CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

BOARD ORDER NO. R6V-2016-0051
WDID NO. 6B150303022

REVISED WASTE DISCHARGE REQUIREMENTS
FOR

KERN COUNTY PUBLIC WORKS DEPARTMENT
RIDGECREST RECYCLING AND SANITARY LANDFILL

Kern County

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

1. Discharger

On January 4, 2016, the Kern County Public Works Department (formerly Kern County Waste Management Department) submitted a complete revised Report of Waste Discharge (RWD) for the Ridgecrest Recycling and Sanitary Landfill that included an updated Engineering Feasibility Study and proposed Corrective Action Program (CAP), preliminary design plans and time schedule for a lateral expansion of the waste management unit (WMU), a Storm Water Pollution Control Plan (SWPCP), an updated Preliminary Closure and Post Closure Maintenance Plan (CPCMP), and an updated Water Quality Protection Standard (WQPS). For the purposes of this Order, the Kern County Public Works Department is referred to as the "Discharger."

2. Facility

The Ridgecrest Recycling and Sanitary Landfill is an active Class III municipal solid waste landfill ("Facility") owned by the County of Kern and operated by the Discharger since 1968. The Facility is comprised of a WMU and ancillary facilities including a gatehouse, 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," and consists of an existing WMU that is unlined with no leachate collection and recovery system (LCRS) and a future lateral expansion area that will have a composite liner and an LCRS. A map of the Facility is included as Attachment A, which is made part of this Order.

3. Facility Location

The Facility is located at 3301 Bowman Road approximately 2 miles west of the city of Ridgecrest in Kern County. The Facility is within portions of Sections 1 and 2 of Township 26 South, Range 39 East, and Sections 11 and 12 of Township 27 South, Range 39 East, Mount Diablo Baseline and Meridian, as shown on Attachment A.

4. Reason for Action

The Water Board is revising these Waste Discharge Requirements (WDRs) and updating the Monitoring and Reporting Program (MRP) to: (1) establish a CAP to remediate the effects of a known release to groundwater; (2) increase the permitted waste footprint from 78 acres to 105 acres; (3) authorize a lateral expansion of the WMU; (4) increase the permitted Facility boundary from 120 acres to 320 acres to include additional buffer area; (5) incorporate Facility-specific storm water management, monitoring, and reporting requirements; and (6) provide general updates to the WDRs and MRP based on current site conditions, in compliance with the California Code of Regulations (CCR), title 27.

5. Order History

a. WDRs were established for the Facility under Board Order No. 6-80-81, which was adopted on October 9, 1980.

b. Board Order No. 6-85-58 was adopted on June 13, 1985, and revised the WDRs to provide general updates.

c. Board Order No. 6-93-100-26 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. 6-95-33 was adopted on March 9, 1995, and revised the WDRs to incorporate requirements of the previously adopted Board Order No. 6-93-100-26, and to document a new time schedule for compliance with State and Federal regulations.

e. Board Order No. 6-95-33A1 was adopted on November 9, 1995, and amended the WDRs to document a new time schedule for compliance with State and Federal regulations.

6. Volatile Organic Compounds Detected in Groundwater

The Discharger confirmed a release of volatile organic compounds (VOCs) to groundwater beneath the Facility in 2002. The most commonly detected VOCs in groundwater are dichlorodifluoromethane (Freon 12), tetrachloroethene (PCE), trichloroethene (TCE), and trichlorofluoromethane (Freon 11). Since the release was verified, the Discharger has implemented an evaluation monitoring program (EMP) and has shown that landfill gas (LFG) migration is the source of the release, which is more specifically described in Finding No. 27. The Discharger has been implementing interim corrective action measures, including a LFG collection and control system, since 2001.

VOC concentrations in groundwater are stable and show a decreasing trend over time, with quantifiable concentrations of VOCs currently being detected in only one of the onsite groundwater monitoring wells (RD1-25). The Discharger proposes a CAP that includes LFG source controls with Monitoring Natural Attenuation (MNA) and drainage controls, which is more specifically described in Finding No. 28.

7. Waste Management Unit Classification and Authorized Disposal Sites

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

8. Waste Classification

The waste discharged to the Landfill is defined in 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 (MSW) in Subtitle D.

9. Subtitle D Compliance Status

Subtitle D requirements became effective for this Landfill on April 9, 1994. Board Orders amendments No. 6-93-100-26 and No. 6-95-33 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 SWRCB Resolution No. 93-62.

10. Lateral Expansion and Engineered Alternative to Prescriptive Standard for the Liner Design

The Discharger requests an increase in the waste footprint from 78 acres to 105 acres to allow for a lateral expansion of the WMU. The existing and proposed waste footprint is shown on Attachment B. The expansion area totals 27 acres and will be constructed in two phases; each phase will be composite-lined with a LCRS. CCR, title 27 includes prescriptive standards for WMU construction, but also allows for engineered alternatives to such standards. For the lateral expansion, the Discharger proposes an alternative liner design consisting of, from top to bottom:

a. 2-foot thick operations layer;
b. 8-ounce geotextile filter;
c. LCRS (described below);
d. 12-ounce geotextile cushion;
e. 60-mil high-density polyethylene geomembrane liner;
f. Double non-woven geotextile-backed geosynthetic clay liner; and
g. Prepared subgrade.

The proposed LCRS is a geocomposite drainage layer designed to maintain leachate levels of 1-foot (30 centimeters) or less on all points on the liner, except in the sump. The LCRS design consists of a granular drainage layer with a network of leachate collection pipes to convey accumulated fluid to designated sump areas. The depth of fluid in the sump shall be kept at the minimum needed to ensure efficient pump operation (CCR, title 27, 20340(c)). Pan lysimeters will be installed under each sump to detect any leakage. In accordance with the provisions of CCR, title 27, section 20340, subdivision (g), the leachate may be recirculated into the lined unit from which it was generated.

Water Board staff has evaluated the proposed lateral expansion and engineered alternative liner design and has determined that the alternative meets the CCR, title 27 requirements, is consistent with the performance goal of the prescriptive standards, affords equivalent or better protection against water quality impairment, and that the Discharger has shown that construction of the prescriptive standard is cost-prohibitive compared to the engineered alternative design. This Order authorizes the increase in waste footprint area from 78 acres to 105 acres and provides Water Board approval of the proposed engineered alternative liner design for the future lateral expansion of the Landfill.

11. 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 the visual inspections are placed in portable hazardous waste containers and moved temporarily to the permitted hazardous waste storage locker for off-site disposal at an appropriate facility. The Facility has an active diversion program for inert materials, treated wood, 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.

12. Treated Wood Waste and Disposal

The Discharger proposes to accept and discharge treated wood waste in lined portions of the Landfill. CCR, title 22 defines "treated wood" to mean wood that has been treated with a chemical preservative for purposes of protecting the wood against attacks from insects, microorganisms, fungi, and other environmental conditions that can lead to decay of the wood, and the chemical preservative is registered pursuant to the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA; 7 U.S. Code, section 136 and following). This may include, but is not limited to, waste wood that has been treated with chromated copper arsenate, pentachlorophenol, creosote, acid copper chromate, ammoniacal copper arsenate, ammoniacal copper zinc arsenate, or chromated zinc chloride.

CCR, title 22, section 67386.11 allows treated wood waste to be disposed in a composite-lined portion of a MSW landfill that is regulated by WDRs issued pursuant to the California Water Code provided that the Discharger:

a. Complies with the prohibitions in CCR, title 22, section 67386.3, which are:

   i. Treated wood waste shall not be burned, scavenged, commingled with other waste prior to disposal, if previously segregated; stored in contact with the ground; recycled with or without treatment (except as in iii, below); treated except in compliance with section 67386.10; or disposed to land except in compliance with section 67386.11.

   ii. Any label or mark that identifies the wood and treated wood waste shall not be intentionally removed, obliterated, defaced, or destroyed.

   iii. Treated wood waste may be recycled only by reuse when <u>all</u> of the following apply:

      1. Reuse is onsite.
      2. Reuse is consistent with FIFRA approved use of the preservative with which the treated wood waste has been treated.
      3. Prior to reuse, treated wood waste is handled in compliance with CCR, title 22, division 4.5, chapter 34.

b. Ensures treated wood waste is managed at the landfill according to CCR, title 22, division 4.5, chapter 34 prior to disposal.

c. Monitors the composite-lined portion of the landfill for a release and, if a verified release is detected from the unit where treated wood is disposed, the disposal of treated wood will be terminated at the unit with the verified release until corrective action ceases the release.

d. Handles treated wood waste in a manner consistent with all applicable requirements of the California Occupational Safety and Health Act of 1973, including all rules, regulations, and orders relating to hazardous waste.

This Order authorizes the discharge of treated wood waste to lined portions of the Landfill only, provided that the conditions outlined above are met. This Order requires the Discharger to develop a Waste Approval Plan (or similar document) that specifies the waste acceptance criteria and the specific sampling and analysis requirements prior to accepting and disposing of treated wood waste at the Landfill.

Findings and specifications in this Order apply only to treated wood waste that is a California hazardous waste, solely due to the presence of a preservative in the wood. Treated wood that is not a California hazardous waste can be handled as construction

and demolition debris or MSW, as appropriate, and the limitations and prohibitions for its handling as a California hazardous waste, as specified in this Order, do not apply.

13. Dewatered Sewage and Sludge

The Discharger proposes to accept and discharge dewatered sewage and water treatment sludge in lined portions of the Landfill. CCR, title 27, section 20220 allows dewatered sewage or water treatment sludge to be discharged at a Class III landfill provided that the Department of Toxic Substances Control has not determined that the waste must be managed as hazardous waste and the following conditions are met:

a. The landfill is equipped with a LCRS;

b. The sludge contains at least 20 percent solids (by weight) if primary sludge, or at least 15 percent solids if secondary sludge, mixtures of primary and secondary sludges, or water treatment sludge; and

c. A minimum solids to liquid ratio of 5:1 by weight shall be maintained to ensure that the co-disposal will not exceed the initial moisture holding capacity of the nonhazardous solid waste.

This Order authorizes the discharge of dewatered sewage and water treatment sludge to the lined portions of the Landfill only, provided that the conditions outlined above are met. This Order requires the Discharger to develop a Waste Approval Plan (or similar document) that specifies the waste acceptance criteria and the specific sampling and analysis requirements prior to accepting and disposing of dewatered sewage and water treatment sludge at the Landfill.

14. Land Uses

The land uses surrounding the Facility consist of vacant public lands owned by the United States Department of the Interior, Bureau of Land Management (BLM). These lands are managed by BLM under the California Desert Conservation Plan for open space and conservation purposes.

15. Site Topography

The Facility is located within the southern portion of the Indian Wells Valley. The Indian Wells Valley is bordered by the Sierra Nevada Range to the west, the Argus Range to the east, the Coso Range to the north, and the El Paso Mountains to the south. The Facility is situated on an alluvial fan surface that originates from the El Paso Mountains and gently slopes towards the north and northeast.

The existing topography of the Landfill is shown on Attachment B. Surface elevation of the Landfill ranges from approximately 2,570 feet above msl in the southern portion of

the site to approximately 2,490 feet above msl in the northern portion of the site. The proposed final fill plan has a maximum elevation of 2,590 feet above msl.

16. Climatology

The Indian Wells Valley, in which the Facility is located, has an arid climate characterized by infrequent rainfall, cold winters and hot summers, low relative humidity, and gusty winds. The mean annual temperature is 70 degrees (°) Fahrenheit (F) and ranges from an average daytime temperature of 105° F in July to an average daytime temperature of 55° F in January. Precipitation in the vicinity of the Facility averages 5.5 inches annually. The maximum expected precipitation for the 24-hour, 100-year frequency design storm event is approximately 3.15 inches. The annual average evaporation rate is approximately 72 inches per year.

17. Site Geology

The Facility is located within the southern portion of the Indian Wells Valley in the southwestern end of the Basin and Range Geomorphic Province. The Basin and Range province is characterized by extensional tectonics, which have resulted in the formation of numerous horsts (structural ranges) and grabens (structural depressions). The area is tectonically active, but there are no known active (Holocene-age) faults beneath the Facility. The closest Holocene active fault is an unnamed fault within the Little Lake Fault Zone approximately 1.4 miles to the northeast of the Facility. Other Holocene active faults within the vicinity of the Facility include the Sierra Nevada Fault Zone located approximately 8.8 miles to the west-northwest and the Garlock Fault located approximately 10.9 miles to the south-southeast.

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

a. Pre-Tertiary metamorphic and igneous rocks are the oldest rocks in the vicinity of the Facility and form the crystalline basement rock beneath the site at depths of 2,000 feet below ground surface (bgs) and greater.

b. Tertiary sedimentary rocks overlie the basement rock and consist of poorly sorted sandstones, siltstones, and conglomerates. These sedimentary rocks are up to 1,000-feet thick in the vicinity of the site.

c. Overlying the Tertiary sedimentary rocks are Quaternary-age older and younger alluvium composed of unconsolidated lenticular beds of sand and pebble-boulder conglomerates interbedded with clays and silts. Based on bore log data from the Facility, the alluvial sediments are in excess of 500 feet thick beneath the site. Waste in the Landfill is in contact with the underlying younger alluvium.

18. Site Hydrogeology and Groundwater Quality

The Facility overlies the Indian Wells Valley Groundwater Basin. Groundwater beneath the Facility occurs in the unconsolidated younger alluvium at depths between 350 and 400 feet bgs and flows in a north-northwesterly direction with an average hydraulic gradient of 0.0005 feet per feet and an average velocity of 3 feet per year. Since groundwater monitoring wells were first installed onsite in 1989, the groundwater surface elevation has steadily declined a total of 17 feet. Due to the declining water levels, all five of the original groundwater monitoring wells have subsequently gone dry (RD1-06, RD1-07, RD1-08, RD1-10, and RD1-11) and have been replaced with deeper groundwater monitoring wells (RD1-29, RD1-25, RD1-26, RD1-27, and RD1-28).

The Discharger has been monitoring groundwater quality beneath the Facility since 1989. 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. Elevated concentrations of arsenic and nickel have been detected in several groundwater monitoring wells including the background well located hydraulically upgradient of the Landfill (RD1-25). Since 1994, arsenic concentrations have ranged from 2 micrograms per liter (µg/L) to 12 µg/L, with the lowest arsenic concentrations being detected in groundwater monitoring wells located hydraulically downgradient from the Landfill (RD1-26) and the highest arsenic concentrations being detected in groundwater monitoring wells located hydraulically upgradient from the Landfill (RD1-25). Similarly, nickel concentrations have ranged from non-detect to 260 µg/L, with the highest nickel concentrations being detected in groundwater monitoring wells located hydraulically upgradient (RD2-01) and cross-gradient (RD1-29) from the Landfill. Total dissolved solids (TDS) concentrations are fairly consistent between groundwater monitoring wells and has ranged from 250 milligrams per liter (mg/L) to 475 mg/L over the last 10 years. The highest TDS concentrations are generally detected in groundwater monitoring wells screened at deeper intervals.

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 2002 and VOCs continue to be detected in groundwater at concentrations that exceed the background value of non-detect. The Discharger has been implementing interim corrective action measures, including a LFG collection and control system, since 2001. Historical and current VOC concentrations in groundwater are more specifically described in Finding Nos. 27 and 28.

19. Site Hydrology

The Facility is within the China Lake Hydrologic Area of the Indian Wells Hydrologic Unit. The Indian Wells Valley region is a closed topographic basin. All water that enters the region infiltrates into the groundwater basin, evaporates, or flows overland eventually toward China Lake. China Lake is located approximately 8 miles northeast of the Facility and occupies the floor of the Indian Wells Valley. Several ephemeral

streams are located in the vicinity of the Facility and originate in the surrounding hillsides of the El Paso Mountains. Dudek prepared a "Jurisdictional Waters Delineation Report" for the Facility in May 2012 and concluded that there is one ephemeral stream within the Facility boundary that originates offsite. This stream is located in the buffer area along the eastern boundary of the Landfill (proposed borrow area) and exhibits features of scour and deposition within several braided channels of the same system. North of the Landfill, flow in the stream appears to transition from channelized to sheet flow and terminates without any clear hydrologic connectivity with China Lake. Two additional features exhibiting evidence of scour and deposition were identified onsite in the proposed lateral expansion area (existing borrow area). These features appear to originate onsite from storm water runoff and percolate onsite with no apparent hydrologic connectivity with downstream or offsite surface waters.

An approved Jurisdictional Determination was issued by the United States Army Corps of Engineers (USACE) for the Ridgecrest Sanitary Landfill on May 1, 2012. The USACE determined that waters of the United States do not occur on the site and, therefore, the surface waters on the site and in the vicinity of the site are not subject to the Clean Water Act, including the National Pollutant Elimination System (NPDES) permit program. However, this Order implements the California Water Code provisions to ensure protection of all surface waters and groundwaters.

20. 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.

This Order requires prohibitions, limitations, and provisions for storm water and non-storm water discharges at the Facility to protect both groundwater and surface water quality.

21. 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.

22. Receiving Waters

The receiving waters are the groundwaters of the Indian Wells Valley Basin (Department of Water Resources, Groundwater Basin No. 6-54; Basin Plan, Plate 2B) and the surface waters of the China Lake Hydrologic Area of the Indian Wells Hydrologic Unit (Hydrologic Unit No. 624.20; Basin Plan, Plate 1B).

23. Beneficial Uses

The present and probable beneficial uses of the groundwaters of the Indian Wells Valley Basin No. 6-54, 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 China Lake and minor surface waters of the China Lake Hydrologic Area No. 624.20, 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);
h. Cold Freshwater Habitat (COLD); and
i. Wildlife Habitat (WILD).

24. 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-2016-0051, which is made part of this Order. The Discharger submitted an updated WQPS 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 EMP. The compliance period may be extended if the Facility is not in compliance with its WQPS.

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-2016-0051 are believed to be the best indicators of a release from the Facility.

26. Detection Monitoring Program

Four multi-level LFG monitoring wells (RD1-12 through RD1-15) were installed in 1996 and one deep multi-level LFG monitoring well (RD1-16) was later installed in 1999 as part of the original detection monitoring program (DMP) for the Facility. Prior to the detection of VOCs in groundwater, unsaturated zone monitoring in 2000 indicated that a significant amount of LFG was being generated by the Landfill. Subsequently, in 2002 a single detection (2.4 parts per billion) of Freon 12 and trace detections of PCE and Freon 11 were identified and later confirmed in groundwater samples collected from groundwater monitoring well RD1-07.

Pursuant to CCR, title 27, sections 20385 and 20420, the Discharger is implementing a 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 will implement 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-2016-0051.

27. Evaluation Monitoring Program

Since the release was verified in 2002, a series of EMP studies have been conducted to evaluate the nature and extent of VOC impacts to water quality. The Discharger has shown that the low-level concentrations of VOCs detected in groundwater beneath the Facility are consistent with VOC concentrations detected in the unsaturated zone and has concluded that LFG migration from the unlined WMU is the primary source of the release. The Discharger has also shown that there is no physical evidence nor water quality data to indicate that leachate is a contributing source of the release. The extent of the release appears to be concentrated in the southern portion of the Landfill in the area near groundwater monitoring well RD1-25 (formerly RD1-07). VOC concentrations have been decreasing over time, and since 2012, quantifiable concentrations (detections above the practical quantitation limit [PQL]) of VOCs have been limited to groundwater monitoring well RD1-25 with trace concentrations (detections between the method detection limit [MDL] and PQL) of VOCs being detected less frequently in groundwater monitoring wells RD1-26, RD1-27, RD1-28, RD1-29, and RD2-02. The

Discharger submitted an updated Engineering Feasibility Study and proposed Corrective Action Program as part the RWD in January 2016.

An EMP may be required, pursuant to CCR, title 27, section 20385 and section 20420, subdivision (k)(5-6), 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, and MRP No. R6V-2016-0051.

28. Corrective Action Program

VOCs were initially detected in groundwater beneath the Facility in 2002 and continue to be detected in groundwater beneath the Facility at concentrations that exceed the background value of non-detect. The Discharger has shown that LFG migration is the source of this release and since 2001 has been implementing a LFG collection and control system as an interim corrective measure until a formal CAP is approved.

Unsaturated zone monitoring in 2000 indicated that a significant amount of LFG was being generated by the Landfill with the highest methane concentrations detected in LFG monitoring well RD1-13 and the highest VOC concentrations detected in LFG monitoring well RD1-16. The LFG collection and control system installed in 2001 consisted of a network of extraction wells, piping, a condensate collection system, and an enclosed flare. Due to the low levels of methane generation within the Landfill, the flare was later replaced with a carbon adsorption system in October 2005, which is still in operation today.

With the installation of the LFG collection and control system, methane concentrations in LFG monitoring well RD1-13 decreased rapidly and have been at zero percent methane since early 2006. Similarly, VOC concentrations in LFG monitoring well RD1-16 show a steady decline in the shallow (116 feet bgs) and middle (235 feet bgs) probes since 2001, whereas VOC concentrations in the deep probe (342 feet bgs) show a gradual increasing trend over time. The Discharger expects soil-pore VOC concentrations to decrease in the deeper vadose zone over time with continued operation of the LFG collection and control system.

Due to declining groundwater levels, the five original groundwater monitoring wells have gone dry over time (RD1-06, RD1-07, RD1-08, RD1-10, and RD1-11) and have subsequently been replaced (RD1-29, RD1-25, RD1-26, RD1-27, and RD1-28, respectively). In May 2011, the Discharger began converting the dry groundwater monitoring wells to deep vadose extraction wells as part of the LFG collection and control system. Wells RD1-07 and RD1-08 were connected to the LFG control system in August 2011 and wells RD1-06 and RD1-10 were connected in November 2013.

Concentrations of VOCs in groundwater beneath the Facility have been decreasing over time with quantifiable VOC concentrations currently being detected in only one groundwater monitoring well (RD1-25). Trace VOC concentrations are detected less frequently in groundwater monitoring wells RD1-26, RD1-27, RD1-28, RD1-29, and RD2-02. The most common VOCs detected in groundwater are Freon 12, PCE, TCE, and Freon 11. Of these, PCE is the only constituent to have been detected in groundwater at concentrations that exceeds its Maximum Contaminant Level (MCL) of 5 µg/L. The historical maximum concentration of PCE was detected in 2010 at 9.2 µg/L (RD1-11); the historical maximum concentration of Freon 12 was detected in 2010 at 7.2 µg/L (RD1-11); and the historical maximum concentration of Freon 11 was detected in 2010 at 0.96 µg/L (RD1-25). TCE has not been detected in groundwater beneath the Facility at quantifiable concentrations above the PQL (0.50 µg/L) since 2008.

The Discharger prepared an Updated Feasibility Study for Corrective Action for the Facility in December 2015. Based on the results of that study, the Discharger proposes LFG collection and source control with MNA and drainage controls as the CAP. LFG source control, maximizing methane removal, and VOC reductions within the Landfill are critical to appreciably reduce VOC concentrations in the groundwater and has been shown to be effective for this Facility. 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 drainage controls are designed to prevent storm water infiltration and minimize ponding to reduce the potential for leachate generation. The CAP includes contingency remedies should LFG source controls and MNA fail to perform as necessary.

Implementation of the selected remedies, LFG source controls with MNA and drainage controls, pose no threat to human health or the environment. Currently, VOC concentrations are highest in groundwater monitoring well RD1-25 and decrease to trace and non-detect levels in groundwater monitoring wells RD1-26, RD1-27, RD1-28, RD1-29, and RD2-02. The nearest public supply wells are greater than one mile northeast (cross-gradient) from the Facility. With implementation of the proposed CAP, it is expected to take approximately 15 years for all COCs to be reduced to levels below their respective concentration limits, with the bulk of the VOC reductions resulting from dispersion and mixing. The Discharger has shown that LFG source controls combined with MNA and drainage controls is the most technically and economically feasible corrective action to remediate the release from the Landfill.

Water Board staff has evaluated the proposed LFG collection and source control with MNA and drainage controls 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) LFG source controls have been and will continue to be an effective remedial option to reduce the potential for LFG migration to groundwater; 3) MNA will likely be an effective remedial option to reduce some VOC concentrations in groundwater; 4) drainage controls have been and will likely continue to be an effective

remedial option to prevent storm water infiltration and minimize the potential for leachate production; 5) remedial goals will likely be achieved within a reasonable timeframe; and 6) that the selected remedies, MNA combined with LFG source controls and drainage controls, are consistent with the guidance outlined in the "Final Report on Monitoring Natural Attenuation, Evaluation and Application in the Lahontan Region" dated March 2016. The following site-specific factors were considered in the evaluation.

a. Favorable MNA conditions 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 load checking and waste diversion programs to prevent potentially hazardous substances from being disposed in the Landfill. To reduce the potential for LFG to migrate from the Landfill, the Discharger is implementing a LFG collection system and is in the process of upgrading the system to convert dry groundwater monitoring wells into deep unsaturated zone extraction wells and to increase the extraction flow of the system to more effectively remove VOCs from the Landfill and unsaturated zone.

c. The plume appears to be stable and decreasing over time. Quantifiable VOC concentrations are currently limited to groundwater monitoring well RD1-25 and decrease to trace and non-detect levels in groundwater monitoring wells RD1-26, RD1-27, RD1-28, RD1-29 and RD2-02.

d. Implementation of LFG collection and source control with MNA and drainage controls poses no threat to human health or the environment. The nearest public supply well is greater than one mile away from the Facility. Since the release was detected in 2002, concentrations of PCE detected in groundwater have exceeded the MCL 5 µg/L during only four sampling events (2005, 2008, 2009, and 2010). Detectable concentrations of VOCs in groundwater in the most downgradient monitoring wells (RD1-08 and RD1-26) have not exceeded their respective MCLs.

e. The Discharger has shown that with implementation of the proposed LFG collection and source control with MNA and drainage controls as the corrective action, remedial goals will likely be achieved within a reasonable timeframe of 15 years. Modeling of PCE concentrations in groundwater suggests that concentration levels will fall below the PQL of 0.5 µg/L by the year 2030. In addition, closure will also effectively help reduce the source of VOCs in the Landfill and will likely result in a more rapid reduction of VOC concentrations in groundwater than that predicted through modeling.

This Order approves the CAP, LFG collection and source control with MNA and drainage controls, 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 Ridgecrest Landfill, and subsequent generation of LFG, is expected to continue at a slow rate for an extended period of 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 (RD1-01 through RD1-05) and one gypsum block moisture sensor (RD1-09) located around the perimeter of the landfill. The lysimeters were installed in 1987 and the moisture block was later installed in 1989. The lysimeters were used to collect samples of soil-pore liquids to evaluate the chemical composition and quality of soil-pore moisture in the unsaturated zone. The lysimeters were monitored on a regular basis between 1987 and 1996, none of which had ever yielded sufficient fluid for sampling. The Discharger discontinued monitoring the lysimeters and moisture block in 1998, and in 1999 was granted approval from the Water Board to destroy the lysimeters. Lysimeters RD1-03 and RD1-04 were subsequently destroyed, though lysimeters RD1-01, RD 1-02, and RD1-05 still remain intact. While no soil-pore liquid samples have been collected from the lysimeters, the lysimeters and moisture block continue to remain viable methods to monitor and evaluate the potential presence for and chemical composition of soil-pore moisture in the unsaturated zone beneath the Landfill. This Order requires continued monitoring of the existing lysimeters and moisture block as part of the unsaturated zone monitoring program.

As part of the DMP, four multi-level LFG monitoring wells (RD1-12 through RD1-15) were installed in 1996 and one deep multi-level LFG monitoring well (RD1-16) was later installed in 1999. Eight additional LFG monitoring wells (RD1-17 through RD1-24) were

installed around the perimeter of the Landfill in 2008. LFG monitoring wells RD1-12 through RD1-15 and RD1-17 through RD1-24 are completed with isolated probes at depths of 10 feet, 30 feet, and 50 feet bgs. LFG monitoring well RD1-16 is completed with isolated probes at depths of 116 feet, 235 feet, and 342 feet bgs, of which the deepest probe (342 feet bgs) is placed near the soil-groundwater interface. LFG monitoring wells RD1-17 through RD1-24 were installed primarily to comply with CalRecycle requirements, but serve a dual purpose as a LFG perimeter monitoring network and as potential 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 using LFG monitoring well RD1-16. 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.

30. Discharge of Monitoring Well Purge Water

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 unlined areas of the Landfill or Facility of purge water containing concentrations of VOCs which exceed the WQPS. Purge water may be used for dust control or similar activities that do not result in ponding in the lined portions of the Landfill only.

31. Preliminary Closure and Post-Closure Maintenance Plan

The Discharger has submitted an updated Preliminary CPCMP dated January 2016. 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 included updates to the closure and post-closure maintenance cost estimates and updates to the corrective action cost estimates. The proposed final cover is a flexible membrane liner (synthetic liner) system that meets the prescriptive standards of final covers pursuant to CCR, tile 27, section 21090, subdivision (a)(1-3). The Landfill is expected to reach full capacity for closure by 2050.

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 California Water Code, 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. 18, 23, 27, and 28. 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 the Landfill and this Order requires monitoring to assess corrective action effectiveness and to detect any future impacts to water quality.

b. Environmental characteristics of the hydrographic unit under consideration including the quality of water available thereto. Finding No. 18 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 Indian Wells Valley Groundwater Basin and China Lake Hydrologic 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. Human Right to Water

California 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, LFG controls, storm water and drainage controls, monitoring to assess water quality, and corrective action when needed to address impacts to water quality.

35. California Environmental Quality Act

The Kern County Waste Management Department (now Kern County Public Works Department) prepared an Environmental Impact Report (EIR) for the Project. The EIR was prepared pursuant to the California Environmental Quality Act (CEQA Public Resources Code 21000, et seq.) and circulated under State Clearinghouse No. 2009021053. The EIR was adopted by the Kern County Board of Supervisors on October 26, 2010, following public review. The Water Board, acting as a CEQA Responsible Agency in compliance with CCR, title 14, section 15096, has exercised its independent judgment when considering the EIR for the Project and has incorporated into this Order mitigation measures from the EIR to reduce potential impacts to hydrology and water quality to a less than significant level. Those mitigation measures are: (1) requiring a liner and LCRS for the lateral expansion; and (2) implementing a groundwater quality monitoring program, including a CAP. The Water Board finds that, with the mitigation measures incorporated into this Order, the Project will not have a significant effect on the environment.

36. Technical and Monitoring Reports

The Discharger must submit technical and monitoring reports in compliance with this Order as described in MRP No. R6V-2016-0051.

37. 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.

38. 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. seq. 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.

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.

39. Consideration of Public Comments

The Water Board, in a public meeting held on September 14, 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 and regulations adopted hereunder.

A. Under no circumstances shall the Discharger cause the presence of the following substances or conditions in groundwaters of the Indian Wells 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.

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.

B. Under no circumstances shall the Discharger cause the presence of the following substances or conditions in surface waters of the China Lake Hydrologic Area.

1. Ammonia – The neutral, unionized ammonia species (NH_3) is highly toxic to freshwater fish. The fraction of toxic NH_3 to total ammonia species ($NH_4^+ + NH_3$) is a function of temperature and pH. Tables 3-1 to 3-4 from the Basin Plan were derived from USEPA ammonia criteria for freshwater. Ammonia concentrations shall not exceed the values listed for the corresponding conditions in these tables. For temperature and pH values not explicitly in these tables, the most conservative value neighboring the actual value may be used or criteria can be calculated from numerical formulas available on page 3-4 of the Basin Plan.

2. Bacteria – Waters shall not contain concentrations of coliform organisms attributable to anthropogenic sources, including human and livestock wastes. The fecal coliform concentration during any 30-day period shall not exceed a log mean of 20/100 mL, nor shall more than 10 percent of all samples collected during any 30-day period exceed 40/100 mL. The USEPA recommends that the log mean should ideally be based on a minimum of not less than five samples collected as evenly spaced as practicable during any 30-day period. However, a log mean concentration exceeding 20/100 mL for any 30-day period shall indicate violation of this objective even if fewer than five samples were collected.

3. Biostimulatory Substances – Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent

that such growths cause nuisance or adversely affect the water for beneficial uses.

4. Chemical Constituents – Waters designated as MUN shall not contain concentrations of chemical constituents in excess of the MCL or secondary MCL based upon drinking water standards specified in CCR, title 22, chapter 15, article 1, section 64400 et. seq. Waters designated as AGR shall not contain concentrations of chemical constituents in amounts that adversely affect the water for beneficial uses (i.e., agricultural purposes). Waters shall not contain concentrations of chemical constituents in amounts that adversely affect the water for beneficial uses.

5. Chlorine, Total Residual – For the protection of aquatic life, total chlorine residual shall not exceed either a median value of 0.002 mg/L or a maximum value of 0.003 mg/L. Median values shall be based on daily measurements taken within any six month period.

6. Color – Waters shall be free of coloration that causes nuisance or adversely affects the water for beneficial uses.

7. Dissolved Oxygen – The dissolved oxygen concentration, as percent saturation, shall not be depressed by more than 10 percent, nor shall the minimum dissolved oxygen concentration be less than 80 percent of saturation. The minimum dissolved oxygen concentration shall not be less than 4.0 mg/L as a daily minimum, 5.0 mg/L as a 7-day mean, and 6.5 mg/L as a 30-day mean.

8. Floating Materials – Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect the water for beneficial uses. For natural high quality waters, the concentrations of floating material shall not be altered to the extent that such alterations are discernible at the 10 percent significance level.

9. Oil and Grease – Waters shall not contain oils, greases, waxes or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect the water for beneficial uses. For natural high quality waters, the concentration of oils, greases, or other film or coat generating substances shall not be altered.

10. Nondegradation of Aquatic Communities and Populations – All waters shall be free from substances attributable to wastewater or other discharges that produce adverse physiological responses in humans, animals, or plants; or which lead to the presence of undesirable or nuisance aquatic life. All waters shall be free from activities that would

substantially impair the biological community as it naturally occurs due to physical, chemical and hydrologic processes.

11. pH – Changes in normal ambient pH levels shall not exceed 0.5 pH units. The pH shall not be depressed below 6.5 nor raised above 8.5. Compliance with the pH objective for these waters will be determined on a case-by-case basis.

12. Radioactivity – Radionuclides shall not be present in concentrations which are deleterious to human, plant, animal, or aquatic life nor which result in the accumulation of radionuclides in the food web to an extent which presents a hazard to human, plant, animal, or aquatic life. Waters designated as MUN shall not contain concentrations of radionuclides in excess of the limits specified in Title 22 of the California Code of Regulations.

13. Sediment – The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect the water for beneficial uses.

14. Settleable Materials – Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or that adversely affects the water for beneficial uses. For natural high quality waters, the concentration of settleable materials shall not be raised by more than 0.1 milliliter per liter.

15. 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.

16. Taste and Odor – Waters shall not contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish or other edible products of aquatic origin, that cause nuisance, or that adversely affect the water for beneficial uses. For naturally high quality waters, the taste and odor shall not be altered.

17. Temperature – The natural receiving water temperature of all waters shall not be altered unless it can be demonstrated to the satisfaction of the Water Board that such an alteration in temperature does not adversely affect the water for beneficial uses. For waters designated WARM, water temperature shall not be altered by more than five degrees Fahrenheit (5°F) above or below the natural temperature. For waters designated COLD, the temperature shall not be altered.

18. Toxicity – All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration and/or other appropriate methods as specified by the Water Board [or the Executive Officer or his/her designee]. The survival of aquatic life in surface waters subjected to a waste discharge, or other controllable water quality factors, shall not be less than that for the same water body in areas unaffected by the waste discharge, or when necessary, for other control water that is consistent with the requirements for "experimental water" as defined in Standard Methods for the Examination of Water and Wastewater (American Public Health Association, et al. 1998).

19. Turbidity – Waters shall be free of changes in turbidity that cause nuisance or adversely affect the water for beneficial uses. Increases in turbidity shall not exceed natural levels by more than 10 percent.

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 California Water Code, section 13050.

2. The discharge of waste, as defined in California Water Code, section 13050, subdivision (d), shall not cause a violation of any narrative Water Quality Objective (WQO) contained in the Basin Plan.

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

4. The discharge of pesticides to surface waters or groundwater is prohibited.

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

6. 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.

7. The discharge of treated wood waste, dewatered sludge, and sewage treatment sludge to unlined areas of the Landfill is prohibited.

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

9. 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.

10. Leachate may be recirculated back into or utilized for dust control over the lined unit from which it was generated, consistent with CCR, title 27, section 20340, subdivision (g).

11. All purge water discharged to the ground at the Landfill shall not contain concentrations of VOCs in excess of the WQPS. Purge water containing concentrations of VOCs in excess of the WQPS can be used in the lined portions of the Landfill only for dust control or similar uses that do not result in ponding.

12. 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.

13. The discharge of dewatered sludge and/or sewage treatment sludge containing less than 50 percent solids shall not be accepted for disposal at the Facility.

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

15. 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.

16. 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).

17. 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 Landfill.

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

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

20. 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.

21. 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. Landfill Construction Requirements

1. The Discharger proposes to construct the lateral expansion with an accepted engineered alternative composite liner system and a LCRS, as described in Finding No. 10. The Discharger must construct the liner system and LCRS in accordance with the construction details contained in Design Reports and engineering plans submitted to Water Board for approval prior to development of each lined Landfill phase.

2. Design Reports shall contain Construction Quality Assurance (CQA) plans, as well as detailed engineering plans and specifications for each major design element, including at a minimum, the accepted elements of the liner and LRCS as described in the RWD dated December 2015 and any proposed revisions to the detection or corrective action monitoring programs, including plans and specifications for the installation of additional groundwater point of compliance and/or unsaturated zone monitoring points, and an updated WQPS. Plans shall be submitted a minimum of **120 days prior to construction** of a new lined Landfill unit, and shall be prepared, signed and stamped by a California-registered Civil Engineer or Certified Engineering Geologist. CQA Plans must conform to all of the requirements specified in CCR, title 27, section 20324.

3. The Discharger shall adhere to the accepted engineering plans, specifications, and technical reports submitted with a RWD and all requirements contained within this Order.

C. Waste Approval Plan

The Discharger proposes to discharge treated wood waste, dewatered sludge, and sewage treatment sludge in the lined portions of the Landfill only. A minimum of **120 days prior to the acceptance and disposal** of these types of waste, the Discharger shall submit to the Water Board for approval a Waste Approval Plan (or similar document) that specifies the waste acceptance criteria

and the specific sampling and analysis requirements for accepting, handling, and disposing of treated wood waste, dewatered sludge, and sewage treatment sludge at the Landfill.

D. 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 practices. The Discharger shall comply with all storm water monitoring, response, and reporting requirements described in MRP No. R6V-2016-0051.

E. 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 will implement the CAP as required pursuant to CCR, title 27, section 20430. 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-2016-0051.

2. At any given time, the concentration limit for each COC must be equal to the background data set of that constituent unless a concentration level greater than background 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. 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).

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 or email 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-2016-0051). The Discharger must initiate the verification procedures, as specified in section III.F below.

F. 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 California Water Code, section 13267, subdivision (b). The report must propose an evaluation monitoring program (see section III.C above) or make a 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-2016-0051).

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

G. 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 California Water Code, section 13267, subdivision (b). The report must propose an EMP or attempt to demonstrate that the release did not originate from the Facility.

H. Monitoring and Reporting

1. Pursuant to California Water Code, section 13267, subdivision (b), the Discharger must comply with the monitoring and reporting requirements as established in the attached MRP No. R6V-2016-0051, 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-2016-0051.

IV. PROVISIONS

A. Rescission of Waste Discharge Requirements

Board Order No. 6-95-33, as amended by Board Order No. 6-95-33A1, and MRP No. 95-33 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. Facility Area and Waste Footprint

This Order recognizes an increase in the permitted Facility area from 120 acres to 320 acres and authorizes an increase in the waste footprint area from 78 acres to 105 acres, as shown on Attachment A and Attachment B, respectively.

D. 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 31, 2017**, and by **March 31** 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 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.E 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 Certified Engineering Geologist and be in compliance with CCR, title 27, sections 20950 and 21769.

E. Financial Assurance

The Discharger must submit to the Water Board a financial assurance report on or before **March 31, 2017**, and by **March 31** every year thereafter, providing evidence that adequate financial assurances has 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.

F. 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 September 14, 2016.

PATTY Z. KOUYOUMDJIAN
EXECUTIVE OFFICER

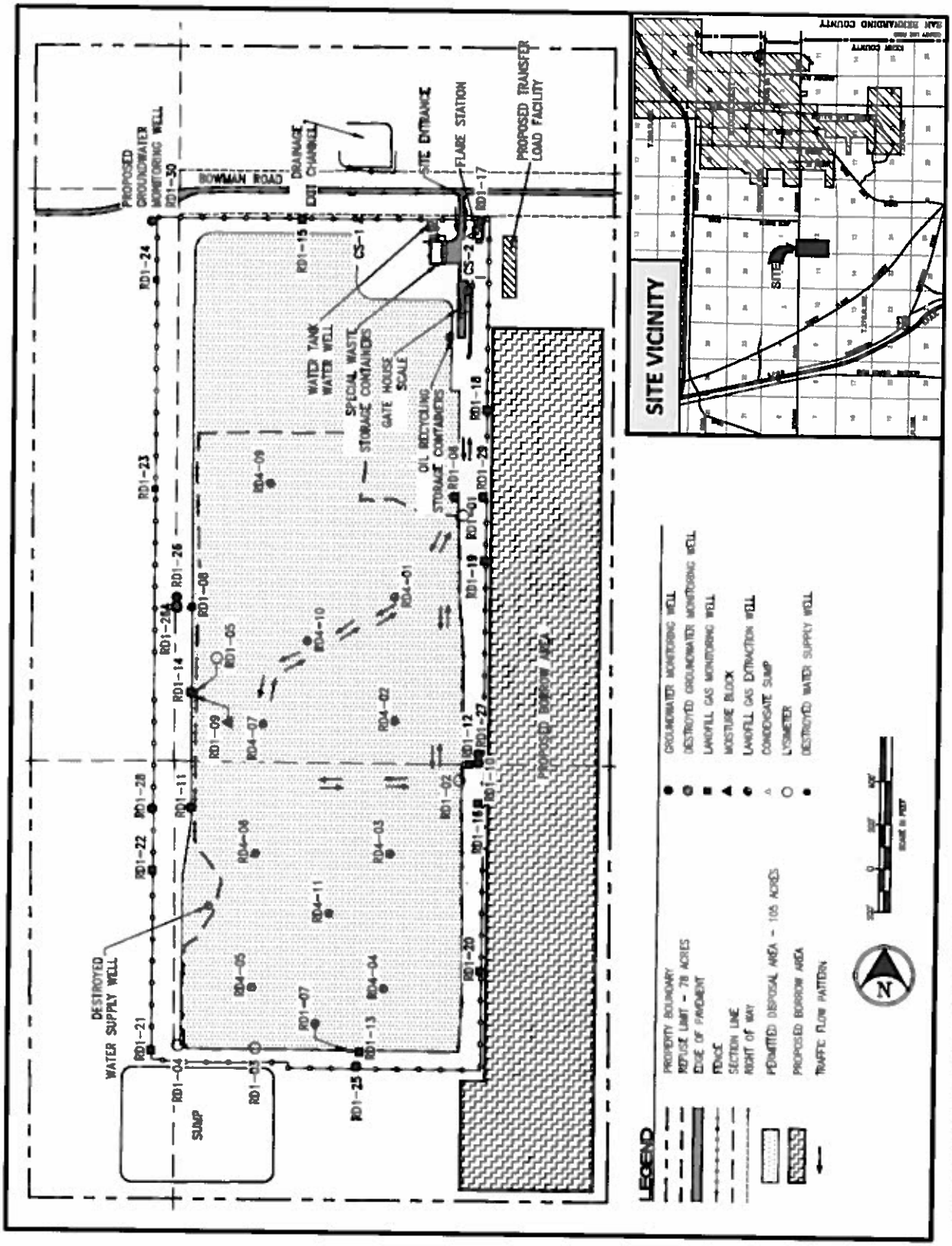
Attachments:
A. Ridgecrest Recycling and Sanitary Landfill Facility and Site Vicinity Map
B. Ridgecrest Recycling and Sanitary Landfill Footprint of Waste and Site Topography Map
C. Standard Provisions for Waste Discharge Requirements

r6v-2016-0051_Ridgecrest Landfill_WDR_6B150303022.docx

RIDGECREST RECYCLING AND
SANITARY LANDFILL
Kern County

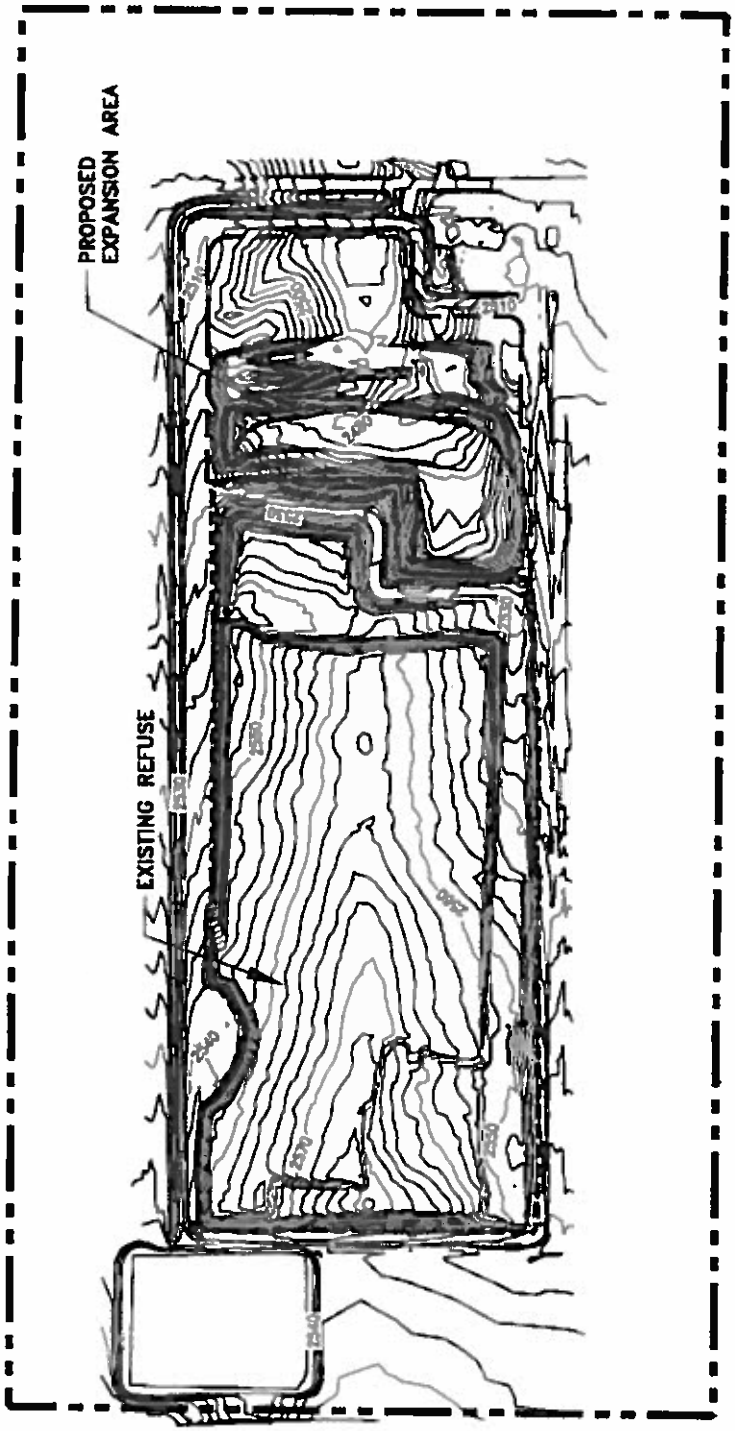
WASTE DISCHARGE REQUIREMENTS
BOARD ORDER NO. R6V-2016-0051
WDID NO. 6B150303022

ATTACHMENT A



RIDGECREST RECYCLING AND SANITARY LANDFILL FACILITY AND SITE VICINITY MAP

ATTACHMENT B



RIDGECREST RECYCLING AND 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-2016-0051
WDID NO. 6B150303022

KERN COUNTY PUBLIC WORKS DEPARTMENT
RIDGECREST RECYCLING AND 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, sections 20390 through 20410, to assure the earliest possible detection of a release from a waste management unit (WMU) 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 Ridgecrest Recycling and Sanitary Landfill (Landfill) on January 4, 2016. The updated WQPS is hereby approved by the Executive Officer as part of this Monitoring and Reporting Program (MRP). Volatile organic compounds (VOCs) have been detected in groundwater beneath the Landfill. The Discharger will be implementing a corrective action program (CAP) to remediate the release from 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, which is made part of this MRP.

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 has been established. CCR, 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, nitrate as nitrogen, sulfate, total dissolved solids, arsenic, barium, copper, nickel, selenium, vanadium, and zinc. Intrawell comparisons are appropriate because these COCs show some spatial variation in water quality across the site and are not involved in the known release from the Landfill.

   b. Non-Statistical Comparisons – For inorganic COCs either not detected in background wells or only detected at trace concentrations and for man-made organic COCs, 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.

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 been insufficient to monitor for COCs. 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 RD1-26, RD1-27, RD1-28, and RD1-29. Additional monitoring points include upgradient (background) groundwater monitoring well RD1-25, upgradient CAP groundwater monitoring well RD2-01, and cross-gradient CAP groundwater monitoring well RD2-02. The unsaturated zone is monitored for soil-pore liquids with three vacuum lysimeters (RD1-01, RD1-02, and RD1-05) and one gypsum block moisture sensor (RD1-09) 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 thirteen LFG wells located around the perimeter of the Landfill (RD1-12, RD1-13, RD1-14, RD1-15, RD1-16, RD1-17, RD1-18, RD1-19, RD1-20, RD1-21, RD1-22, RD1-23, and RD1-24).

The Discharger shall install additional groundwater point of compliance and unsaturated zone monitoring points prior to construction of the WMU lateral expansion in accordance with the schedule specified in MRP section IV.B.5.

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 (post-closure maintenance). The compliance period is the minimum 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, as described in the General Provisions for Monitoring and Reporting (Attachment B of this MRP).

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 20380 through 20435. 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-registered Civil Engineer or Professional Geologist as required by 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, cross-gradient, and downgradient 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 the existing groundwater monitoring wells RD1-26, RD1-27, RD1-28, and RD1-29. Additional monitoring points include upgradient CAP groundwater monitoring well RD2-01 and cross-gradient CAP groundwater monitoring well RD2-02.

b. Depth to Groundwater

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

groundwater level 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 at that monitoring point.

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 water level (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 groundwater isocontours for that monitoring period.

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 three vacuum lysimeters (RD1-01, RD1-02, and RD1-05) and one gypsum block moisture sensor (RD1-09) located around the perimeter of the Landfill. Each lysimeter is completed to a depth of approximately 50 feet bgs.

The unsaturated zone is monitored for soil-pore gas using a series of thirteen LFG monitoring wells, each having isolated multi-level (nested) probes, located around the perimeter of the landfill (RD1-12 through RD1-24). LFG monitoring wells RD1-12 through RD1-15 and RD1-17 through RD1-24 are completed with isolated probes at depths of 10 feet (shallow probe), 30 feet (middle probe), and 50 feet (deep probe) bgs. LFG monitoring well RD1-16 is completed with isolated probes at depths of 116 feet (shallow probe), 235 feet (middle probe), and 342 feet bgs (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 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 Moisture Sampling

The Discharger shall monitor the gypsum block moisture sensor for soil moisture content in accordance with the manufacturers recommended specifications.

e. 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.

f. 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 attempt to monitor for VOCs first and then, if sufficient sample volume exists, attempt to monitor for the remaining monitoring parameters listed in Attachment A.

The Discharger shall monitor the shallow, middle, and deep probes of LFG monitoring well RD1-16 for all COCs and monitoring

parameters in accordance with the frequencies listed in Attachment A.

g. 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.

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

h. 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, but not limited to, total number of vehicles, total number of vehicles checked, the amount rejected and returned to the customer, and the amount transported offsite 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 scheduled 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 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 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 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 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 milligrams per liter (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.

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:

a. 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;

b. 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;

c. 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

d. 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

e. 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).

A. Statistical Data Analysis Method

In order to determine whether there is "measurably significant" evidence of any new releases 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 CCR, 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 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 31
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 31

[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 first 5-year report is due March 31, 2021.

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 where a parameter has been reported at a concentration exceeding the MDL, including historical (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 historical (last ten years) and current reporting period data.

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. Annual DMP/CAP Monitoring Reports

Annual Monitoring Reports must be submitted to the Water Board no later than **March 31** 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.

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 bolded and 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 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 historical 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 storm water related trainings performed during the reporting period, including dates and content.

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 Code of Federal Regulations, title 40, 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 31th beginning with year 2021**, 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.

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

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 that monitoring point;

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.

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-registered 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. Landfill Design Reports

For future lateral expansion of the Landfill, the Discharger shall submit Landfill Design Reports **120 days prior to construction** of a new lined Landfill phase. Reports shall contain Construction Quality Assurance (CQA) plans, as well as detailed engineering plans and specifications for each major design element, including at a minimum, the accepted elements of the liner and LRCS as described in the RWD dated December 2015 and any proposed changes to the detection and corrective action monitoring programs, including plans and specifications for the installation of additional groundwater point of compliance and/or unsaturated zone monitoring points, and an updated WQPS. Plans shall be prepared, signed and stamped by a California-registered Civil Engineer or Certified Engineering Geologist. CQA Plans will conform to all of the requirements specified in CCR, title 27, section 20324.

6. Significant Earthquake Event

After a significant[1] or greater earthquake event at the Facility, 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 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 provide information indicating the cause of violation(s) and the action taken or planned to bring the discharge into compliance.

[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, or higher.

E. Technical Reports

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

1. By **November 14, 2016**, the Discharger must submit a SWPCP that meets the requirements outlined in MRP section II.C.1. The report must be certified by a California-registered Civil Engineer or Professional Geologist.

Ordered by: _____ Dated: September 14, 2016
PATTY Z. KOUYOUMDJIAN
EXECUTIVE OFFICER

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

R6v-2016-0051_RidgecrestLF

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 (cont.)				
Tin	micrograms/liter	6010	5 year	5 year
Vanadium	micrograms/liter	6010	5 year	5 year
Zinc	micrograms/liter	6010	5 year	5 year
Total Cyanide	micrograms/liter	335.4	5 year	5 year
Total Sulfide	micrograms/liter	376.2	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
Total Alkalinity[2]	milligrams/liter	310.1	semi-annually	semi-annually
Non-volatile Organic Carbon[2]	milligrams/liter	415.1	semi-annually	semi-annually

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 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
	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