile Organic Carbon[2]	milligrams/liter	415.1	5 year	5 year
UNSATURATED ZONE SOIL-PORE LIQUID MONITORING				
Parameter	**Units**	**USEPA Method[1]**	**Sampling Frequency**	**Reporting Frequency**
Field Parameters				
Temperature	degrees Farenheit or Celsius	--	semi-annually	semi-annually
Electrical Conductivity	micromhos/cm	--	semi-annually	semi-annually
pH	pH Units	--	semi-annually	semi-annually
Turbidity	NTUs	--	semi-annually	semi-annually
Dissolved Oxygen[2]	milligrams/liter	--	semi-annually	semi-annually
Oxidation Reduction Potential[2]	milliVolts	--	semi-annually	semi-annually
Alkalinity[2]	milligrams/liter	--	semi-annually	semi-annually
Carbon Dioxide[2]	milligrams/liter	--	semi-annually	semi-annually
Ferrous Iron[2]	milligrams/liter	--	semi-annually	semi-annually
Manganese[2]	milligrams/liter	--	semi-annually	semi-annually

Constituents of Concern					
Monitoring Parameters	Total Dissolved	milligrams/liter	E160.1	semi-annually	semi-annually
	Chloride	milligrams/liter	300	semi-annually	semi-annually
	Sulfate	milligrams/liter	300	semi-annually	semi-annually
	Nitrate as Nitrogen	milligrams/liter	300	semi-annually	semi-annually
	Volatile Organic Compounds[3]	micrograms/liter	8260	semi-annually	semi-annually
UNSATURATED ZONE SOIL-PORE GAS MONITORING					
Parameter		**Units**	**USEPA Method[1]**	**Sampling Frequency**	**Reporting Frequency**
Field Parameters					
Atmospheric Pressure		inches of mercury	--	quarterly	semi-annually
Methane		parts per million or percent by volume	--	quarterly	semi-annually
Carbon Dioxide		parts per million or percent by volume		quarterly	semi-annually
Oxygen		parts per million or percent by volume		quarterly	semi-annually
Constituents of Concern					
Monitoring Parameters	Methane	parts per million or percent by volume	ASTM-D1946	semi-annually	semi-annually
	Carbon Dioxide	parts per million or percent by volume		semi-annually	semi-annually
	Nitrogen	parts per million or percent by volume		semi-annually	semi-annually
	Oxygen	parts per million or percent by volume		semi-annually	semi-annually
	Volatile Organic Compounds	parts per billion or percent by volume	TO-15	semi-annually	semi-annually

STORM WATER MONITORING				
Parameter	**Units**	**USEPA Method[1]**	**Sampling Frequency**	**Reporting Frequency**
pH	pH Units	--	four qualifying storm events per year[5]	annually
Turbidity	NTUs	SM-2130-B		
Oil and Grease, Total	milligrams/liter	1664A		
Iron, Total	milligrams/liter	200.7		

1 - The Discharger shall analyze for all constituents, with the exception of field parameters, using the United States Environmental Protection Agency (USEPA) analytical methods indicated or the most recently approved SW-846 USEPA method or other equivalent USEPA method. An alternate method may be proposed and used if acceptable to the Executive Officer.

2 - Parameters to evaluate Monitored Natural Attenuation.

3 - As defined in Appendix I, 40 CFR, part 258.

4 - As defined in Appendix II, 40 CFR, part 258.

5 - A qualifying storm event is a precipitation event that produces a storm water discharge for at least one drainage area and is preceded by 48 hours with no discharge from any drainage area. The Discharger shall collect and analyze storm water samples from two qualifying storm events within the first half of each reporting year (July 1 to December 31) and from two qualifying storm events within the second half of each reporting year (January 1 through June 30). If a sufficient number of qualifying storm events do not occur within a given reporting year, the Discharger must document and report that information in the regularly scheduled Annual Storm Water Report.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

GENERAL PROVISIONS
FOR MONITORING AND REPORTING

1. SAMPLING AND ANALYSIS

a. All analyses shall be performed in accordance with the current edition(s) of the following documents:

i. Standard Methods for the Examination of Water and Wastewater

ii. Methods for Chemical Analysis of Water and Wastes, EPA

b. All analyses shall be performed in a laboratory certified to perform such analyses by the California State Department of Health Services or a laboratory approved by the Regional Board Executive Officer. Specific methods of analysis must be identified on each laboratory report.

c. Any modifications to the above methods to eliminate known interferences shall be reported with the sample results. The methods used shall also be reported. If methods other than EPA-approved methods or Standard Methods are used, the exact methodology must be submitted for review and must be approved by the Regional Board prior to use.

d. The Discharger shall establish chain-of-custody procedures to insure that specific individuals are responsible for sample integrity from commencement of sample collection through delivery to an approved laboratory. Sample collection, storage, and analysis shall be conducted in accordance with an approved Sampling and Analysis Plan (SAP). The most recent version of the approved SAP shall be kept at the facility.

e. The Discharger shall calibrate and perform maintenance procedures on all monitoring instruments and equipment to ensure accuracy of measurements, or shall insure that both activities will be conducted. The calibration of any wastewater flow measuring device shall be recorded and maintained in the permanent log book described in 2.b, below.

f. A grab sample is defined as an individual sample collected in fewer than 15 minutes.

g. A composite sample is defined as a combination of no fewer than eight individual samples obtained over the specified sampling period at equal intervals. The volume of each individual sample shall be proportional to the discharge flow rate at the time of sampling. The sampling period shall equal the discharge period, or 24 hours, whichever period is shorter.

2. OPERATIONAL REQUIREMENTS

a. Sample Results

Pursuant to California Water Code Section 13267(b), the Discharger shall maintain all sampling and analytical results including: strip charts; date, exact place, and time of sampling; date analyses were performed; sample collector's name; analyst's name; analytical techniques used; and results of all analyses. Such records shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Regional Board.

b. Operational Log

Pursuant to California Water Code Section 13267(b), an operation and maintenance log shall be maintained at the facility. All monitoring and reporting data shall be recorded in a permanent log book.

3. REPORTING

a. For every item where the requirements are not met, the Discharger shall submit a statement of the actions undertaken or proposed which will bring the discharge into full compliance with requirements at the earliest time, and shall submit a timetable for correction.

b. Pursuant to California Water Code Section 13267(b), all sampling and analytical results shall be made available to the Regional Board upon request. Results shall be retained for a minimum of three years. This period of retention shall be extended during the course of any unresolved litigation regarding this discharge, or when requested by the Regional Board.

c. The Discharger shall provide a brief summary of any operational problems and maintenance activities to the Board with each monitoring report. Any modifications or additions to, or any major maintenance conducted on, or any major problems occurring to the wastewater conveyance system, treatment facilities, or disposal facilities shall be included in this summary.

d. Monitoring reports shall be signed by:

i. In the case of a corporation, by a principal executive officer at least of the level of vice-president or his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the discharge originates;

ii. In the case of a partnership, by a general partner;

iii. In the case of a sole proprietorship,by the proprietor; or

iv. In the case of a municipal, state or other public facility, by either a principal executive officer, ranking elected official, or other duly authorized employee.

e. Monitoring reports are to include the following:

i. Name and telephone number of individual who can answer questions about the report.

ii. The Monitoring and Reporting Program Number.

iii. WDID Number.

f. Modifications

This Monitoring and Reporting Program may be modified at the discretion of the Regional Board Executive Officer.

4. NONCOMPLIANCE

Under Section 13268 of the Water Code, any person failing or refusing to furnish technical or monitoring reports, or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in an amount of up to one thousand dollars ($1,000) for each day of violation under Section 13268 of the Water Code.

x:PROVISONS WDRS

file: general pro mrp

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ENCLOSURE 2

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KERN COUNTY
PUBLIC WORKS DEPARTMENT
CRAIG M. POPE, P.E., DIRECTOR

2700 "M" STREET, SUITE 450
BAKERSFIELD, CA 93301-2370

ADMINISTRATION & ACCOUNTING
OPERATIONS & MAINTENANCE
BUILDING & DEVELOPMENT
ENGINEERING

Phone: (661) 862-8900
FAX: (661) 862-8901
Toll Free: (800) 552-5376 Option 5
TTY Relay: (800) 735-2929

December 23, 2015

Ms. Jan Zimmerman
California Regional Water Quality
Control Board - Central Valley Region
1685 "E" Street
Fresno, CA 93706

RE: Boron Sanitary Landfill; Kern County
Comments on Tentative Waste Discharge Requirements

Dear Ms. Zimmerman:

Thank you for providing Kern County Public Works Department (KCPWD) the opportunity to provide comments on the Tentative Waste Discharge Requirements (WDRs) dated November 25, 2015, for the Boron Sanitary Landfill (SLF).

KCPWD's comments regarding the Tentative Waste Discharge Requirements are presented below. For ease of RWQCB review, each section of specific language as stated in the tentative document is displayed in italics followed by KCPWD's comments.

Waste Discharge Requirements

FINDINGS:

11. Land Uses

The land uses at and surrounding the Facility consist of residential and commercial uses associated with the town of Boron, open desert land, industrial activities at the US Borax open pit borate mine, and military activities associated with Edwards Air Force Base.

Comment: KCPWD requests that this finding be revised to read:

The land uses surrounding the Facility consist of residential and commercial uses associated with the town of Boron, open desert land, industrial activities at the US Borax open pit borate mine, and military activities associated with Edwards Air Force Base.

20. *Beneficial Uses*

The present and probable beneficial uses of the groundwaters of the Antelope Valley Ground Water Basin No. 6-44, as set forth and defined in the Basin Plan are:

a. Municipal and Domestic Supply (MUN);
b. Agricultural Supply (AGR);
c. Industrial Service Supply (IND); and
d. Freshwater Replenishment (FRSH).

The present and probable beneficial uses of minor surface waters of the North Muroc Hydrologic Area No. 626.60, as set forth and defined in the Basin Plan are:

a. *Municipal and Domestic Supply (MUN);*
b. *Agricultural Supply (AGR);*
c. *Ground Water Recharge (GWR);*
d. *Water Contact Recreation (REC-1);*
e. *Non-contact Water Recreation (REC-2);*
f. *Commercial and Sportfishing (COMM);*
g. *Warm Freshwater Habitat (WARM); and*
h. *Wildlife Habitat (WILD).*

Comment: The Antelope Hydrologic Unit includes portions of Los Angeles, Kern, and San Bernardino Counties, and corresponds to the Antelope Valley Basin, a closed topographic basin with an area of about 2,400 square miles. All water that enters the region either infiltrates into the groundwater basin, evaporates, or flows toward the three dry lakes (Rosamond Lake, Buckhorn Lake, and Rogers Lake) located on Edwards Air Force Base.

In March 2013, Dudek, a consultant hired by the KCPWD, prepared a jurisdictional waters delineation report for the Boron SLF. A delineation of jurisdictional waters was conducted within the project site by Dudek biologists Linda Archer and Britney Strittmater on February 26, 2013. The entire Boron SLF property was surveyed on foot and the study focused on areas with a high potential to support jurisdictional waters as identified during the literature review. The report established the following regarding surface water flows at the Boron SLF and the immediate vicinity:

> *Surface flows in the project vicinity drain toward Boron, with flows from Saddleback Mountain draining southwest and flows from the Kramer Hills and Leuhman Ridge draining northwest. The USGS National Hydrography Dataset (NHD) (USGS 2013) and USGS topographic map do not show any stream channels located within the project site, but the data does indicate that there are stream channels surrounding the project site, approximately 2 miles west, 1.5 miles southeast, and 1 mile northwest and northeast. All streams in the vicinity mapped by the NHD terminate prior to reaching Boron. Due to the low rainfall of the vicinity and permeability of the soil, surface flows would either evaporate or percolate into the groundwater basin. The only waterbody in the area is Rogers Dry Lake located approximately 6 miles west of the project site. Surface flows in the vicinity with sufficient volume would flow to Rogers Dry Lake.*

The report goes on to conclude:

> *No evidence of surface flow was observed within the Boron SLF. Additionally, surface waters in this region with sufficient volume flow to Rogers Dry Lake. An Approved Jurisdictional Determination was issued by the ACOE for Rogers Dry Lake as part of the Mojave-Rosamond Recycling and Sanitary Landfill project located approximately 28 miles west of the project site. The ACOE has determined that Rogers Dry Lake and its associated tributaries are isolated, non-navigable water bodies that do not exhibit a substantial interstate or foreign commerce connection and, as a result, are not regulated as waters of the United States.*
>
> *Based on the Approved Jurisdictional Determination issued by the ACOE for Rogers Dry Lake, there are no waters of the United States in the vicinity or within the project site. Due to the absence of OHWM indicators, <u>there are no waters of the state under the jurisdiction of the RWQCB</u> and no streambeds under the jurisdiction of the CDFW within the project site.*

The KCPWD understands the Water Board cannot modify the beneficial uses per the applicable Basin Plan; however, it should be noted for the record that the primary beneficial use of surface water at the facility is for groundwater recharge. The KCPWD is unaware of any agricultural, water related recreation, or sport fishing in the vicinity of the Boron SLF.

27. Evaluation Monitoring Program

An EMP may be required, pursuant to CCR, title 27, sections 20385 and 20420(k)(6), in order to evaluate evidence of a new release if detection monitoring and verification procedures indicate evidence of a release. The Discharger must delineate the nature and extent of the release and develop a suite of proposed corrective action measures within 90 days on initiating an EMP, unless the Discharger proposes and substantiates a longer time period for implementing the EMP. If the EMP confirms measurably significant evidence of a release, then the Discharger must submit an Engineering Feasibility Study report proposing corrective action measures pursuant to CCR, title 27, section 20425, subdivision (b), and MRP No. R6V-2016-TENTATIVE.

Comment: KCPWD requests that this finding be revised to read:

An EMP may be required, pursuant to CCR, title 27, sections 20385 and 20420(k)(6), in order to evaluate evidence of a new release if detection monitoring and verification procedures indicate evidence of a release. The Discharger must delineate the nature and extent of the release and develop a suite of proposed corrective action measures within 90 days of initiating an EMP.

28. Corrective Action Program

c. *The plume appears to be stable with quantifiable VOC concentrations limited to only one groundwater monitoring well (well BO1-06). VOC concentrations in groundwater have been decreasing over time since the CAP was initiated in 2002, and VOCs have not been detected in any point compliance groundwater monitoring well since 2002.*

Comment: KCPWD requests that this finding be revised to read:

The plume appears to be stable with quantifiable VOC concentrations limited to only one groundwater monitoring well (well BO1-06). VOC concentrations in groundwater have been decreasing over time since the CAP was initiated in 2002, and VOCs have not been detected in any point of compliance groundwater monitoring well since 2002.

29. Unsaturated Zone Monitoring

The Discharger proposes to augment the unsaturated zone soil-pore liquid monitoring by monitoring soil-gas for LFG constituents using the six LFG monitoring wells (BO1-11 through BO1-16). While few studies have evaluated the relationship between soil-pore VOC concentrations and the potential threat to the quality of underlying groundwater, the Discharger proposes to monitor VOC concentrations in the unsaturated zone and use that data to characterize the relationship, if any, between soil-pore VOC concentrations and the potential threat to water quality at the soil-groundwater interface.

Comment: KCPWD is proposing to continue to monitor the vadose zone with the lysimeters, and augment that monitoring with LFG samples collected from the probes in BO1-11. The KCPWD will continue to monitor the other LFG perimeter wells quarterly, in accordance with Title 27, but does not plan to collect samples

from those wells for laboratory analysis. The KCPWD requests that this finding be revised to read:

> The Discharger proposes to augment the unsaturated zone soil-pore liquid monitoring by monitoring soil-gas for LFG constituents from the probes in BO1-11. While few studies have evaluated the relationship between soil-pore VOC concentrations and the potential threat to the quality of underlying groundwater, the Discharger proposes to monitor the VOC concentrations in the unsaturated zone and use that data to characterize the relationship if any, between soil-pore VOC concentrations and the potential threat to water quality at the soil-groundwater interface.

I. *RECEIVING WATER LIMITATIONS. Under no circumstances shall the Discharger cause the presence of the following substances or conditions in surface waters of the North Muroc Hydrologic Area.*

16. *Suspended Materials – Waters shall not contain suspended materials in concentrations that cause nuisance or that adversely affect the water for beneficial uses. For natural high quality waters, the concentration of total suspended materials shall not be altered to the extent that such alterations are discernible at the 10 percent significance level.*

Comment: Please define "natural high quality waters" per the intent of this finding. Also, it is the KCPWD's understanding that in order to calculate this threshold, an upstream sample would be required. Due to the flashy nature of precipitation and runoff at the landfill, collection of an upstream sample may not be possible during some storm events. How should the calculation be made if an upstream sample cannot be obtained?

II. *REQUIREMENTS AND PROHIBITIONS*

8. *All purge water discharged at the Landfill shall not contain concentrations of VOCs in excess of the WQPS.*

Comment: The KCPWD requests that this finding be revised to read:

> All purge water discharged to the ground at the Landfill shall not contain concentrations of VOCs in excess of the WQPS.

III. *WATER QUALITY MONITORING AND RESPONSE PROGRAMS*

F. *Data Analysis*

Within 45 days after completion of sampling, the Discharger must determine at each Monitoring Point whether there is measurably significant evidence and/or significant physical evidence of a new release from the Landfill. The analysis must consider all monitoring parameters and COCs. The Executive Officer may also make an independent finding that there is measurably significant evidence and/or significant physical evidence of a new release.

Comment: It may take the laboratory 2 to 3 weeks to provide the KCPWD with laboratory results. The KCPWD requests that this requirement be revised to read:

> Within 45 days of receipt of laboratory results, the Discharger must determine at each Monitoring Point whether there is measurably significant evidence and/or significant physical evidence of a new release

from the Landfill. The analysis must consider all monitoring parameters and COCs. The Executive Officer may also make an independent finding that there is measurably significant evidence and/or significant physical evidence of a new release.

IV. PROVISIONS

C. Closure and Post-Closure

This Order provides Water Board approval of the Preliminary CPCMP and the proposed engineered alternative final cover. The Discharger must submit a report to the Water Board on or before ***March 30, 2016****, and by* ***March 30*** *every year thereafter, indicating that the Preliminary CPCMP is in conformance with existing Facility operations. The Preliminary CPCMP and cost estimates shall be updated if/when there is a substantial change in operations, costs for closure, and to reflect changes in inflation rates (see IV.D below).*

Comment: Title 27 §21865 states "Closure and postclosure maintenance plans shall be submitted every time a review or revision of the SWFP is conducted." Per §21640, permit reviews are completed every five years and permit revisions are determined by the operator and the LEA. In addition, Title 27 §22236 requires an operator to submit a report calculating the inflationary increase in closure and postclosure maintenance and/or corrective action for the previous calendar year by June 1st each year. The submittal of the inflationary report does not require an amendment to the Preliminary CPCPM. The KCPWD requests this requirement be revised to read:

> This Order provides Water Board approval of the Preliminary CPCMP and the proposed engineered alternative final cover. The Discharger must submit a report to the Water Board on or before March 30, 2016, and by March 30 every year thereafter, indicating that the Preliminary CPCMP is in conformance with existing Facility operations. The Preliminary CPCMP and cost estimates shall be updated if/when there is a solid waste facility permit review or revision application submitted identifying a significant change in design or operation of the landfill, or there is a substantial change in costs for closure. Annual Inflation Factor worksheets, required under Title 27 §22236, are submitted to CalRecycle by June 1st of each year. A copy of the report shall be provided to the Water Board.

MONITORING AND REPORTING PROGRAM

I. WATER QUALITY PROTECTION STANDARD

C. Concentration Limits

2. *The concentration limits for all man-made COCs in soil-pore liquids shall be the MDL. For all other monitoring parameters listed in Attachment A, the Discharger is required to submit a revised WQPS that establishes concentration limits that reflect background ambient conditions in soil-pore liquids in accordance with the schedule specified in MRP section IV.E.1.*

Comment: These WDRS set the concentration limits for man-made compounds. The KCPWD has monitored the lysimeters at the facility for about 20 years. Sufficient

water was collected to analyze for parameters other than VOCs only once during that time. Based on the data collected to date, there is not enough information available to establish concentration limits for these naturally occurring constituents.

The KCPWD has demonstrated that the release at the facility is associated with landfill gas. The facility is in an arid environment and the KCPWD has contracted with consultants who prepared reports indicating that the potential for leachate generation at KCPWD's desert facilities is limited. The COCs for which there are currently no concentration limits are naturally occurring and generally unaffected by landfill gas. California Water Code Section 13267 states that "the burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports." KCPWD believes that the cost necessary to obtain this information exceeds the need and benefits for the information.

KCWMD requests that this item be deleted entirely from this MRP.

3. *The Discharger is not required to have concentration limits for soil-gas COCs. Methane, carbon dioxide, and oxygen exist naturally in soil with a high degree of variability such that development of background concentrations would be technically infeasible. While VOCs are not naturally occurring in the soil, establishing concentration limits for VOCs in the unsaturated zone is technically infeasible at this time because few studies have evaluated the relationship between soil-pore VOC concentrations and the potential threat to water quality. The Discharger proposes to continue to collect soil-pore gas data in the unsaturated zone and use that data to characterize the relationship, if any, between LFG migration, soil-pore VOC concentrations, and the potential threat to water quality at the soil-groundwater interface.*

   Comment: The KCPWD will continue monitoring and collecting samples of soil pore gas from the three probes of LFG perimeter monitoring well BO1-11. No other LFG perimeter monitoring wells will be sampled for laboratory analysis, though quarterly field monitoring will continue. The KCPWD requests that this finding be revised to clarify that only samples from BO1-11 will be subjected to laboratory analysis and read as follows:

   > The Discharger is not required to have concentration limits for soil-gas COCs. Methane, carbon dioxide, and oxygen exist naturally in soil with a high degree of variability such that development of background concentrations would be technically infeasible. While VOCs are not naturally occurring in the soil, establishing concentration limits for VOCs in the unsaturated zone is technically infeasible at this time because few studies have evaluated the relationship between soil-pore VOC concentrations and the potential threat to water quality. The Discharger proposes to continue to collect soil-pore gas data from LFG perimeter monitoring well BO1-11 in the unsaturated zone and use that data to characterize the relationship, if any, between LFG migration, soil-pore VOC concentrations, and the potential threat to water quality at the soil-groundwater interface. The discharger will continue quarterly field monitoring of the perimeter LFG wells.

D. *Point of Compliance and Monitoring Points*

The point of compliance is a vertical surface located at the hydraulically downgradient limit of the Landfill that extends through the uppermost aquifer underlying the Landfill. The point of compliance is monitored by the existing groundwater monitoring wells B01-07 and B01-10. Additional monitoring points include upgradient (background) groundwater monitoring wells B01-08 and B01-09 and cross-gradient groundwater monitoring well B01-06. The unsaturated

zone is monitored for soil-pore liquids with five vacuum lysimeters (BO1-01 through BO1-05) located around the perimeter of the Landfill. The soil-pore gas in the unsaturated zone is monitored for landfill gas (LFG) concentrations with a series of six LFG wells located around the perimeter of the Landfill (BO1-11 through BO1-16).

Comment: The KCPWD will continue monitoring and collecting samples of soil pore gas from the three probes of LFG perimeter monitoring well BO1-11. No other LFG perimeter monitoring wells will be sampled for laboratory analysis, though quarterly monitoring will continue. The KCPWD requests that this finding be revised to clarify that only samples from BO1-11 will be subjected to laboratory analysis and read as follows:

> The point of compliance is a vertical surface located at the hydraulically downgradient limit of the Landfill that extends through the uppermost aquifer underlying the Landfill. The point of compliance is monitored by the existing groundwater monitoring wells B01-07 and B01-10. Additional monitoring points include upgradient (background) groundwater monitoring wells B01-08 and B01-09 and cross-gradient groundwater monitoring well B01-06. The unsaturated zone is monitored for soil-pore liquids with five vacuum lysimeters (BO1-01 through BO1-05) located around the perimeter of the Landfill. The soil-pore gas in the unsaturated zone is monitored for landfill gas (LFG) concentrations with a series of six LFG perimeter monitoring wells located around the perimeter of the Landfill (BO1-11 through BO1-16). The LFG concentrations in these wells are monitored using field instruments and samples will be collected for laboratory analyses from BO1-11.

II. MONITORING

A. Detection Monitoring and Corrective Action Program

The Discharger must operate and maintain a detection and corrective action monitoring system that complies with the DMP and CAP monitoring provisions contained in CCR, Title 27, section 20385 through 20430. Monitoring of the groundwater and unsaturated zone must be conducted to evaluate the effectiveness of the CAP and to provide the best assurance of the early detection of any new releases from the Landfill. The monitoring system must be certified by a California-licensed professional civil engineer or engineering geologist as meeting the requirements of CCR, Title 27. The Discharger must collect, preserve, and transport samples in accordance with an approved SAP.

Comment: Title 27, Section 20415(e)(1) General Monitoring Requirements states that "All monitoring systems shall be designed and certified by a registered geologist or a registered civil engineer." KCPWD requests that this requirement be modified to reflect the requirements of Title 27.

1. Groundwater Monitoring

d. *Constituents of Concern and Monitoring Parameters*

The Discharger shall monitor, at each groundwater monitoring well, all COCs and monitoring parameters in accordance with the frequencies listed in Attachment A. Should any non-monitoring parameter COC exceed their respective concentration limit by a measurably significant amount at any given monitoring point, that non-monitoring parameter COC will become a monitoring parameter.

Comment: These WDRs set the concentration limit of the manmade (VOCs, semivolatiles, pesticides) to the MDL. There is a known release at the facility related

to landfill gas. It is being monitored by sampling for VOCs and general chemistry constituents and by sampling for the 5-year COCs.

Converting a 5-year COC to a monitoring parameter based on a trace detection in one sample from one monitoring point is particularly punitive. EPA regulations define the method detection limit and provide a protocol for determining an MDL in the Code of Federal Regulations. The detection level is the concentration at which a substance can be determined to be present in a sample matrix. Specificity, or proper identification, of the material is the key to the definition. Detection level is a qualitative concept; no reliable quantitative (or measurable) information is given at the detection level. EPA defines MDL as "the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte." Therefore the "trace" levels, concentrations between the MDL and practical quantitation limit, reported by laboratories are only estimates.

The quantitation limit is the minimum concentration of analyte that must be present before a method is considered to provide reliable and reproducible quantitative results. The practical quantitation limit (PQL) is defined by EPA as "the lowest concentration of analytes that can be reliably determined by the indicated methods under routine laboratory operating conditions."

While setting the "trigger" for a detection monitoring program as a trace to detect a release at the earliest possible time, the KCPWD believes the PQL is a more appropriate level for a site with a known release. Therefore, the KCPWD believes that any level used to incorporate a COC into the monitoring parameters should be set, at a minimum, as the PQL. This site has a documented release. The continued monitoring of sporadic trace "detections" does not yield data which can be statistically analyzed.

f. Aquifer Characteristics

The Discharger must calculate, and illustrate on a site plan, the following aquifer characteristics: the static water level (feet above mean sea level) in each groundwater monitoring well; the groundwater gradient (feet/feet); the direction of the groundwater gradient (degrees from true north); the velocity of groundwater flow (feet/year); and the then current groundwater isocontours.

Comment: The KCPWD currently provides the static water level elevation for each monitoring well, the groundwater gradient, the direction of flow in cardinal terms (northeast, north, ...), and groundwater contours on a map. The flow velocity is provided in the text of the report. The KCPWD does not believe that providing the gradient direction in degrees will provide useful information as often the direction of flow varies with location beneath the site. The KCPWD requests this requirement be modified to read as:

> Calculate and illustrate on a map and/or aerial photograph the static water level (feet above mean sea level) in each groundwater monitoring well, the groundwater gradient (feet/feet) and the direction of the groundwater gradient beneath and around the Facility, the then current groundwater isocontours. Provide in the report or on the map the velocity of groundwater flow (feet/year).

2. *Unsaturated Zone Monitoring*

a. *Monitoring Points*

The unsaturated zone is monitored for soil-pore gas using a series of six LFG monitoring wells, each having isolated multi-level (nested) probes, located around the perimeter of the landfill (BO1-11 through BO1-16). LFG monitoring well BO1-11 is completed with isolated probes at depths below ground surface of 48 feet (shallow probe), 86.5 feet (middle probe), and 170 feet (deep probe). LFG monitoring wells BO1-12 through BO1-15 are completed with isolated probes at depths below ground surface of 10 feet (shallow probe) and 25 feet (deep probe).

Comment: The unsaturated zone is monitored quarterly using six multilevel LFG monitoring wells. Semiannually, gas samples are collected from the three probes of BO1-11. This is the only LFG well from which gas samples are collected for laboratory analyses. The KCPWD requests that the requirement be modified to read:

> The unsaturated zone is monitored for soil-pore gas using a series of six LFG monitoring wells, each having isolated multi-level (nested) probes, located around the perimeter of the landfill (BO1-11 through BO1-16). LFG monitoring well BO1-11 is completed with isolated probes at depths below ground surface of 48 feet (shallow probe), 86.5 feet (middle probe), and 170 feet (deep probe). Landfill gas samples will be collected for laboratory analyses from BO1-11 in accordance with the schedule in Attachment A. LFG monitoring wells BO1-12 through BO1-15 are completed with isolated probes at depths below ground surface of 10 feet (shallow probe) and 25 feet (deep probe) and will be monitored in accordance with the schedule in Attachment A.

b. *Field Calibration*

Prior to beginning gas collection at the Facility, the instrument(s) will be calibrated using laboratory-grade calibration gases and procedures according to manufacturer recommendations and the approved SAP. This will be done daily and whenever an instrument has been transported from one facility to another to ensure that the field calibration is performed at the same atmospheric pressure at which the soil-gas samples are collected.

Comment: The field instruments are not necessarily used or calibrated daily. They are calibrated before each use in accordance with the manufacturer's recommendations. The KCPWD requests that the requirement be modified to read:

> Prior to beginning gas collection at the Facility, the instrument(s) will be calibrated using laboratory-grade calibration gases and procedures according to manufacturer recommendations and the approved SAP. This will be done each day the instrument is used and whenever an instrument has been transported from one facility to another to ensure that the field calibration is performed at the same atmospheric pressure at which the soil-gas samples are collected.

e. *Constituents of Concern and Monitoring Parameters*

The Discharger shall monitor all probes in each LFG monitoring well for the monitoring parameters in accordance with the frequencies in Attachment A.

Comment: The KCPWD is proposing to collect LFG samples for the monitoring parameters from the probes in BO1-11 only. The monitoring of BO1-11 is covered above. The KCPWD requests this requirement be deleted.

B. Solid Waste Discharge

3. *An evaluation of the effectiveness of the Facility's load checking program.*

Comment: Please clarify the requirements for this evaluation of the load checking program. In the SMRs, KCPWD currently provides the total number of vehicles, the number of vehicles checked, the amount rejected and returned to the customers, and the amount transported to the Special Waste Facility for coordination of appropriate recycling or disposal.

C. *Storm Water Monitoring and Response Program*

2. *Storm Water Monitoring*

e. *Water Quality Objectives*

The storm water monitoring program must comply with the water quality objectives outlined in the Water Quality Control Plan for the Lahontan Region (Basin Plan) for surface waters. The specific water quality objectives for the storm water monitoring parameters are listed in the table below.

Total Suspended Solids

Water shall not contain suspended materials that cause nuisance or that adversely affect the water for beneficial uses. The concentration of total suspended solids shall not be altered to the extent that such alterations are discernible at the 10 percent significance level.

Comment: See KCPWD's response above regarding the requirement to obtain an upstream sample. This requirement implies that should the BMPs at the facility be effective and reduce the TSS concentration to the point that it is lower than background at a 10 percent significance level, the facility would be out of compliance. The KCPWD requests that the requirement be modified to read:

> Water shall not contain suspended materials that cause nuisance or that adversely affect the water for beneficial uses. The concentration of total suspended solids shall not be altered to the extent that such alterations are greater than background at the 10 percent significance level.

Iron, Total

Waters designated for municipal use shall not contain concentrations of chemical constituents in excess of the Maximum Contaminant Level (MCL) or secondary MCL based upon drinking water standards specified in CCR, Title 22. The MCL for iron is 300 micrograms per liter.

Comment: The Tentative WDRs set the maximum concentration of iron at 300 micrograms per liter. This is a secondary drinking water standard according to the USEPA and is a non-mandatory water-quality standard. According the USEPA, these secondary standards "are established only as guidelines to assist public water systems in managing their drinking water for aesthetic considerations, such as taste, color, and odor. These contaminants are not considered to present a risk to human health at the secondary maximum contaminant levels."

The secondary drinking water standards for iron should not be applied as a standard for the surface water run-off at the Boron SLF. Surface water at the facility does not directly supply a drinking water source; instead, as stated in Dudek's report, any stormwater flowing from the facility will most likely evaporate or percolate through the soil into the groundwater basin.

The KCPWD recommends the standard for iron of 1.0 milligram per liter, as listed in the California Industrial General Permit, be implemented as the threshold. This threshold has been determined by a Blue Ribbon Panel to be an acceptable level of iron to discharge into a water of the United States, and therefore, should also be an acceptable limit for any stormwater discharge that may flow from the Boron SLF. However, it should be noted that the KCPWD believes that even 1 milligram per liter may be unattainable as naturally occurring suspended iron-bearing minerals will be dissolved when the samples are preserved to a pH less than 2.

3. *Data Evaluation and Response Actions*

The results of all storm water sampling and analytical results from each distinct sample must be directly compared to the water quality objectives for the corresponding monitoring parameter. An exceedance of one or more water quality objectives requires the Discharger to implement the following response actions:

i. *Immediately notify the Water Board verbally whenever a determination is made that a water quality objective is exceeded for one or more storm water monitoring parameters;*

Comment: The 30-day notification timeframe required in the California Industrial General Permit is recommended to be used in this case. The extension to 30 days will allow the KCPWD to review the results and determine the potential cause of the exceedance. Potential BMP modifications can be discussed with the Water Board at this time. The KCPWD requests the requirement be modified to read:

> The Discharger shall notify the Water Board, verbally or via email, within 30 days of obtaining laboratory results whenever a determination is made that a water quality objective is exceeded for one or more stormwater monitoring parameters.

III. *DATA ANALYSES*

A. *Statistical Data Analysis Method*

The Discharger has established concentration limits for detection and evaluation of compliance with the CAP. The limits may be revised every two years, but may only be lowered.

Comment: The KCPWD is using both interwell and intrawell methods to determine background for naturally occurring groundwater constituents. Allowing the concentration limits to only be lowered does not take into account the possibility that the natural background concentration of some naturally occurring constituents could increase in the future. In that case, the KCPWD should be allowed to increase the concentration limit for that constituent in accordance with Title 27, Section 201400(a)(1) and (2). The KCPWD requests this requirement be modified to read:

> The Discharger has established concentration limits for detection and evaluation of compliance with the CAP. The limits may be revised every two years.

IV. REPORTING REQUIREMENTS

A. Scheduled Reports to be Filed with the Water Board

1. Semi-Annual DMP/CAP

e. *Calculate and illustrate on a map and/or aerial photograph the static water level (feet above mean sea level) in each groundwater monitoring well, the groundwater gradient (feet/feet) and the direction of the groundwater gradient (degrees from true north) beneath and around the Facility, the velocity of groundwater flow (feet/year), and the then current groundwater isocontours.*

Comment: The KCPWD currently provides the static water level elevation for each monitoring well, the groundwater gradient, the direction of flow in cardinal terms (northeast, north, ...), and groundwater contours on a map. The flow velocity is provided in the text of the report. The KCPWD does not believe that providing the gradient direction in degrees will provide useful information as often the direction of flow varies with location beneath the site. The KCPWD requests this requirement be modified to read as:

> Calculate and illustrate on a map and/or aerial photograph the static water level (feet above mean sea level) in each groundwater monitoring well, the groundwater gradient (feet/feet) and the direction of the groundwater gradient beneath and around the Facility, the then current groundwater isocontours. Provide in the report or on the map the velocity of groundwater flow (feet/year).

2. Annual DMP/CAP Monitoring Reports

a. *A list of all monitoring point/monitoring parameter pairs (pairs), by medium, which have exhibited a verified measurably significant increase, together with the respective date (for each) when that increase occurred. Any pairs that have shown an increase within that (prior) year shall be bold-underlined. In addition, by medium, list any non-monitoring parameter COCs that, during testing that year (tested every five years), have exceeded their respective concentration limit and, as a result, have become monitoring parameters, together with the date when the transition occurred.*

Comment: Please see our comment above about converting non-monitoring parameters to COCs. The KCPWD does not believe that the identification of a constituent at a trace concentration is a reasonable trigger to permanently include it in the semi-annual monitoring program.

d. *An evaluation of the effectiveness of both the groundwater and unsaturated zone monitoring programs and any proposed modifications necessary to improve the DMP and/or CAP. The evaluation of corrective action activities should also include a map showing the extent of impacted groundwater (plume maps) and cross sections.*

Comment: The KCPWD agrees that plume maps can be a useful tool in evaluating corrective action effectiveness. However, due to the inhomogeneous nature of the subsurface sediments, accurately illustrating the distribution of chemical concentrations on a cross section in the subsurface is difficult.

The lateral and vertical movements of a compound in the subsurface are controlled by many factors. Variations in permeability, vertical mixing, density gradients, and groundwater flow may limit the vertical movement of the compound. Attempting to

contour the concentration of a compound on a cross-section is likely to misrepresent the distribution of that compound. The KCPWD requests that only plume maps be required as they more accurately represent the lateral movement of the plume and requests this requirement be modified to read:

> An evaluation of the effectiveness of both the groundwater and unsaturated zone monitoring programs and any proposed modifications necessary to improve the DMP and/or CAP. The evaluation of corrective action activities should also include a map showing the extent of impacted groundwater (plume maps).

B. *Unscheduled Reports to be Filed With the Water Board*

2. *Evaluation Monitoring*

a. *COC Concentrations – the maximum concentration of each COC at each Monitoring Point as determined during the most recent COC sampling event (i.e., under CCR, title 27, section 20420, subdivision (g) or (k)[1]). Any COC that exceeds its concentration limit is to be retested at that monitoring point. Should the results of the retest verify that the COC is above the concentration limit, then that COC will become a monitoring parameter at all monitoring points.*

Comment: These WDRs set the concentration limit of the manmade (VOCs, semivolatiles, pesticides) to the MDL. There is a known release at the facility related to landfill gas. It is being monitored by sampling for VOCs and general chemistry constituents and by sampling for the 5-year COCs.

Converting a 5-year COC to a monitoring parameter based on a trace detection in one sample from one monitoring point is particularly punitive.

EPA regulations define detection limit as the method detection limit and provide a protocol for determining an MDL in the Code of Federal Regulations. The detection level is the concentration at which a substance can be determined to be present in a sample matrix. Specificity, or proper identification, of the material is the key to the definition. Detection level is a qualitative concept; no reliable quantitative (or measurable) information is given at the detection level. EPA defines MDL as "the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero and is determined from analysis of a sample in a given matrix containing the analyte." Therefore the "trace" levels, concentrations between the MDL and practical quantitation limit, reported by laboratories are only estimates.

The quantitation limit is the minimum concentration of analyte that must be present before a method is considered to provide reliable and reproducible quantitative results. The practical quantitation limit (PQL) is defined by EPA as "the lowest concentration of analytes that can be reliably determined by the indicated methods under routine laboratory operating conditions."

While setting the "trigger" for a detection monitoring program as a trace to detect a release at the earliest possible time, the KCPWD believes the PQL is a more appropriate level for a site with a known release. Therefore, the KCPWD believes that any level used to incorporate a COC into the monitoring parameters should be set, at a minimum, as the PQL. This site has a documented release. The

continued monitoring of sporadic trace "detections" does not yield data which can be statistically analyzed.

E. *Technical Reports*

Pursuant to California Water Code, section 13267, subdivision (b):

1. *By **March 30, 2016**, the Discharger must submit for acceptance by the Water Board Executive Officer a revised WQPS prepared in accordance with CCR, title 27, Section 20390 through 20410 that establishes concentration limits that reflect background ambient conditions for all COCs in soil-pore liquids and identifies the methodology used to develop those concentration limits. The report must be certified by a California-licensed registered civil engineer or professional geologist.*

   Comment: These WDRS set the concentration limits for man-made compounds. The KCPWD has monitored the lysimeters at the facility for about 20 years. Sufficient water was collected to analyze for parameters other than VOCs only once during that time. Based on the data collected to date, there is not enough information available to establish concentration limits for these naturally occurring constituents.

   The KCPWD has demonstrated that the release at the facility is associated with landfill gas. The facility is in an arid environment and the KCPWD has contracted with consultants who prepared reports indicating that leachate generation at KCPWD's desert facilities is limited. The COCs for which there are currently no concentration limits are naturally occurring and generally unaffected by landfill gas. California Water Code Section 13267 states that "the burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports."

   KCPWD believes that the cost necessary to obtain this information exceeds the need and benefits for the information. KCPWD requests that this item be deleted entirely from this MRP.

GROUNDWATER MONITORING					
Parameter		**Units**	**USEPA Method**	**Sampling Frequency**	**Reporting Frequency**
Field Parameters					
Depth to Groundwater		feet below measuring point	--	semi-annually	semi-annually
Temperature		degrees Farenheit or Celsius	--	semi-annually	semi-annually
Electrical Conductivity		micromhos/cm	--	semi-annually	semi-annually
pH		pH Units	--	semi-annually	semi-annually
Turbidity		NTUs	--	semi-annually	semi-annually
Dissolved Oxygen[2]		milligrams/liter	--	semi-annually	semi-annually
Oxidation Reduction Potential[2]		milliVolts	--	semi-annually	semi-annually
Alkalinity[2]		milligrams/liter	--	semi-annually	semi-annually
Carbon Dioxide[2]		milligrams/liter	--	semi-annually	semi-annually
Ferrous Iron[2]		milligrams/liter	--	semi-annually	semi-annually
Manganese[2]		milligrams/liter	--	semi-annually	semi-annually
Constituents of Concern					
Monitoring Parameters	Total Dissolved Solids	milligrams/liter	E160.1	semi-annually	semi-annually
	Chloride	milligrams/liter	300	semi-annually	semi-annually
	Sulfate	milligrams/liter	300	semi-annually	semi-annually
	Nitrate as Nitrogen	milligrams/liter	300	semi-annually	semi-annually
	Volatile Organic Compounds[3]	micrograms/liter	8260	semi-annually	semi-annually
Antimony		micrograms/liter	7062	5 year	5 year
Arsenic		micrograms/liter	7062	5 year	5 year
Barium		micrograms/liter	6010	5 year	5 year
Beryllium		micrograms/liter	6010	5 year	5 year
Cadmium		micrograms/liter	7131	5 year	5 year
Chromium		micrograms/liter	6010	5 year	5 year
Cobalt		micrograms/liter	6010	5 year	5 year
Copper		micrograms/liter	6010	5 year	5 year
Lead		micrograms/liter	7421	5 year	5 year
Mercury		micrograms/liter	7471	5 year	5 year
Nickel		micrograms/liter	7521	5 year	5 year
Selenium		micrograms/liter	7742	5 year	5 year
Silver		micrograms/liter	6010	5 year	5 year
Thallium		micrograms/liter	7841	5 year	5 year
Tin		micrograms/liter	6010	5 year	5 year
Vanadium		micrograms/liter	6010	5 year	5 year
Zinc		micrograms/liter	6010	5 year	5 year
Volatile Organic Compounds[3]		micrograms/liter	8260	5 year	5 year
Semi-volatile Organic Compounds[4]		micrograms/liter	8270	5 year	5 year

Polychlorinated Biphenyls and Pesticides[4]	micrograms/liter	8141	5 year	5 year
Chlorinated Herbicides[4]	micrograms/liter	8151	5 year	5 year
Supplemental Parameters				
Calcium	milligrams/liter	6010	semi-annually	semi-annually
Magnesium	milligrams/liter	6010	semi-annually	semi-annually
Sodium	milligrams/liter	6010	semi-annually	semi-annually
Potassium	milligrams/liter	6010	semi-annually	semi-annually
Carbonate	milligrams/liter	310.1	semi-annually	semi-annually
Bicarbonate	milligrams/liter	310.1	semi-annually	semi-annually
Hardness	milligrams/liter	SM-2340B	semi-annually	semi-annually
Ortho-phosphate	milligrams/liter	365.1	semi-annually	semi-annually
Total Alkalinity[2]	milligrams/liter	310.1	semi-annually	semi-annually
Sulfide	milligrams/liter	376.2	5 year	5 year
Non-volatile Organic Carbon[2]	milligrams/liter	415.1	5 year	5 year

UNSATURATED ZONE SOIL-PORE LIQUID MONITORING					
Parameter		**Units**	**USEPA Method[1]**	**Sampling Frequency**	**Reporting Frequency**
Field Parameters					
Temperature		degrees Farenheit or	--	semi-annually	semi-annually
Electrical Conductivity		micromhos/cm	--	semi-annually	semi-annually
pH		pH Units	--	semi-annually	semi-annually
Turbidity		NTUs	--	semi-annually	semi-annually
Dissolved Oxygen[2]		milligrams/liter	--	semi-annually	semi-annually
Oxidation Reduction Potential[2]		milliVolts	--	semi-annually	semi-annually
Alkalinity[2]		milligrams/liter	--	semi-annually	semi-annually
Carbon Dioxide[2]		milligrams/liter	--	semi-annually	semi-annually
Ferrous Iron[2]		milligrams/liter	--	semi-annually	semi-annually
Manganese[2]		milligrams/liter	--	semi-annually	semi-annually
Constituents of Concern					
Monitoring Parameters	Total Dissolved Solids	milligrams/liter	E160.1	semi-annually	semi-annually
	Chloride	milligrams/liter	300	semi-annually	semi-annually
	Sulfate	milligrams/liter	300	semi-annually	semi-annually
	Nitrate as Nitrogen	milligrams/liter	300	semi-annually	semi-annually
	Volatile Organic Compounds[3]	micrograms/liter	8260	semi-annually	semi-annually

UNSATURATED ZONE SOIL-PORE GAS MONITORING					
Parameter		**Units**	**USEPA Method[1]**	**Sampling Frequency**	**Reporting Frequency**
Field Parameters					
Atmospheric Pressure		inches of mercury	--	quarterly	semi-annually
Methane		parts per million or percent by volume	--	quarterly	semi-annually
Carbon Dioxide		parts per million or percent by volume		quarterly	semi-annually
Nitrogen is not measured in the field. Please delete.				quarterly	semi-annually
Oxygen		parts per million or percent by volume		quarterly	semi-annually
Constituents of Concern					
Monitoring Parameters	Methane	parts per million or percent by volume	ASTM-D1946	semi-annually	semi-annually
	Carbon Dioxide	parts per million or percent by volume		semi-annually	semi-annually
	Nitrogen	parts per million or percent by volume		semi-annually	semi-annually
	Oxygen	parts per million or percent by volume		semi-annually	semi-annually
Volatile Organic Compounds		parts per billion or percent by volume	TO-15	semi-annually	semi-annually

STORM WATER MONITORING				
Parameter	**Units**	**USEPA Method[1]**	**Sampling Frequency**	**Reporting Frequency**
pH	pH Units	--	four qualifying storm events per year[5]	annually
Total Suspended Solids	milligrams/liter	SM-2540-D		
Oil and Grease, Total	milligrams/liter	1664A		
Iron, Total	milligrams/liter	200.7		

1 - The Discharger shall analyze for all constituents, with the exception of field parameters, using the United States Environmental Protection Agency (USEPA) analytical methods indicated or the most recently approved SW-846 USEPA method or other equivalent USEPA method. An alternate method may be proposed and used if acceptable to the Executive Officer.

2 - Parameters to evaluate Monitored Natural Attenuation.

3 - As defined in Appendix I, 40 CFR, part 258.

4 - As defined in Appendix II, 40 CFR, part 258.

5 - A qualifying storm event is a precipitation event that produces a storm water discharge for at least one drainage area and is preceded by 48 hours with no discharge from any drainage area. The Discharger shall collect and analyze storm water samples from two qualifying storm events within the first half of each reporting year (July 1 to December 31) and from two qualifying storm events within the second half of each reporting year (January 1 through June 30). If a sufficient number of qualifying storm events do not occur within a given reporting year, the Discharger must document and report that information in the regularly scheduled Annual Storm Water Report.

Comment: The soil-pore gas monitoring portion of Attachment A indicates that nitrogen is measured quarterly as a field parameter. That is not the case. Methane, oxygen, and carbon dioxide are measured in the field quarterly. The KCPWD requests that nitrogen be deleted from the table under "Field Parameters." The KCPWD has been, and is proposing to, collect samples from BO1-11 for fixed gas analysis that includes methane, oxygen, carbon dioxide, and nitrogen on a semi-annual basis. The KCPWD requests the table be modified to reflect this. The table has been modified above for review.

Thank you for providing KCPWD the opportunity to comment on the Tentative Waste Discharge Requirements dated November 25, 2015 for the Boron Sanitary Landfill. If you have any questions, please contact me at (661) 862-8686.

Sincerely,

Michael R. Burston, P.G.
Supervising Engineer

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cc: BOR L WQC

ENCLOSURE 3

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January 13, 2016

WDID No. 6B150303003

Michael R. Burston, Supervising Engineer
Kern County Public Works Department
2700 "M" Street, Suite 500
Bakersfield, CA 93301-2372
Email: burstonm@co.kern.ca.us

Response To Comments On The Tentative Revised Waste Discharge Requirements and Monitoring and Reporting Program For The Boron Sanitary Landfill, Kern County, WDID No. 6B150303003

California Regional Water Quality Control Board, Lahontan Region (Water Board) staff received comments from the Kern County Public Works Department (KCPWD) on the Tentative Revised Waste Discharge Requirements (WDRs) and Monitoring and Reporting Program (MRP) for the Boron Sanitary Landfill (Facility) on December 23, 2015. Water Board staff have considered the comments provided, many of which were clarification and minor technical edits, and incorporated most into the Proposed WDRs that are scheduled to be considered for adoption by the Water Board during the regularly scheduled meeting to be held on February 10 and 11, 2016. Our responses to the comments are listed in the table below. A copy of KCPWD's comment letter is enclosed for reference.

NO.	WDR/MRP SECTION	COMMENT (abbreviated) AND WATER BOARD STAFF RESPONSE
1	WDR Finding 11, Land Uses	Minor edits to revise the finding language to read: "The land uses surrounding the Facility…"
		Edits accepted. Finding 11 was revised to read as proposed by KCPWD.
2	WDR Finding 20, Beneficial Uses	KCPWD would like it noted for the record that the primary beneficial use of surface water at the facility appears to be groundwater recharge and that KCPWD is unaware of any agricultural, water related recreation, or sport fishing in the vicinity of the Facility.
		Staff agrees that there are no surface waters on or in the immediate vicinity of the Facility, except temporarily during precipitation events, when runoff occurs. However, such surface waters are considered waters of the State, and the Water Board has jurisdiction over these waters. Water Board staff recognize that such temporary surface

		waters do primarily recharge groundwater, as KCPWD notes. Therefore, the following edits were made: beneficial uses for minor surface waters deleted from Finding 20; surface waters were deleted as receiving waters from Finding 19; and WDR Section I.B, surface waters receiving water limitations, was deleted in its entirety.
3	WDR Finding 27, Evaluation Monitoring Program (EMP)	Minor edits to the finding language.
		Comment noted. Finding 27, as written, is more specific with respect to the requirements of an EMP than the KCPWD proposed edits. No edits were made.
4	WDR Finding 28, Corrective Action Program	Minor edits to the finding language.
		Edits accepted. Finding 28 was revised to read as proposed by KCPWD.
5	WDR Finding 29, Unsaturated Zone Monitoring	Minor edits to revise the finding language.
		Edits accepted. Finding 29 was revised to read: "The Discharger proposes to augment the unsaturated zone soil-pore liquid monitoring by monitoring soil-gas for LFG constituents in LFG monitoring well BO1-11."
6	WDR Section I.B.16, Receiving Water Limitations	KCPWD questions the ability to calculate the water quality objective for suspended materials based on the low precipitation and limited runoff volumes.
		In consideration of the KCPWD responses, Water Board staff have determined that surface waters receiving water limitations are not applicable for this Facility; therefore WDR Section I.B was deleted in its entirety; see response to comment no. 2 above.
7	WDR Section II.A.8, Requirements and Prohibitions, General	Minor edits to revise the purge water discharge requirement to read: "All purge water discharged to the ground at the Landfill…"
		Edits accepted. WDR Section II.A.8 was revised to read as proposed by KCPWD.
8	WDR Section III.F, Water Quality Monitoring and Response Programs, Data Analysis	Minor edits to revise the Data Analysis requirement to read: "Within 45 days of receipt of laboratory results…"
		Edits accepted. California Code of Regulations (CCR), title 27, section 20420(i)(2) allows that a determination of measurably significant evidence and/or significant physical evidence of a new release be made within a "reasonable period of time" following sampling. WDR Section II.A.8 was revised to read as proposed by KCPWD.

9	WDR Section IV.C, Provisions, Closure and Post-Closure	KCPWD suggested edits to revise the Closure and Post-Closure provision to read: "The Preliminary CPCMP and cost estimates shall be updated if/when there is a solid waste facility permit review or revision application submitted identifying a significant change in design or operation of the landfill, or there is a substantial change in costs for closure. Annual Inflation Factor worksheets, required under Title 27 §22236, are submitted to CalRecycle by June 1st of each year. A copy of the report shall be provided to the Water Board."
		Comment noted. The edits proposed by KCPWD reference a section of title 27 that is under the purview of CalRecycle and not the Water Board. WDR Section IV.C was revised for minor edits, excluding reference to CalRecycle title 27 requirements, to read: "...The Preliminary CPCMP and cost estimates shall be updated if/when there is a significant change in design or operation of the Landfill or there is substantial change in costs for closure, and to reflect changes in inflation rates (see IV.D below)."
10	MRP Section I.C.2, Water Quality Protection Standard, Concentration Limits	KCPWD requests that concentration limits for unsaturated zone constituents of concern (COCs) be deleted entirely from the MRP.
		Comment noted. A Water Quality Protection Standard (WQPS) is necessary to assure the earliest possible detection of a release from the landfill to the underlying soil and/or groundwater. In accordance with CCR, title 27, section 20390(a), the WQPS shall consist of all COCs, the concentration limits for each COC, the point of compliance, and all water quality monitoring points. Further, a concentration limit shall be established for each COC in each monitored medium, including groundwater, surface water, and the unsaturated zone (CCR, title 27, section 20400[a]). The discharger has shown that landfill gas is the primary mechanism for the release and that volatile organic compounds (VOCs) are the primary COCs in the unsaturated zone. Because VOCs and other man-made constituents are not naturally occurring in soil-pore liquids, their presence, even at trace concentrations, could be evidence of a release. A concentration limit set as the MDL for all man-made COCs in soil-pore liquids is appropriate in this instance. Staff agrees that due to the limited historical unsaturated zone monitoring data, development of concentration limits for all other soil-pore liquid monitoring parameters (chloride, sulfate, total dissolved solids, and nitrate as nitrogen) is technically infeasible at this time. MRP Section I.C.2 was revised to read: "The concentration limits for all man-made COCs in soil-pore liquids shall be the MDL. At this time, the Discharger is not required to have concentration limits for all other soil-pore liquid monitoring parameters listed in Attachment A. Historically, soil-pore liquid sample volume has been insufficient to monitor for

		COCs other than VOCs. Therefore, development of concentration limits for chloride, sulfate, total dissolved solids, and nitrate as nitrogen in soil-pore liquid is technically infeasible at this time. However, should sample volume be sufficient enough to analyze for the additional monitoring parameters (chloride, sulfate, total dissolved solids, and nitrate as nitrogen), these data could allow for the establishment of concentration limits for these parameters in the future."
11	MRP Section I.C.3, Water Quality Protection Standard, Concentration Limits	Minor edits to clarify that only the soil-pore gas samples collected from LFG monitoring well BO1-11 will be subject to laboratory analyses.
		Comment noted. No edits made to MRP Section I.C.3. MRP Section II.A.2.e reads in part: "The Discharger shall monitor the shallow, middle, and deep probes of LFG monitoring well BO1-11 for all COCs and monitoring parameters in accordance with the frequencies listed in Attachment A." Reference to all other LFG monitoring wells was deleted from MRP Section II.A.2.e.
12	MRP Section I.D, Water Quality Protection Standard, Point of Compliance and Monitoring Points	Minor edits to clarify that only the soil-pore gas samples collected from LFG monitoring well BO1-11 will be subject to laboratory analyses.
		Comment noted. No edits made to MRP Section I.D., as this section simply identifies the point of compliance and monitoring points. MRP Section II.A.2.e reads in part: "The Discharger shall monitor the shallow, middle, and deep probes of LFG monitoring well BO1-11 for all COCs and monitoring parameters in accordance with the frequencies listed in Attachment A." Reference to all other LFG monitoring wells was deleted from MRP Section II.A.2.e.
13	MRP Section II.A, Monitoring, Detection Monitoring and Corrective Action Program	Minor edits to correctly state the requirements of CCR, title 27, section 20415(e)(1).
		Edits accepted. MRP Section II.A was revised to read: "...The monitoring system must be designed and certified by a California-licensed professional civil engineer or professional geologist as meeting the requirements of CCR, title 27, section 20415(e)(1)."
14	MRP Section II.A.1.d, Monitoring, Detection Monitoring and Corrective Action Program, Groundwater Monitoring, Constituents of Concern and	KCPWD contends that converting a COC to a monitoring parameter based on a single trace detection at a single monitoring point is punitive.
		Comment noted. MRP Section II.A.1.d reads in part: "...Should any non-monitoring parameter COC exceed their respective concentration limit by a measurably significant amount at any given monitoring point, that non-monitoring parameter COC will become a monitoring parameter." Whereby "measurably significant" is defined in CCR, title 27, section 20164 as "a change

	Monitoring Parameters	in the Monitoring Point data that, relative to the reference background value (or other approved reference value or distribution), is sufficient to indicate that a release has occurred, pursuant to the applicable data analysis method (including its corresponding trigger)." In accordance with CCR, title 27, section 20425(e)(3) KCPWD shall use both statistical and non-statistical data analysis methods to evaluate changes in water quality. Should it be determined that there is measurably significant evidence of a new release for one or more COCs, then those COCs will become monitoring parameters as defined in section 20164, title 27, CCR.
15	MRP Section II.A.1.f, Monitoring, Detection Monitoring and Corrective Action Program, Groundwater Monitoring, Aquifer Characteristics	Minor edits to clarify the specific aquifer characteristics required for reporting.
		Edits accepted. MRP Section II.A.1.f was revised to read as proposed by KCPWD.
16	MRP Section II.A.2.a, Monitoring, Detection Monitoring and Corrective Action Program, Unsaturated Zone Monitoring, Monitoring Points	Minor edits to clarify that only the soil-pore gas samples collected from LFG monitoring well BO1-11 will be subject to laboratory analyses.
		Comment noted. No edits made to MRP Section II.A.2.b., as this section simply identifies the monitoring points.
17	MRP Section II.A.2.b, Monitoring, Detection Monitoring and Corrective Action Program, Unsaturated Zone Monitoring, Field Calibration	Minor edits to clarify the calibration for field instruments used to measure soil-gas.
		Edits accepted. MRP Section II.A.2.b was revised to read as proposed by KCPWD.
18	MRP Section II.A.2.e, Monitoring, Detection Monitoring and Corrective Action Program, Unsaturated Zone Monitoring,	Minor edits to clarify that only the soil-pore gas samples collected from LFG monitoring well BO1-11 will be subject to laboratory analyses.
		Edits accepted. MRP Section II.A.2.e reads in part: "The Discharger shall monitor the shallow, middle, and deep probes of LFG monitoring well BO1-11 for all COCs and monitoring parameters in accordance with the frequencies listed in

	Constituents of Concern and Monitoring Parameters	Attachment A." Reference to all other LFG monitoring wells was deleted from MRP Section II.A.2.e.
19	MRP Section II.B.3, Monitoring, Solid Waste Discharge	Minor edits to clarify the components of the Facility's load checking program.
		Edits accepted. MRP Section II.B.3 was revised to read: "An evaluation of the effectiveness of the Facility's load checking program including total number of vehicles, total number of vehicles checked, the amount rejected and returned to the customer, and the amount transported to the Special Waste Facility for coordination of appropriate recycling or disposal."
20	MRP Section II.C.2.e, Monitoring, Storm Water Monitoring and Response Program, Storm Water Monitoring, Water Quality Objectives	Edits and clarification on the proposed term "water quality objectives" for the storm water monitoring program.
		MRP Section II.C.2.e was revised for the following. The term "water quality objectives" was changed to "water quality thresholds." The water quality threshold values for pH, oil and grease, and iron were changed to the values identified in the National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges Associated with Industrial Activities, Order 2014-0057-DWQ: pH threshold of 6.0 to 9.0; oil and grease threshold of 15 mg/L; and iron threshold of 1.0 mg/L. As this is a landfill site comprised of soils, Water Board staff deleted the requirement to monitor for total suspended solids and added a requirement to monitor for turbidity at the same level as a Risk 3 site noted in the NPDES General Permit for Storm Water Discharges Associated with Construction Activities, Order No. 2009-0009-DWQ, and set the water quality threshold at 500 nephelometric turbidity units (NTUs).
21	MRP Section II.C.3.i, Monitoring, Storm Water Monitoring and Response Program, Data Evaluation and Response Actions	Minor edits and clarification on the notification requirements for the storm water monitoring program.
		Edits accepted. MRP Section II.C.3.i was revised to read as proposed by KCPWD.
22	MRP Section III.A, Data Analyses, Statistical Data Analysis Methods	Minor edits to clarify updates/revisions to the WQPS.
		Edits accepted. MRP Section III.A was revised to read as proposed by KCPWD.

23	MRP Section IV.A.1.e, Reporting Requirements, Scheduled Reports to be Filed with the Water Board, Semi-Annual DMP/CAP Monitoring Reports	Minor edits to clarify the aquifer characteristics to be reported.
		MRP Section IV.A.1.e was revised to read: "Calculate and illustrate on a map and/or aerial photograph the static groundwater surface elevation (feet above mean sea level) in each groundwater monitoring well, the groundwater gradient (feet/feet) and the direction of the groundwater gradient beneath and around the Facility, the velocity of groundwater flow (feet/year), and the current groundwater isocontours for that monitoring period."
24	MRP Section IV.A.2.a, Reporting Requirements, Scheduled Reports to be Filed with the Water Board, Annual DMP/CAP Monitoring Reports	KCPWD contends that converting a COC to a monitoring parameter based on a single trace detection at a single monitoring point is punitive.
		Comment noted. No edits made. See response to comment no. 14 above.
25	MRP Section IV.A.2.d, Reporting Requirements, Scheduled Reports to be Filed with the Water Board, Annual DMP/CAP Monitoring Reports	KCPWD requests that only plume maps be required as part of the corrective action evaluation and that cross-sections be deleted from the requirement.
		Water Board staff sees the value of a well-constructed cross-section to illustrate the size, extent, and characteristics of a contaminant plume in the subsurface, and agree that the construction of a cross-section requires the necessary data and skills set to accurately interpret subsurface conditions. MRP Section IV.A.2.d was revised to read: "An evaluation of the effectiveness of both the groundwater and unsaturated zone monitoring programs and any proposed modifications necessary to improve the DMP and/or CAP. The evaluation of corrective action activities should also include a map showing the extent of impacted groundwater (plume maps) and/or cross sections."
26	MRP Section IV.B.2.a, Reporting Requirements, Unscheduled Reports to be Filed with the Water Board, Evaluation Monitoring, COC Concentrations	KCPWD contends that converting a COC to a monitoring parameter based on a single trace detection at a single monitoring point is punitive.
		Comment noted. No edits made. See response to comment no. 14 above.
27	MRP Section IV.E, Reporting Requirements, Technical Reports	KCPWD requests that the requirement to submit a revised WQPS that proposes concentration limits for inorganic COCs in soil-pore liquids be deleted.
		Edits accepted. The requirement to submit a revised WQPS was deleted. See response to comment no. 10 above.

28	MRP Attachment A, Water Quality Monitoring Program	Minor edits to Attachment A to reflect the proposed/current monitoring programs and parameters.
		Edits accepted. Attachment A was revised as proposed by KCPWD.

Thank you for your comments. If you have any questions regarding this letter, please contact me at (760) 241-7376 jan.zimmerman@waterboards.ca.gov or Patrice Copeland, Senior Engineering Geologist, at (760) 241-7404 patrice.copeland@waterboards.ca.gov.

Jan M. Zimmerman, P.G.
Engineering Geologist

Enc: KCPWD Comment Letter, Boron Landfill Tentative WDRs (December 23, 2015)

cc: Christine Karl, CalRecycle (christine.karl@calrecycle.ca.gov)
Jeffery Marshall, Kern County LEA (marshallj@co.kern.ca.us)

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