

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION**

**MEETING OF JULY 11 AND 12, 2012
SOUTH LAKE TAHOE, CALIFORNIA**

ITEM: 4

SUBJECT: **REVISED WASTE DISCHARGE REQUIREMENTS
BARSTOW CLASS III LANDFILL, CLASS II SURFACE
IMPOUNDMENTS, AND SEPTAGE SLUDGE LANDFARM, SAN
BERNARDINO COUNTY**

CHRONOLOGY:

August 1984	Waste Discharge Requirements (Board Order No. 6-84-56).
February 1989	Revised Waste Discharge Requirements - Adopted (Board Order No. 6-89-33)
September 1993	Amended Waste Discharge Requirements - Adopted (Board Order No. 6-93-10037)
September 1994	Amended Waste Discharge Requirements - Adopted (Board Order No. 6-89-33A1)
July 1997	Revised Waste Discharge Requirements – Adopted (Board Order No. 6-97-079)
July 2008	Revised Waste Discharge Requirements – Adopted (Board Order No. R6V-2008-0025)

ISSUE: Should the Lahontan Water Board adopt Waste Discharge Requirements (WDRs) and a Monitoring and Reporting Program (MRP), (that requires a more powerful statistical retesting method than prescribed in Title 27) for a lined expansion of the existing unlined sanitary landfill and allow San Bernardino County to discharge nonhazardous solid waste, municipal solid waste (MSW), treated auto shredder waste (for use as alternative daily cover), and inert solid waste into this waste unit?

DISCUSSION: The Barstow Class III Landfill (Landfill), and Class II Surface Impoundments (Impoundments) and Septage Sludge Landfarm (Landfarm) is the facility owned and maintained by the County of San Bernardino (Discharger). The existing Barstow Class III Landfill is unlined and receives more than 100 tons per day of inert, municipal solid waste, and non-hazardous solid wastes from the City of Barstow and the surrounding communities. An adjacent area that provides soil cover for Landfill operations is proposed to be the lined expansion of the Landfill and is referred to as the Phase 1 Borrow Area. The Discharger has proposed to eventually expand

the lined Landfill into surrounding areas (Phases 1, 2, 3 and 4); however, this Order restricts the Landfill expansion to the former borrow pit and restricts discharge to the Phase 1 Borrow Area. The Discharger proposes to use various materials for alternative daily cover, as allowed in the California Code of Regulations (CCR), title 27, which includes TASW. This Order requires the Discharger to sample TASW to determine if it meets threshold concentration values for specific constituents prior to acceptance for discharge and only then to the lined portion of the Landfill. Monitoring and reporting of TASW is also required.

Depth to groundwater at the site is about 740 feet below ground surface. The Detection Monitoring Program will continue to require semi-annual groundwater, soil gas, and soil-pore liquid monitoring, but additionally will require leachate monitoring for the lined leachate collection and recovery system. An additional compliance groundwater monitoring well for the Phase 1 Borrow Area is also required. This Order continues to specify soil moisture monitoring beneath the Impoundments and soil monitoring beneath the Landfarm. Quarterly/semi-annual sampling and analyses are also required for the septage liquids and solids, and annual testing of treated septage solids to verify disposal. This Order requires the Discharger to evaluate the monitoring data to determine if contaminants are migrating in a manner which poses a threat to groundwater quality. This Order also requires the Discharger to prevent runoff of storm water that has contacted materials used in alternative daily cover and to manage storm water on site so as to prevent surface water quality impacts.

This Order cites CCR, title 27, section 20080(a)(1) to require a specific, more powerful retesting protocol be integrated into the statistical analyses methodology in the Detection Monitoring Program and is based on a U.S. Environmental Protection Agency (USEPA) document entitled: *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance*, 2009 (USEPA guidance). This retest provides for verification that either the initial result was an indication of a release or that it was a false positive.

The existing standards in CCR, title 27 (requirements when discharging waste to land), with regard to groundwater retesting and sampling frequency for retesting, have been recognized in the USEPA guidance as not meeting minimum statistical standards. Requirements set forth in this Order for groundwater retesting helps the test to meet the USEPA's minimum statistical power standard and retest viability standard.

Enclosure 1 is the Proposed WDR and its associated attachments. Enclosure 2 is the Proposed MRP and its attachments. Enclosure 3 is a comment letter from the Discharger during public review period on the tentative draft of the WDRs. Enclosure 4 is Water Board staff responses to those comments. The Discharger was the sole commenter on the draft WDRs.

Subsequent to the initial comments, the Discharger worked closely with Water Board staff resulting in additional clarifying changes to the WDR and MRP. Revisions and clarification of specific terms in the monitoring program were also in response to State Water Board staff recommendations that, in effect, provide for more consistency between terminology usage that is being implemented in the new land disposal compliance module to the existing Geotracker State database. The Discharger has agreed to participate in the beta-test phase of this database prior to its final roll out by State Water Board.

This land disposal compliance module will specify groundwater monitoring data to be submitted into the existing Geotracker database to provide a more systematic way of tracking facility compliance and response to detections of constituents in groundwater that exceed background concentrations. The monitoring and reporting portion of this Order reflects those terms that will be used, in part, in the new land disposal compliance module and will provide for a more efficient transition to new reporting requirements under that module.

Water Board staff has solicited comments from the Discharger and interested parties. All comments received have been addressed.

These documents may also be viewed electronically and downloaded from the Water Board's internet home page at: http://www.waterboards.ca.gov/lahtontan/board_info/agenda/upcoming.shtml#jun12

RECOMMENDATION: Water Board staff recommends adoption of the Order as proposed.

ENCLOSURES	ITEMS	BATE NUMBERS
1	Proposed Waste Discharge Requirements	
	Attachment A	
	Attachment B	
	Attachment C	
2	Proposed Monitoring and Reporting Program	
	Attachment A	
	Attachment B	
	Attachment C	
	Attachment D	
	Attachment E	
	Attachment F	
	Attachment G	
	Attachment H	
3	San Bernardino County (Discharger) Comments	
4	Water Board staff response to comments	

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ENCLOSURE 1

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

BOARD ORDER NO. R6V-2012-(PROPOSED)
WDID NO. 6B360304005

REVISED WASTE DISCHARGE REQUIREMENTS

FOR

**BARSTOW CLASS III LANDFILL, CLASS II SURFACE IMPOUNDMENTS AND
SEPTAGE SLUDGE LANDFARM**

San Bernardino County

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

1. Discharger

For the purpose of this Water Board Order (Order), the County of San Bernardino, Solid Waste Management Division, which owns and operates these facilities, is referred to as the "Discharger." On December 21, 2009, the Discharger submitted a Report of Waste Discharge (RWD) as part of the Joint Technical Document (JTD) for an expansion of the existing facility's Landfill. Amendments to the JTD were submitted on September 9, 2011, and February 2, and 3, 2012. The information in the RWD/JTD has been used in writing these Waste Discharge Requirements (WDRs). The RWD/JTD contains the necessary information to constitute a complete Report of Waste Discharge (RWD) for the Barstow Class III Landfill (Landfill), Class II Surface Impoundments (Impoundments), and Class II Land Treatment Unit (Septage Sludge Landfarm). The RWD/JTD contains the applicable information required in California Code of Regulations (CCR), title 27. The RWD/JTD and supporting documents contain information related to this revision of the WDRs including:

- a. An updated stability analysis for the Landfill following closure.
- b. Proposed changes to the monitoring and reporting program to include additional monitoring points for new Landfill areas and usage of an action leakage rate for responding to leakage into the Impoundment's leachate collection and recovery systems.
- c. A proposal to install an alternative cover-design for final closure of the Landfill.
- d. Information about the newly installed gas collection/control/monitoring system for the existing unlined Landfill and the proposed gas extraction/control/monitoring system for the Landfill expansion.
- e. Information on surface drainage features that would be impacted by Landfill expansion.

- f. Proposed recirculation of leachate into composite-lined portions of future Landfill cells.
- g. Proposed use of various waste materials as alternative daily cover.
- h. The Landfill is operated by a contract operator (Contractor) under a contractual agreement (Contract) with the Discharger. The Contractor performs all of the day-to-day operations at the Facility. The County has full responsibility for all operations, corrective action, closure and post-closure maintenance of the landfill and all activities undertaken by the contract operator. The County also has full responsibility for maintaining compliance with WDRs and all applicable statues and regulations. As such, it is unnecessary to also name the Contractor as a Discharger.

2. Facility

The existing waste management units are located on a 640-acre site, 47 acres of which encompasses the existing Landfill footprint, which includes, from west to east, the Class II Land Treatment Unit, three Class II Surface Impoundments, and the unlined Class III Landfill. These WDRs prescribe requirements for the continued operation and monitoring of the existing waste management units and the construction, operation and monitoring of the lined Landfill expansion area. The expansion area is located east of the existing Landfill within the existing borrow area, encompasses 11.5 acres, and is referred to as the Phase 1 Borrow Area. The Discharger has proposed to expand, ultimately, the lined areas of the Landfill south and east of the existing Landfill into areas referred to as Phases 1, 2, 3, and 4. This Order prohibits discharge into areas outside of the Phase 1 Borrow Area, the unlined landfill, the Land Treatment Unit, or the Surface Impoundments.

For the purpose of this Order, the unlined Barstow Class III Landfill is referred to as the "unlined Landfill," the Class II Surface Impoundments are referred to as the "Impoundments," and the Land Treatment Unit is referred to as the "Landfarm." For the purposes of this Order, the unlined Landfill, Impoundments, Landfarm and Phase 1 Borrow Area are collectively referred to as the "Facility." A map of the site location is included as Attachment A. Attachment B shows the Facility layout of the existing and proposed Phase 1 Borrow Area. These attachments are incorporated herein and made part of this Order.

3. Reason for Action

The Water Board is revising the WDRs and updating the Monitoring and Reporting Program (MRP) to prescribe requirements for the construction, operation, and monitoring of the proposed lined expansion of the Class III waste management unit into the Phase 1 Borrow Area, which includes approval of an alternative final cover for existing and future Landfill waste management units. The Landfill expansion project is part of a regional County plan to reduce the number of County-operated landfills to six regional facilities, including the Barstow Sanitary Landfill.

4. Order History

- a. WDRs in Board Order No. 6-84-56, were adopted on August 11, 1984, by the Water Board for the Barstow Landfill.
- b. Board Order No. 6-89-33, adopted February 9, 1989, revised the WDRs and rescinded Order No. 6-84-56.
- c. Board Order No. 6-93-10037, adopted September 9, 1993, 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. 6-89-33A1, adopted September 8, 1994, and amended the WDRs to include requirements for construction and operation of new lined Class II Surface Impoundments and closure of then-existing unlined Surface Impoundments.
- e. Board Order No. 6-97-79, adopted July 17, 1997, revised the WDRs and MRP to incorporate requirements of Board Order No. 6-93-10037, implemented a load-checking program for the Impoundments, provided requirements for the construction and operation of the Landfarm, and established limitations for specific constituents, which may be present in the septage sludge and discharged to the Landfill. This Order rescinded Order Nos. 6-89-33, 6-89-33A1, and 6-93-10037.
- f. Board Order No. R6V-2008-0025, adopted July 23, 2008, revised the WDRs to add requirements for one additional lined Class II Surface Impoundment and rescinded Order No. 6-97-79.

5. Facility Location

The Facility is located at 32553 Barstow Road (Highway 247), approximately three miles south of the City of Barstow, San Bernardino County, within Sections 30, 31, and 32, Township 9 West, Range 1 West, San Bernardino Baseline and Meridian, as shown on Attachments A and B. Access to the Landfill is off Highway 247.

6. Existing Landfill Description

Landfill disposal operations are currently being conducted within an approximately 47-acre refuse disposal footprint. The existing Landfill is unlined and does not have a leachate collection and removal system (LCRS). The Landfill began operations in 1963 and has been in continuous operation since that time. It is currently estimated that it will reach capacity under the existing final grading plan in 2014.

Water Board staff has reviewed information, submitted by the Discharger, showing the footprint of the waste discharged as of October 9, 1993. This Order continues to document the 47-acre unlined Landfill footprint, shown on Attachment B, as the limit of waste that is exempt from Subtitle D requirements for composite liners.

7. Proposed Landfill Expansion Project Description

The proposed Landfill expansion would occur into the Phase 1 Borrow Area and will occupy the existing borrow pit.

As modeled for the entire expansion area (Phases 1, 2, 3, and 4), peak annual leachate flow is estimated to be approximately 496,000 gallons during the year 2025. The maximum peak daily leachate flow is expected to be approximately 29,000 gallons (or 20 gallons per minute) during the year 2067. The peak daily leachate head on the liner is calculated to be approximately 0.0164 inches on the bottom liner areas occurring during the year 2076 and 0.017 inches on the side slope areas. Subtitle D requires that leachate collection system is designed and constructed to maintain less than 30 centimeters (12 inches) of depth of leachate on the liner.

Pursuant to CCR, title 27, section 21760, this Order requires the Discharger to submit a final design report for the Phase 1 Borrow Area for review and acceptance. Pursuant to CCR, title 27, section 20324, this Order requires the Discharger to provide construction quality assurance documents prior to beginning construction on the Phase 1 Borrow Area liner for Water Board Executive Officer review and acceptance.

8. Class II Surface Impoundments

The three active Impoundments are double lined with 60 mil (0.06 inch) high density polyethylene (HDPE) plastic. For each Impoundment, a LCRS drainage layer, sloped to collection sumps, exists between the two liners and drains to a collection sump. Each sump is approximately 30-feet deep. The total capacity in millions of gallons for each Impoundment are as follows: West Pond 2.307; East Pond 2.307; South Pond 2.627.

The Discharger has requested that the Water Board allow an action leakage rate (ALR) of liquid through the upper liner of the double-lined Impoundments into the leakage collection sumps. The respective ALRs are based on proposed design dimensions and design specifications of the Impoundments and on a 1992, United States Environmental Protection Agency (USEPA) guidance document, *Action Leakage Rates for Leak Detection Systems, Supplemental Background Document for the Final Double Liners and Leak Detection Systems Rule for Hazardous Waste Landfills, Waste Piles, and Surface Impoundments*. The numerical ALRs are shown in the MRP No. R6V-2012-(Proposed), Section IV.C.3., Table LCRS Action Leakage Rates and are made part of this Order. The MRP includes requirements for monitoring and reporting leakage rates from the LCRS and the type of response actions the Discharger must take if applicable ALRs are exceeded.

The type of wastes accepted at the Impoundments are septic tank pumpings (septage) and chemical toilet waste.

Contained within a Septage Management Plan, the Discharger has developed a load checking program to prevent the discharge of industrial wastes containing volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) to the Impoundments. However, because septage and chemical toilet waste can also contain these waste constituents, it is not expected that the load checking program can feasibly eliminate all VOC and SVOC discharges to the Impoundments. The liner system for the Impoundments is capable of containing wastes that have low concentrations of VOCs and SVOCs. This Order acknowledges that septage and chemical toilet waste will contain low concentrations of VOCs and SVOCs and permits such discharge. This Order does not permit the discharge of industrial wastes and requires implementation of the approved Septage Management Plan, including the load checking program, to ensure industrial wastes are not discharged to the Impoundments.

9. Landfarm

The Landfarm is an unlined, bermed area that covers approximately 4.3 acres. The Landfarm provides an area for the aeration and treatment of septage sludge received from the Impoundments. The treatment zone is considered to be the native soil to a depth of five feet below the ground surface beneath the Landfarm. Only sludge dried to at least 50 percent solids by weight is allowed in the Landfarm. Only sludge generated from the Impoundments is allowed to be discharged to the Landfarm. Treatment is necessary to remove VOCs and SVOCs from the sludge prior to Landfill disposal. This Order includes numerical effluent limitations for VOCs and SVOCs in septage sludge that can be discharged to the Landfill. This Order requires that the Discharger follow a Sampling and Analysis Plan (SAP), accepted by the Water Board, for the treated sludge prior to disposal to the Landfill. This Order also requires compliance with an accepted SAP to ensure constituents of concern have not migrated beyond the treatment zone.

10. Authorized Disposal Sites

The Facility will receive waste from the City of Barstow and nearby communities. The Landfarm will receive septage sludge from the adjacent Impoundments. This Order expands the footprint of the authorized Landfill disposal site to the Phase 1 Borrow Area fill area shown in Attachment B. The only authorized disposal sites for septage and chemical toilet waste are the three Impoundments. The only authorized treatment site for septage sludge from these Impoundments is the Landfarm. Once the septage sludge is treated in the Landfarm to achieve effluent limitations contained in this Order, the only authorized disposal site for the septage sludge is the Landfill or other authorized facilities. The only authorized disposal site for leachate collected from the Landfill is the lined portion of the Landfill or other authorized facilities.

11. Treated Auto Shredder Waste

Treated (stabilized) auto shredder waste (TASW) is any non-recyclable waste from the shredding of automobile bodies (from which batteries, mufflers, mercury switches, and exhaust pipes have been removed), household appliances, and sheet metal. The Discharger proposes to use TASW as alternative daily cover (ADC), beneficial reuse material, in the lined portion of the Landfill. TASW from certain authorized facilities, under a waiver issued by the Department of Toxic Substances Control (DTSC), managed pursuant to CCR, title 22, section 66260.200(f) and DTSC Policy and Procedure No. 88-6, may be managed as nonhazardous waste. This Order, therefore, prohibits the discharge of TASW at the Landfill if DTSC finds that TASW is a hazardous waste that must be managed at a Class I Landfill. The Discharger must obtain a nonhazardous waste classification from DTSC to discharge TASW at this lined Landfill. This Order establishes discharge concentration limits for certain constituents found in TASW. This Order requires the Discharger to submit a SAP for sampling TASW.

12. Alternative Daily Cover

The Discharger is proposing to use various nonhazardous and designated wastes as ADC on the Landfill, including wood, green waste, compost materials, dried sludge, ash, cement kiln dust, dredge spoils, shredded tires, processed construction and demolition debris, and contaminated soil. These WDRs require that for each type of waste, the Discharger must first demonstrate that it does not pose a threat to water quality and meets the requirements under CCR, title 27, section 20705.

13. Waste Classification

The Discharger discharges, and proposes to discharge, wastes classified under CCR, title 27 as nonhazardous solid waste and inert waste to the existing unlined Landfill and proposed lined Landfill Phase 1 Borrow Areas. The Discharger also discharges wastes classified under CCR, title 27 as designated waste to three existing lined, Impoundments and the Landfarm. The wastes discharged to the existing Landfill include, but are not limited to, commercial and industrial waste, Municipal Solid Waste (MSW), construction and demolition waste, and treated septage sludge from the Landfarm. The septage waste discharged to the Landfarm for treatment is classified in CCR, title 27, section 20210, as solid designated waste. The treated septage sludge from the Landfarm is classified as nonhazardous solid waste (CCR, title 27, section 20220).

14. Waste Management Unit Classification

This Order continues to classify the Landfill as a Class III waste management unit that accepts nonhazardous and inert solid wastes (including MSW), three Class II Surface Impoundments that accept designated waste and a Class II Land Treatment Unit (Landfarm) in accordance with CCR, title 27, section 20005, et seq. The Discharger proposes to construct a new 11.5-acre Class III waste management unit for discharge of nonhazardous solid waste, MSW, and inert solid waste.

15. Subtitle D Compliance Status

The Discharger has submitted background data sets and 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 wetlands. The above-listed items, which have previously been submitted, fulfill the submittal requirements of Subtitle D, as implemented by State Water Board Resolution No. 93-62. The Discharger is required to provide additional background data set comprised of at least 8 data points from discreet sampling events to establish background groundwater quality downgradient of the Phase 1 Borrow Area.

16. Water Quality Protection Standard and Compliance Period

The Water Quality Protection Standard (WQPS) consists of constituents of concern (including monitoring parameters), concentrations limits, monitoring points, and the point of compliance.

This Order requires groundwater and unsaturated zone monitoring. The constituents of concern, monitoring points, and concentration limits for the groundwater and unsaturated zone are described in Monitoring and Reporting Program (MRP) R6V-2012-(**PROPOSED**), which is attached to and made part of this Order.

The compliance period for each Unit must be the number of years equal to the active life of the Unit 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 Unit. The compliance period must begin anew each time the Discharger initiates an evaluation monitoring program.

17. Groundwater Elevation Monitoring Frequency

The prescribed requirements for a groundwater monitoring program specified in CCR, title 27, section 20415(e)(15), require the Discharger to measure the static water elevation in each well and determine groundwater flow rate and direction in the uppermost aquifer and in any zones of perched water and in any additional portions of the zone of saturation monitored at least quarterly, including the times of expected highest and lowest elevations of the water levels in the wells.

The Discharger has proposed to continue to measure groundwater elevations semi-annually. This Order continues the approval of this alternative monitoring frequency pursuant to CCR, title 27, section 20380(e)(1 through 3), which allows the Water Board to approve an engineered alternative for this prescriptive standard so long as the Water Board:

- a. Finds that each engineered alternative meets the requirements of CCR, title 27, section 20080 (b and c);

- b. Finds that for each applicable program under CCR, title 27, section 20385, the Discharger's proposed monitoring data procurement and analysis methods achieve the program's respective goals, including: those goals for a detection monitoring program, (section 20420[b]), an evaluation monitoring program (section 20425[a][2]), and a corrective action program (CAP) (section 20430[b]); and
- c. Requires groundwater monitoring at least annually. CCR, title 27, section 20080 (b and c) requires that engineered alternatives must only be approved where the Discharger demonstrates:
- d. The construction of prescriptive standard is not feasible because it is unreasonably and unnecessarily burdensome and will cost substantially more than alternatives, which meet the criteria, or is impractical and will not promote attainment of applicable performance standards; and,
- e. There is a specific engineered alternative that is consistent with the performance goal of the prescriptive standard and affords equivalent protection against water quality impairment.

Based on over eight years of quarterly groundwater monitoring at the Facility, seasonal fluctuations in groundwater elevation (i.e. inferred changes in direction and velocity) have been minor. Continued quarterly groundwater elevation measurements will not provide an additional level of confidence in attainment of monitoring performance standard and, thus, is considered unreasonably and unnecessarily burdensome and will cost substantially more than semi-annual monitoring. Therefore, semi-annual groundwater elevation monitoring will meet the prescribed performance standard of CCR, title 27, section 20415, which requires that the monitoring system is appropriate for detecting, at the earliest possible time, a release from the Facility.

18. Groundwater Sampling Frequency

The Discharger has proposed to continue sampling groundwater for monitoring parameters on a semi-annual frequency. Based on over eight years of groundwater sampling, including three years of quarterly sampling, monitoring parameter concentrations have been shown to be stable over time. Therefore, no loss in data would occur under a semi-annual monitoring frequency. This Order continues approval of the semi-annual groundwater sampling.

19. Release Detection Data Analysis Methods

Statistical and nonstatistical analyses of monitoring data are necessary for the earliest possible detection of measurably significant evidence of a release of waste from the Facility. CCR, title 27, requires statistical data analyses. The monitoring parameters listed in this Order are believed to be the best indicators of a release from the Facility. This Order substitutes advanced retesting and time-between-samples

approaches that the U.S. Environmental Protection Agency (USEPA) has established in its 2009 *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance* (Unified Guidance) in place of the prescriptive approaches found in CCR, title 27, Division 2, subdivision 1, Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste, as allowed by section 20080(a)(1) of those regulations. First, this Order replaces the prescriptive (CCR, title 27) "discrete retest" (pass-2-of-3) method, for statistical Standard Status Monitoring Parameter (MonPar) tests, with a more powerful pass-1-of-3 retesting method. Second, this Order replaces the CCR, title 27 requirement to obtain all retest samples within 30 days following the preliminary release indication with the improved approach of waiting approximately 90 days between successive samples (for a given constituent at a given Monitoring Point), an approach that helps preserve sample independence and eliminate serial correlation that can invalidate retesting results.

20. Detection Monitoring Program

Pursuant to CCR, title 27, section 20420, the Discharger has proposed a detection monitoring program for the Facility. The detection monitoring program monitors groundwater and the unsaturated zone for evidence of waste constituent migration that may threaten groundwater quality. No evidence of such a release has been detected to date.

21. Evaluation Monitoring Program

An evaluation monitoring program may be required pursuant to CCR, title 27, section 20425, if detection monitoring data indicate evidence of a threat to groundwater quality.

22. Corrective Action Program

A CAP to remediate released wastes from the Facility may be required pursuant to CCR, title 27, section 20430 if detection monitoring data indicate evidence of a threat to groundwater quality.

23. Volatile Organic Compounds Detected in Soil Gas

Unsaturated zone monitoring as part of the detection monitoring program at the Landfill began in 1987. At that time, no groundwater was encountered in borings at depths from 50 to 900 feet below ground surface (ft bgs). Four lysimeters were installed; two lysimeters have since been removed to accommodate installation of the Impoundments, and the remaining two lysimeters have not yielded soil pore water samples in 22 years of monitoring.

In 1995, the Discharger installed three soil-pore gas monitoring wells, which have been monitored quarterly through 2008, then semiannually to present. Methane and VOCs are commonly detected in soil-gas samples detected from these wells. The measured concentrations are variable between monitoring events, but no increasing concentration trends were noted in the most recent annual monitoring report.

Detected VOCs include 1,1-dichloroethane, 1,1-dichloroethylene, 1,1,1-trichloroethane, chloroform, methylene chloride, xylene, toluene, trichlorofluoromethane, tetrachloroethene, and trichloroethene.

Groundwater monitoring at the Landfill indicates that VOCs have not impacted groundwater beneath the site. Based on the soil-gas monitoring of both shallow (77 to 85 ft bgs) and deep (101 to 109 ft bgs) gas monitoring wells, the gas "halo" around the existing unlined Landfill may have reached steady-state conditions. This monitoring data, on-site hydrogeologic conditions, and depth to groundwater, would suggest that the existing pressure gradients within the unsaturated zone are not driving Landfill-related gases to deeper horizons.

24. Gas Extraction System

The Discharger has installed a landfill gas collection system at the existing Landfill to control off-site gas migration. The system consists of a series of gas collection wells interconnected by above-ground laterals and a main header pipe connected to a granular activated carbon (GAC) system. The Discharger proposes to expand this gas control/recovery system as the Landfill is expanded. Gas condensate is collected and gravity-flows to multiple low-point collection sumps. The condensate levels in the sumps are pumped twice a week into a transfer tank. The condensate in the transfer tank is transferred to a holding tank. When the holding tank is approximately 85% full, arrangements are made for the transfer of the condensate to a regional landfill that has a flare system where the condensate can be destroyed. This Order does not allow for discharge of gas condensate at this site.

25. Liner Design

The Discharger submitted an Alternative Liner Petition for the Barstow Sanitary Landfill for future Class III Liner Systems dated January 29, 2008, revised August 10, 2011 (Appendix L in RWD/JTD). As proposed, the bottom liner design is as follows (from top to bottom):

- a. Minimum 24-inch thick protective cover soil layer;
- b. Geotextile filter layer;
- c. Minimum 9-inch thick LCRS gravel layer ;
- d. Geotextile layer;
- e. 60-Mil HDPE geomembrane (textured on both sides);
- f. Geotextiled-backed Geosynthetic Clay Liner (GCL) with a permeability of 3×10^{-9} centimeters per second (cm/s) or less; and
- g. Minimum 12-inch thick layer of screened on-site soil material.

As proposed, the slope liner system design is as follows (from top to bottom):

- a. Minimum 24-inch thick protective cover soil layer;
- b. Geotextile layer;
- c. 60-Mil HDPE geomembrane single-sided textured side down;
- d. Geotextiled-backed GCL with a permeability of 3×10^{-9} cm/s; and
- e. Prepared subgrade.

To provide for additional slope stability of the waste prism under static and pseudo-static conditions, the Discharger proposed to install the GCL with internal reinforcement for additional strength, and to encapsulate the GCL within two layers of HDPE on the floor in a minimum area from 70 feet from the toe of the floor liner along the north, east, and south sides of the proposed Phase 1 Borrow Area.

The Discharger provided static and seismically-induced deformation analyses of the Phase I Borrow Area proposed waste prism, cover, and liner system (Appendix T in the JTD). Based on these analyses, the proposed liner design under static conditions achieves a factor of safety of at least 1.5, as required in CCR, title 27, section 21750. In lieu of achieving a factor of safety of 1.5 under dynamic conditions, the Discharger has demonstrated that the proposed liner design (Appendix T of the JTD) will experience deformation of less than 1 inch of permanent, seismically-induced displacement under the earthquake-loading conditions for the maximum probable earthquake (MPE). The MPE evaluated is a magnitude 7.02 earthquake on the Lenwood fault located southwest of the site.

26. Geologic Setting

The Facility is located in the north-central portion of the Mojave Desert geomorphic province of California. The Facility is situated within the northwest portion of Daggett Ridge, a series of northwest-trending hills located south of the town of Daggett. Parts of several right-lateral, strike-slip faults are located within 20 miles of the site, including the Calico, Camp Rock-Emerson, Homestead Valley, Harper Lake, Helendale, Lockhart and Lenwood faults. Several of these are active fault systems including the Lenwood-Lockhart, Harper Lake, and Landers faults. The age of displacement along these faults is Holocene (last 11,000 years), with movement demonstrated along the Lenwood fault (part of which is close to the site), within the past 200 years. The active Lenwood fault is included in an Alquist-Priolo Special Studies Zone and lies about 1,000 feet south of the Landfill expansion area. There is no evidence of recent displacement along faults traversing the Landfill expansion area.

The Facility is underlain by Quaternary sedimentary deposits that unconformably overlie Tertiary (Miocene to Pliocene) sedimentary and volcanic rocks. Quaternary sediments consist of older alluvium with more recent surficial deposits, primarily coarse-grained fanglomerates. Immediately south of the Landfill expansion boundary are exposed Tertiary sediments consisting of siltstone, sandstone, and minor amounts of limestone. Detailed descriptions of site sediments are provided by the boring logs contained in the Geotechnical Investigation Report (Appendix B-1 of the JTD). The dominant sediment material is poorly sorted (well-graded), coarse-grained silty sand with minor fine-grained gravel. Resultant deposits of these gravelly sands owe their origin to coalescing alluvial fans emanating from steeper ephemeral watercourses in nearby mountainous bedrock terrain. These young sediments are weakly cemented and poorly lithified.

27. Regional Hydrology

A well-developed, northwest- to west-trending ridge (Daggett Ridge) forms a drainage divide extending through the southwest portion of the property. This watershed boundary separates the Lower Mojave and Middle Mojave sub-units of the Mojave Hydrologic Unit. Drainage is principally to the northeast towards the Mojave River. A smaller portion of the site property drains to the southwest into Stoddard Valley. Local topography is dominated by gently- to moderately-steep hills composed of mixed gravel, sand, and silt. All storm water runoff from the Facility is regulated under the State Water Board's Water Quality Order No. 97-03-DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit No. CAS000001 (General Permit), WDRs for Discharges of Stormwater Associated with Industrial Activities Excluding Construction Activities, or subsequent permits.

28. Hydrogeology and Water Quality

The groundwater receiving waters beneath this Facility are the Lower Mojave River Valley groundwater basin. Southwest of the site, the northwest-trending Lenwood Fault acts as a groundwater barrier restricting groundwater flow between the groundwater basins of the Lower Mojave River Valley and the Middle Mojave River Valley. Groundwater production wells in the region draw water from fanglomerate units beneath Stoddard Valley southwest of the site, and along the margins of the Lower Mojave River Valley groundwater basin northeast of the site. Regional groundwater flow southwest of the site, in the Middle Mojave River Valley basin in the Stoddard Valley is to the northwest. Groundwater flow in the Lower Mojave River Basin, northeast of the fault, is to the northeast.

As part of the Solid Waste Assessment Test (SWAT) Program, the Discharger drilled a boring at the Facility to a depth of 900 ft bgs during a 1988 investigation. That boring did not identify a saturated zone due to the drilling method and sampling procedures that were followed at that time. Because of the apparent great depth to groundwater at the Facility, a previous Order did not require groundwater monitoring but instead required unsaturated zone monitoring, which was intended to detect waste constituents that may be migrating downward from the Landfill to the underlying groundwater. In 2001 and in order to assess the hydrogeology for the landfill expansion area, the Discharger installed three groundwater monitoring wells: one upgradient of the existing Facility, one downgradient, and one side gradient. Based on groundwater elevation data collected from these wells, groundwater occurs beneath the facility at depths ranging from 744 to 750 ft bgs.

Groundwater at the site occurs in the Quaternary fanglomerate deposits at depths ranging from 744 to 750 ft bgs. Groundwater flow direction is generally to the northeast toward the Mojave River with a horizontal hydraulic gradient of approximately 0.022 feet/foot. The hydraulic conductivity is estimated to be between 0.003 and 0.3 feet per day. Using an estimated effective porosity of 35 percent, the measured hydraulic gradient of 0.02 feet/foot, and the estimated hydraulic conductivities, the calculated groundwater velocity is 0.0002 to 0.02 feet per day.

Based on groundwater monitoring and analytical data from three groundwater monitoring wells installed at the Facility, groundwater quality beneath the site has not been affected by the existing Landfill operations. Groundwater sampling of these wells shows concentrations, in milligrams per liter (mg/L), of total dissolved solids (TDS) that range from 560 to 730, chloride concentrations that range from 9.8 to 100, nitrate concentrations that range from 0.028 to 2.0 (mg/L as nitrogen[N]); VOCs and SVOCs have not been detected, to date. Generally, the groundwater quality supports the designated beneficial uses.

29. Site Topography

The Facility is situated on the northwest flank of Daggett Ridge, a northwest-trending series of low-lying hills extending southeast from the town of Lenwood. Local topography is dominated by gently- to moderately-steep hills. The Facility overlies the top of a subridge such that most of the area drainage slopes to the northeast towards the Mojave River. A smaller portion of the site drains to the southwest into Stoddard Valley. Site topography is shown on Attachment B.

30. Site Climatology

The climate of the area is arid and is characterized by long dry summers and moist winters. The average annual rainfall in the area of the Facility is approximately 4.1 inches. The average temperature is 64 degrees Fahrenheit (F) and ranges to an average high temperature in July of 103 degrees F. The average annual pan evaporation rate is approximately 82 inches.

Rain primarily occurs from November through April in this area. Monsoonal thunderstorms provide some precipitation in the summer months. The estimated 100-year/24-hour precipitation event in the vicinity of the Facility is approximately 3.5 inches. The estimated 1000-year/24-hour precipitation event is 3.87 inches.

31. Land Uses

The Facility is in an unincorporated portion of San Bernardino County. The area immediately south of the Facility lies within the Ord-Rodman Desert Wildlife Management Area of the Western Mojave Recovery Unit for the Mojave population of the desert tortoise. Land use designations are: Resource Conservation (RC) south of the Facility, Rural Living (RL) north of the Facility, and RC/RL east and west of the Facility. The surrounding land is undeveloped with the exception of Barstow Road. There are no inhabited structures within 1,000 feet of the Facility. There are no airport runways located within 10,000 feet of the Facility.

32. Landfill Closure and Post-Closure Maintenance

The Discharger has submitted a Preliminary Closure and Post-Closure Maintenance Plan (PCPCMP) in the RWD (JTD Parts E and F). As required by CCR, title 27, section 21780 (d)(1), a Final Closure and Post-Closure Maintenance Plan must be submitted for approval two years prior to the anticipated closure date for the entire

Landfill or any portion thereof. The plan generally proposes in-place closure of the Landfill and an extended period of site monitoring. The monitoring media include the unsaturated zone, groundwater, and final cover materials.

The Discharger proposes to construct a monolithic vegetative cover layer. Federal regulations allow for alternative final covers that provide an equivalent reduction in flux to the prescriptive standard, and CCR, title 27 indicates that a similar low through-flow rate should be achieved. State regulations also state that alternatives can be approved that will continue to isolate the waste in the Unit from precipitation and irrigation water at least as well as would a final cover built in accordance with applicable prescriptive standards.

This Order requires that, prior to closure, the Discharger must provide additional supporting data for the final design of the proposed final cover. This Order requires that the Discharger provide a monitoring plan for review and approval by the Executive Officer to monitor the proposed cover. This Order requires the final cover design must meet the performance standards of CCR, title 27.

33. Closure of Class II Surface Impoundments

For Class II Surface Impoundments, CCR, title 27, section 21400(b)(1) states: Unless the Discharger demonstrates, and the Water Board finds, that it is infeasible to attempt clean-closure of an impoundment, then all residual wastes, including sludges, precipitates, settled solids, and liner materials contaminated by wastes, must be completely removed from the impoundment and discharged to an approved Unit. Remaining containment features must be inspected for contamination and, if not contaminated, can be dismantled. Any natural geologic materials beneath or adjacent to the closed impoundment that have been contaminated must be removed for disposal at an appropriate Unit. For surface impoundments that are successfully clean-closed, as herein described, the Water Board must declare the Unit no longer subject to the State Water Board-promulgated requirements of this title. If, after reasonable attempts to remove such contaminated materials, the Discharger demonstrates that removal of all remaining contamination is infeasible, the surface impoundment must be closed as a Landfill or land treatment unit, as appropriate, pursuant to CCR, title 27, section 21400(b)(2).

34. Financial Assurance

The RWD/JTD submitted by the Discharger contains a PCPCMP for the existing Landfill and expansion fill areas for all Phases of fill. The PCPMCP includes information required by CCR, title 27, section 21769(b), and includes a lump-sum estimate of the cost of carrying out all action necessary to close each Unit, to prepare detailed design specifications, to develop the final closure and post-closure maintenance plan, and to carry out the first 30 years of post-closure maintenance.

This Order requires that the Discharger maintain financial assurance with CalRecycle in at least the amount of these cost estimates.

The Discharger has also submitted a cost estimate for corrective action of all reasonably foreseeable releases from the Landfill as required by CCR, title 27, section 22221. The amount of the cost estimate is \$180,520 for the Landfill. This Order required that the Discharger maintain financial assurance with CalRecycle in at least the amount of this cost estimate, but with the Water Board named as beneficiary. This Order also requires the Discharger to submit a cost estimate for corrective action of all known or reasonably foreseeable releases from the Impoundments.

CCR, title 27, sections 21780(c)(3) and (d)(1), require the Discharger to submit the final closure and post-closure maintenance plan, or for the closure of discrete units, the partial final closure and post-closure maintenance plan, at least two years prior to the anticipated date of closure. This Order requires that the Discharger obtain WDRs from the Water Board with closure and post-closure maintenance requirements prior to closure.

35. Receiving Waters

The receiving waters are the groundwaters of the Lower Mojave River Valley Groundwater Basin (Department of Water Resources Sub-basin No. 6-40).

36. Water Quality Control Plan for the Lahontan Region

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

37. Beneficial Groundwater Uses

The present and probable beneficial uses of groundwater of the Lower Mojave River Valley Groundwater Basin, 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),
- d. Freshwater Replenishment (FRSH), and
- e. Aquaculture (AQUA).

38. Policy for Maintaining High Quality Waters

State Water Board Resolution No. 68-16 requires the Water Board, in regulating the discharge of waste, to (A) maintain existing high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial uses, and will not result in water quality less than that described in State or Regional Water Board policies; and (B) require that any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters must meet

waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained.

Degradation of the quality of the waters of the State is not anticipated or authorized by this discharge.

39. 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 Findings 28 (Hydrogeology and Water Quality), and 37 (Beneficial Groundwater Uses), respectively. The proposed discharge will not adversely affect present or probable future beneficial uses of water including municipal and domestic supply, agricultural supply, industrial service supply, freshwater replenishment, and aquaculture because the proposed Landfill expansion is only authorized within lined WMUs and detection monitoring is required to ensure discharges do not reach groundwater.

- b. Environmental characteristics of the hydrographic unit under consideration including the quality of water available thereto.

Finding 28 (Hydrogeology and Water Quality) 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 Lower Mojave River Valley Groundwater Basin 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.

- f. The need to develop and use recycled water.

The Discharger does not propose the use of recycled water at this Facility as there is no locally available source.

40. California Environmental Quality Act

The expansion of this Facility is subject to the provisions of the California Environmental Quality Act ([CEQA], Public Resources Code, section 21000 et seq.) in accordance with CCR, title 14, section 15378. The County of San Bernardino (County) is the CEQA Lead Agency under the CEQA Guidelines. On October 20, 2009, the County certified the Final Environmental Impact Report (EIR) for the Barstow Sanitary Landfill Expansion Project, which addressed all phases of the Facility expansion, pursuant to provisions of CEQA. The County certified the EIR with a Statement of Overriding Considerations for the Project, with regard to impacts to the following: 1) Aesthetics; 2) Air Quality; and, 3) Global Climate Change. Significant impacts would occur after implementation of feasible mitigation.

As described in the EIR, the Project would include expanding, both vertically and horizontally, into lined waste management units, the waste footprint of the existing solid waste Landfill located south of the City of Barstow. Expansion would occur in phases, which would encompass 284 additional acres and increase the site life of the Landfill an additional 63 years, or projected closure in 2073. As portions of the site reach their final configuration, a final cover layer may be constructed in phases. The post-closure end use for the Barstow Landfill would be undeveloped open space. The discretionary action taken by the Water Board is, however, only for WDRs for expansion into the existing 11.5-acre borrow area. This expansion area, referred to as the Phase 1 Borrow Area has independent utility from the rest of the Project, regardless of whether the rest of the expansion occurs, and so is being addressed separately.

CCR, title 14, section 15096, subdivision (g)(2) states: "When an EIR has been prepared for a project, the Responsible Agency must not approve the project as proposed if the agency finds any feasible alternative or feasible mitigation measures within its powers that would substantially lessen or avoid any significant effect the project would have on the environment."

CCR, title 14, section 15096, subdivision (h) states: "The Responsible Agency must make the findings required by Section 15091 for each significant effect of the project and must make the findings in Section 15093 if necessary."

The Water Board, acting as a CEQA Responsible Agency in compliance with CCR, title 14, section 15096, subdivision (g)(2), evaluated the potentially significant impacts to water quality identified in the EIR for the Phase 1 Borrow Area of the expansion. The Water Board's CEQA findings are as follows:

Potentially significant impact –The Project could cause significant impacts to groundwater and surface water quality.

The Water Board has reviewed the EIR and finds the mitigation measures listed below, and the monitoring of the effectiveness of the mitigation measures, as specified in this Order, are adequate to reduce water quality impacts related to the discharge of waste into the 11.5-acre Phase 1 Borrow Area to less than significant. These mitigation measures have been made requirements of this Order. The Water Board will file a Notice of Determination within five (5) days of the issuance of this Order.

- a. To construct a lined waste containment system that is designed to meet or exceed the minimum State and Federal requirements and performance standards in place at the time of cell design.
- b. Implement adequate and appropriate mitigation as required by the State Water Board General Construction and Industrial Storm Water Orders, and develop a storm water pollution prevention plan.
- c. To construct and design the lined expansion containment structure that would limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping under a 100-year, 24-hour precipitation event.
- d. To design, construct, and maintain diversion and drainage structures for the lined Landfill that would accommodate storm water runoff; effectively divert storm water run-on; and prevent storm water erosion and downstream impacts due to storm water diversion.

41. Section 13267(b) Provisions

Section 13267(b) of the California Water Code provides that: "In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who had discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste outside of its region that could affect the quality of the waters of the state within its region must furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs of these reports must bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports."

42. Technical Reports

The technical reports required by this Order and the attached Monitoring and Reporting Program No. R6V-2012-(**PROPOSED**) are necessary to assure compliance with these WDRs. The Discharger owns and operates the Facility that discharges the waste subject to this Order.

43. 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.

44. 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 and following. 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 upon request.

45. Consideration of Public Comments

The Water Board, in a public meeting, heard and considered all comments pertaining to the Phase 1 Borrow Area lined Landfill expansion.

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

I. DISCHARGE SPECIFICATIONS

A. Receiving Water Limitations

The discharge must not cause a violation of any applicable water quality standard for receiving water adopted by the Water Board or the State Water Board as required by the California Water Code (Water Code) and regulations adopted hereunder. This includes the following water limitations for the groundwaters of the Lower Mojave River Valley Groundwater Basin:

1. Bacteria, Coliform: In groundwater, the median concentration of coliform organisms, over any seven-day period, must be less than 1.1 most probable number per 100 milliliters (MPN/100 MLS).

2. Chemical Constituents: Groundwaters must not contain concentrations of chemical constituents in excess of the Maximum Contaminant Level (MCL) or Secondary Maximum Contaminant Level (SMCL), based upon drinking water standards specified in the following provisions of CCR, title 22, which are incorporated by reference into this Order: Table 64431-A of section 64431 (Inorganic Chemicals), Table 64444-A of section 64444 (Organic Chemicals), Table 64449-A of section 64449 (SMCLs - Consumer Acceptance Contaminant Level Limits), and Table 64449-B of Section 64449 (SMCLs - Consumer Acceptance Contaminant Level Ranges) including future changes as the changes take affect.

Groundwaters must not contain concentrations of chemical constituents in amounts that adversely affect the water for beneficial uses (i.e., agricultural purposes).

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

3. Radioactivity: Groundwaters must not contain concentrations of radionuclides in excess of the limits specified Table 4 of CCR, title 22, section 64442, Table 64442, and section 64443, Table 64443, which is incorporated by reference into this Order including future changes as the changes take effect.
4. Taste and Odor: Groundwaters must not contain taste or odor-producing substances in concentrations that cause nuisance or that adversely affect beneficial uses.

B. Discharge Limits

1. The Discharger must not discharge treated auto shredder wastes with concentrations of hazardous constituents that equal or exceed the limits listed below by the extract of the waste or treatment residual developed using the method according to the Waste Extraction Test (WET) described in CCR, title 22, section 66261.126, Appendix II.

<u>Constituent</u>	<u>Concentration</u>	<u>Units</u>
Cadmium and/or cadmium compounds	1.0	mg/L
Chromium (total) compounds	560	mg/L
Chromium (VI) compounds	5.0	mg/L
Copper and/or copper compounds	25	mg/L
Lead and/or lead compounds	50	mg/L
Mercury and/or mercury compounds	0.2	mg/L
Nickel and/or nickel compounds	20	mg/L
Zinc and/or zinc compounds	250	mg/L

2. The Discharger must not discharge polychlorinated biphenyls (PCBs) in concentration (mg/L) of waste extract, which equals or exceeds its listed soluble threshold limit concentration (STLC) or at a concentration in milligram per kilogram (mg/kg) in the waste which equals or exceeds its listed total threshold limit concentration (TTLC) as listed below.

Constituent	STLC	TTLC
PCBs	5.0 mg/L	50 mg/Kg

II. REQUIREMENTS AND PROHIBITIONS

A. General

1. The discharge must not cause pollution, as defined in Section 13050 of the California Water Code, or threatened pollution.
2. Direct pipeline discharge to the Impoundments must be either equipped with devices, or must have fail-safe operating procedures, to prevent overfilling. Discharges must be stopped immediately in the event of any containment system failure and the system repaired.
3. The discharge must not cause a nuisance, as defined in section 13050 of the California Water Code.
4. The discharge of solid wastes, leachate, or any other deleterious material to the groundwaters of the Lower Mojave River Valley Groundwater Basin is prohibited.
5. The discharge of waste, except to the authorized disposal sites, is prohibited.
6. 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.
7. The Landfill disposal sites must be protected from inundation, washout, or erosion of wastes and erosion of covering materials resulting from a storm or a flood having a 100-year return period. The Impoundments must 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 1,000 years.
8. Surface drainage from tributary areas, and internal site drainage from surface or subsurface sources, must not contact or percolate through solid wastes discharged at the site.

9. The exterior surfaces of the disposal sites must be graded to promote lateral runoff of precipitation and to prevent ponding.
10. Water used for dust control during Facility operations must be limited to a minimal amount. A "minimal amount" is defined as that amount which will not result in runoff.
11. Wastes other than inert wastes must not be placed in ponded water from any source whatsoever.
12. The discharge of wastes in a manner that does not maintain a five foot soil separation between the wastes and the seasonal high groundwater elevation is prohibited.
13. At closure, all facilities must be closed in accordance with a final CPCMP approved by the Water Board.
14. The discharge of treated auto shredder wastes at the Facility is prohibited if DTSC makes the determination that this material requires management at a Class I facility or if the Discharger fails to obtain a nonhazardous waste classification from DTSC for TASW. The discharge of untreated auto shredder waste is prohibited. Discharge of TASW to the unlined Landfill is prohibited.
15. Waste that contains liquid in excess of the moisture-holding capacity of the waste in Class III Landfill units, or which contains liquid in excess of the moisture-holding capacity as a result of waste management operations, compaction, or settlement, must not be discharged to a Class III Landfill unit.
16. The application of designated wastes as ADC in Class III Landfills is prohibited. The ponding of any liquid on any Landfill unit that has received waste is prohibited.
17. The discharge of wastes (including composting wastes) as part of the final cover for any part of the Landfill is prohibited. Compost may be used as a soil amendment over intermediate or final cover to promote vegetative growth, if applied at agronomic rates and there is no threat to water quality from storm water runoff. Also, soil that contains waste may be used in the foundation layer.
18. The discharge of solid or liquid waste or leachate to surface waters, surface water drainage courses, or groundwater is prohibited.
19. The discharge of groundwater, storm water, or wastewater to surface water or any surface water drainage courses is prohibited without an NPDES permit authorizing the discharge.

B. Landfill

1. Sludge treated at the Landfarm and transported to the Landfill for disposal must not contain VOCs, or SVOCs, in excess of 100 times the method detection limit for each constituent in liquid.
2. Prior to Landfill disposal, all sludge must be characterized in accordance with a SAP accepted by the Water Board.
3. Sludge transported to the Landfill for disposal must be greater than or equal to 50 percent solids by weight.
4. No hazardous waste, as defined in CCR, title 23, chapter 15, section 2521, or designated waste, as defined in the California Water Code, section 13173, must be discharged at the Landfill.
5. The Discharger must remove and relocate any waste which is or has been discharged at the Landfill in violation of these requirements. The waste must be relocated to a site which is permitted to receive such wastes. All removal and relocation projects must be coordinated with regulatory agencies, including but not limited to the County of San Bernardino Division of Environmental Health Services.
6. During periods of precipitation, the Landfill disposal activity must be confined to the smallest area possible based on the anticipated quantity of wastes.
7. Water used for dust control on the unlined portion of the Landfill must not contain detectable concentrations of VOCs or SVOCs. Leachate used for dust control on lined portions of the Landfill must not contain constituents in concentrations that exhibit characteristics of toxicity.
8. Alternate Daily Cover (ADC) approved by the local enforcement agency (LEA) includes: green waste material, shredded tires, solidified waste with an approved extender, processed construction and demolition material, and/or a geo-synthetic blanket.
9. Pursuant to CCR, title 27, section 20200(a)(1), treated auto shredder waste, contaminated soil, ash, and cement kiln dust that has been confirmed by testing not to be a hazardous waste can be discharged to the Landfill as alternative daily cover over portions of the operating face that are underlain by a composite liner, so long as any stockpiled ADC is protected from producing runoff, in the event of rain.
10. Storm water contacting wastes used as ADC or intermediate cover must be handled and disposed of as leachate, except as allowed under II. Requirements and Prohibitions, A.15.

11. Prior to discharge of TASW to the lined landfill, the Discharger must provide verification that the TASW was sampled in accordance with a Water Board accepted SAP and that the TASW does not exceed the discharge limits established in this Order (Section I.B.).
12. The discharge of groundwater or leachate, or their use for dust control or irrigation at the Landfill is prohibited, unless the following conditions are met:
 - a. The liquids are being returned to the landfill; and
 - b. The portion of the landfill to which these liquids are discharged is equipped with a containment system meeting the requirements of Section V.B. of this Order; or
 - c. The liquids generated from the site are disposed offsite in accordance with a disposal plan approved by the Water Board staff.

C. Landfarm

1. Only sludge generated from the Impoundments may be treated in the Landfarm.
2. Sludge transported to the Landfarm for treatment must be greater than or equal to 50 percent solids by weight.
3. No hazardous waste, as defined in CCR, title 22, section 66261.3, and managed as required in CCR, title 23, section 2521, must be accepted at the Landfarm for treatment.
4. Sludge must not be accepted at the Landfarm in excess of the volume that can be treated at any one time.
5. Sludge removed from the Landfarm must be disposed in the Landfill or taken to an off-site disposal site that is permitted to receive such waste.
6. The septage sludge drying area must be operated and maintained as a Class II Land Treatment Unit until clean closed.
7. The Landfarm must be operated to maximize the degradation, transformation, and immobilization of waste constituents in the treatment zone, in accordance with CCR, title 27, section 20377.
8. Storm water contacting wastes in the Landfarm must be handled and disposed of as leachate.

D. Impoundments

1. No chemical toilet waste containing non-biodegradable toxic substances, defined by CCR, title 22, sections 67410.1 through 67410.7, must be discharged to the Impoundments.
2. No hazardous waste, as defined in CCR, title 23, chapter 15, section 2521, must be discharged to the Impoundments.
3. Wastes discharged to the Impoundments must be load checked and sampled in accordance with an approved SAP.
4. No industrial wastes must be discharged to the Impoundments.
5. The Impoundment freeboard must be a minimum two feet at all times.
6. There must be no discharge of waste from the Impoundments to the adjacent land areas, except where authorized by this Board Order.

E. Detection Monitoring Program

The Discharger must maintain a detection monitoring program, as required in CCR, title 27, section 20385(a)(1).

F. Evaluation Monitoring Program

The Discharger must establish an evaluation monitoring program whenever there is significant evidence of a threat to groundwater quality from the Facility, as required in CCR, title 27, section 20385(a)(2) or (3).

G. Corrective Action Program

The Discharger must institute a CAP when required pursuant to CCR, title 27, section 20385(a)(4).

H. Electronic Submittal of Information

Pursuant to CCR, title 23, section 3890, the Discharger must submit reports, including 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. Water Quality Protection Standard

1. The Discharger must propose to the Water Board any new constituents of concern proposed for discharge to the Facility at least 180 days before discharge. Before a new discharge commences, the Discharger must estimate the concentrations for such constituents within the waste stream and submit written statistical method(s) in order to detect a release of such constituents.
2. At any given time, the concentration limit for each monitoring parameter constituent of concern, at a given compliance-testing monitoring point, is equal to the value obtained by applying the approved data analysis method to the background data set (for that constituent at that sampling location).
3. If the Discharger or Executive Officer determines that concentration limits were or are exceeded, the Discharger may immediately institute verification procedures upon such determination as specified below or submit and amended RWD within 90 days of such determination in order to establish an evaluation monitoring program.
4. Monitoring wells BRGW-2 and BRGW-4 (proposed), or their approved replacement(s), must be used to delineate the point of compliance and detect a release from the Facility to groundwater.

B. Release Detection Data Analysis Methods

1. The Discharger must use approved statistical or nonstatistical data analyses methods to evaluate Point of Compliance data in order to determine measurably significant evidence of a release from the Facility. Approved methods may include an intrawell analysis approach proposed by the Discharger.
2. The Discharger must determine, within each monitoring period after completion of sampling, whether there is preliminary evidence of a release from the Facility at each Monitoring Point. For both statistical and nonstatistical data analyses, the Discharger must incorporate the required retesting, as required in the MRP. The analyses must consider all monitoring parameters and constituents of concern. The Executive Officer may make an independent finding that there is measurably significant evidence of a release or physical evidence of a release.
3. If the appropriate retesting indicates measurably significant evidence of a release, the Discharger must notify the Water Board within seven days by certified mail (see notification procedures in the MRP).

4. If the Discharger does not use verification procedures to evaluate evidence of a release, then there is confirmation that there is a measurably significant evidence of a release. The Discharger is required to submit, within 90 days of such confirmation, an amended RWD in order to establish an evaluation monitoring program (EMP) or make a demonstration to the Water Board that there is a source other than the Facility that caused evidence of a release (see notification procedures contained in the MRP).
5. The Discharger may make a demonstration that a source other than the Facility caused evidence of a release. The Discharger may make a demonstration in addition to or in lieu of submitting both an amended RWD and an engineering feasibility study; however, unless the Water Board agrees that the demonstration successfully shows that a source other than the Facility caused the evidence of a release or that the evidence resulted from error in sampling, analysis, or evaluation, or from natural variation in groundwater, surface water, or the unsaturated zone, the Discharger must submit a revised RWD for an EMP. In making a demonstration, the Discharger shall:
 - a. Within seven days of determining measurably significant evidence of a release, notify the Water Board by certified mail of intent to demonstrate the other source;
 - b. Within 90 days of determining measurably significant evidence of a release, submit a report to the Water Board that demonstrates that a source other than the Facility caused the evidence, or that the evidence resulted from error in sampling, analysis, or evaluation, or from natural variation in groundwater, surface water, or the unsaturated zone;
 - c. Within 90 days of determining measurably significant evidence of a release, submit to the Water Board an amended RWD to make any appropriate changes to the detection monitoring program; and
 - d. Continue to monitor in accordance with the detection monitoring program established under this Order.

C. Physical Evidence of a Release

The Discharger must determine whether there is physical evidence of a threatened impact to water quality from the Landfill. Significant physical evidence may include unexplained volumetric changes in the Landfill, unexplained stress in biologic communities, unexplained changes in soil characteristics, visible signs of leachate migration, concentration of constituents of concern in soil gas, which may pose a threat to groundwater

quality, or any other change to the environment that could reasonably be expected to be the result of a threatened impact to groundwater quality from the Landfill. If the Discharger determines that there is significant physical evidence of a release, or that the detection monitoring program does not satisfy the requirements of this Order, the Discharger shall notify the Water Board by certified mail within seven days of such determination, and within 90 days of such determination, submit an amended RWD to make any appropriate changes to the program.

D. Verification Procedures

1. The Discharger must immediately initiate verification procedures, as specified below, whenever there is a determination by the Discharger or Executive Officer that there is preliminary evidence of a release. If the Discharger declines the opportunity to conduct verification procedures, the Discharger must submit a technical report, as described below, under the heading *Technical Report Without Verification Procedures*.
2. The verification procedure must 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. The Discharger must conduct retesting as required in the MRP, which is attached to this Order.
4. The Discharger must report to the Water Board, by certified mail, the results of the verification procedure, as well as all concentration data collected for use in the retest, within seven days of the last laboratory analysis.
5. If the Discharger or Executive Officer verifies evidence of a release, the Discharger is required to submit, within 90 days of such determination that there is, or was, a release, a technical report pursuant to Section 13267(b) of the California Water Code. The report must propose an EMP or make a demonstration to the Water Board that there is a source other than the Facility that caused evidence of a release (see notification procedures contained in the MRP).

E. Technical Report Without Verification Procedures

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

IV. FACILITY SPECIFICATIONS

- A. The Discharger must, in a timely manner, remove and relocate any wastes discharged at this facility in violation of this Order. If the Discharger is unable to remove and relocate the waste, the Discharger must submit a report to the Water Board explaining how the discharge occurred, why the waste cannot be removed, and any updates to the waste acceptance program necessary to prevent recurrence.
- B. Waste filling at Landfill modules must be conducted in accordance with a fill plan demonstrating that all temporary refuse fill slopes will be stable under both static and dynamic conditions for the design event for the Facility.
- C. All temporary stockpiles of ADC and other wastes must be stable under both static and dynamic conditions for the design event for the Facility.
- D. The Discharger must immediately notify the Water Board of any flooding, unpermitted discharge of waste off-site, equipment failure, slope failure, or other change in site conditions which could impair the integrity of waste or leachate containment facilities or precipitation and drainage control structures.
- E. Water used for facility maintenance must be limited to the minimum amount necessary for dust control and construction.
- F. The Discharger must maintain in good working order any facility, control system, or monitoring device installed to achieve compliance with the WDRs.
- G. Storm water run-off within the waste management facility must either be contained on-site or be discharged in accordance with applicable storm water regulations.
- H. The Discharger must maintain a site-specific Storm Water Pollution Prevention Plan and Monitoring Program and Reporting Requirements in accordance with the State Water Board's most recent WDRs for Discharges of Storm Water Associated with Industrial Activities (currently Order No. 97-03-DWQ, NPDES No. CAS000001), or retain all storm water on-site.

V. CONSTRUCTION SPECIFICATIONS

- A. Geologic maps must be prepared by a California Registered Professional Geologist for each excavation phase as the facility is developed. The geologic data must be used to reevaluate each excavation phase with respect to the potential for active faulting and slope instability. If potential hazards or constraints are recognized, the design engineer must evaluate the conditions and, if necessary, incorporate modifications to liner design

and/or placement of future Landfill cells to ensure that any potential impacts to liner integrity or underlying groundwater quality are less than significant.

1. **At least 14 days, and not more than 30 days, prior to excavation,** the Discharger must notify the Water Board of the planned excavation schedule.
 2. If potential hazards or constraints, including but not limited to potential Holocene faulting, are identified during geologic mapping, **the Discharger must notify the Water Board within 24 hours** and provide prompt access to the excavation.
 3. **At least 30 days prior to liner installation,** the Discharger must submit for review and acceptance by the Water Board Executive Officer, geologic maps and a summary letter on the geologic mapping of the excavation.
- B. Both the bottom liner and side-slope liner of all new Units and lateral expansion areas of existing Units must be constructed in accordance with one of the following composite liner designs.
1. The prescriptive standard design which consists of a lower compacted soil layer that is a minimum of two-feet thick with a hydraulic conductivity of 1×10^{-7} cm/sec or less and has a minimum relative compaction of 90 percent. Immediately above the compacted soil layer, and in direct and uniform contact with the soil layer, must be a synthetic flexible membrane component that must be at least 40-mil thick (or at least 60-mil thick if composed of HDPE), which is immediately overlain with a leachate collection and removal system. A soils operations layer must be placed above the leachate collection and removal system; or
 2. An engineered alternative composite liner system, as proposed in the JTD, that is comprised of the following :
 - a. **Bottom Liner System Design:** The flat bottom portion of the expansion area will include (from top to bottom):
 - i. minimum 24-inch thick protective soil cover layer;
 - ii. geotextile layer;
 - iii. minimum 9-inch thick LCRS drainage layer;
 - iv. geotextile layer;
 - v. 60 mil (0.060 inch) thick HDPE geomembrane (textured on both sides);
 - vi. geotextile-backed geosynthetic clay liner (GCL); and
 - vii. minimum 12-inch thick layer of, screened on-site soil.

- b. For areas of the Landfill where additional encapsulated strengths are required, and as described in Appendix T of the JTD, the bottom liner will consist of:
- i. minimum 24-inch thick protective soil cover layer;
 - ii. geotextile layer;
 - iii. minimum 9-inch thick LCRS drainage layer;
 - iv. geotextile layer;
 - v. 60 mil (0.060 inch) thick HDPE geomembrane (textured on both sides);
 - vi. geotextile-backed GCL;
 - vii. 60 mil (0.060 inch) thick HDPE geomembrane (textured on both sides); and
 - viii. minimum 12-inch thick layer of, screened on-site soil.
- c. Slope Liner System Design: Liner sections with gradients greater than 5:1 (horizontal:vertical) will include (from top to bottom):
- i. minimum 24-inch thick protective soil cover layer;
 - ii. geotextile layer;
 - iii. 60 mil (0.060 inch) thick HDPE geomembrane (single-sided textured; textured side down);
 - iv. geotextile-backed GCL;
 - v. prepared subgrade.
- d. Liner sections with gradients greater than 5:1 (horizontal:vertical) in areas of the Landfill where additional encapsulated strengths are required, as described in Appendix T of the JTD, will include (from top to bottom):
- i. minimum 24-inch thick protective soil cover layer;
 - ii. geotextile layer;
 - iii. 60 mil (0.060 inch) thick HDPE geomembrane (single-sided textured; textured side down);
 - iv. geotextile-backed GCL;
 - v. 60 mil (0.060 inch) thick HDPE geomembrane (textured on both sides); and
 - vi. prepared subgrade.

- C. The Discharger may propose changes to the liner system design prior to construction, provided that approved components are not eliminated, the engineered properties of the components are not eliminated, the engineering properties of the components are not substantially reduced, and the proposed liner system results in the protection of water quality equal to or greater than the design prescribed by CCR, title 27, and this Order. The proposed changes may be made following approval by the Executive Officer. Substantive changes to the design require reevaluation as an engineered alternative and approval by the Water Board.
- D. If the Discharger proposes to construct a liner system in which a GCL is placed on top of a subgrade, the subgrade for the bottom and the side slopes of the Unit must be prepared in an appropriate manner using accepted engineering and construction methods so as to provide a smooth surface that is free from rocks, sticks, or other debris that could damage or otherwise limit the performance of the GCL.
- E. A third party, independent of both the Discharger and the construction contractor must perform all of the construction quality assurance monitoring and testing during the construction of a liner system.
- F. Phase 1 Borrow Area LCRS Design
1. The general LCRS design will consist of a granular (gravel) drainage blanket (minimum 9 inches thick) constructed immediately above the liner in the bottom liner areas. The bottom base gravel blanket will host perforated LCRS lateral collectors and mainline pipes that will convey accumulated fluid by gravity to sumps within each phase of development. The perforated main and lateral pipes will be placed in 12-inch-deep V-ditch subgrade swales. The gravel pack will be sized such that 85 percent of the material is larger than the pipe perforations, and will be overlain by a geotextile fabric. Solid riser pipes will connect the leachate sumps to storage tanks located adjacent to each sump. Submersible pumps will convey the leachate from the sumps to the storage tanks. If additional leachate storage is needed, portable tanks will be used.
 2. The LCRS design over sloped liner areas consists of perforated pipe collectors placed in a gravel pack wrapped with a geotextile filter fabric. These pipes will be placed on the interior benches, and the leachate will flow by gravity to solid LCRS riser pipes and then to the main piping system.

G. Phase 1 Borrow Area Drainage Controls

1. Proposed on-site drainage controls for the expansion area are designed to control precipitation that falls on the Landfill and storm water run-on from the surrounding watershed for a 24-hour, 100-year storm event.
2. A perimeter channel system consisting of concrete channels will be placed at the perimeter of the refuse footprint. These channels will be completed as the Landfill is developed. The perimeter channel will control run-on from surfaces adjacent to the Landfill that otherwise might flow onto the Landfill. Precipitation that falls directly on the Landfill deck and exterior benches will be directed via berms, bench drains, and bench drain inlets into down drains anchored into the final Landfill surface. The down drains will outlet to the perimeter channel system. Storm water conveyed by the perimeter channel system will discharge directly to one of three proposed storm water basins.
3. During construction of the Phase 1 Borrow Area of the Landfill expansion, interim precipitation and drainage controls will be utilized. After each excavation phase and liner installation is complete, interim storm water basins will be constructed within the excavation area. The basins will be equipped with submersible pumps and piping will be installed to convey collected storm water to the perimeter channel system.
4. In addition to the interim drainage controls, the facility will be operated using a combination of Best Management Practices (BMPs) as described in the Facility Storm Water Pollution Prevention Plan. Examples of BMPs include but are not limited to erosion control mats, mulching, hydro seeding, coir logs, straw wattle, and straw bale check dams.

H. Construction may proceed only after all applicable construction quality plans have been reviewed and accepted by the Water Board Executive Officer.

I. Following the completion of a construction of a Unit or portion of a Unit, and prior to discharge onto the newly constructed liner system, the final documentation required in CCR, title 27, section 20324(d)(1)(C) must be submitted for review and acceptance. The report must be certified by a registered civil engineer or a certified engineering geologist. It must contain sufficient information and test results to verify that construction was in accordance with the design plans and specifications, and with the prescriptive standards and performance goals of CCR, title 27.

J. At closure, the Discharger must initiate an effort to clean close the Impoundments prior to closing the Impoundments as a Landfill if clean closure is found to be infeasible

- K. Prior to closure, the Discharger must submit a Final Closure Plan or Partial Final Closure Plan for review and acceptance for the Unit or portion of the Unit to be closed. The Discharger must also submit a Post-Closure Maintenance Plan. The final closure plan must include a final design, with supporting documentation, for any alternative cover, and the results of a cover monitoring study. The plan must include proposed criteria for demonstrating compliance with performance standards.

VI. PROVISIONS

A. Rescission of Waste Discharge Requirements

Board Order No. R6V-2008-0025 is hereby rescinded except for enforcement purposes.

B. Standard Provisions

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

C. Monitoring and Reporting

1. Pursuant to the California Water Code, section 13267(b), the Discharger must comply with Monitoring and Reporting Program No. R6V-2012-(**PROPOSED**), as specified 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 the Monitoring and Reporting Program.

D. Financial Assurance

The Discharger must obtain and maintain assurances of financial responsibility for initiating and completing corrective action for all known or reasonably foreseeable releases from the Facility in the amount of the approved cost estimate. The Discharger must submit the approved cost estimate and proposed financial assurance mechanism meeting the requirements of Chapter 6, title 27 to the Financial Assurances Section of the California Integrated Waste Management Board (CalRecycle), and made payable to the Water Board. If CalRecycle determines that financial assurance mechanism is inadequate, then within 90 days of notification, the Discharger must submit an acceptable mechanism for at least the amount of the approved cost estimate.

The Discharger must obtain and maintain assurances of financial responsibility for closure and post-closure maintenance costs in the amount of the cost estimates in the approved preliminary or final closure and post-closure maintenance plan, as applicable. The Discharger must submit a proposed financial assurance mechanism for closure and post-closure maintenance meeting the requirements of Chapter 6, title 27 to the Financial Assurances Section of CalRecycle. If CalRecycle determines that either the amount of coverage or the mechanism is inadequate, then within 90 days of notification, the Discharger must submit an acceptable mechanism for at least the amount of the approved cost estimate.

E. Alternative Cover Monitoring and Contingency Plan

At least 90 days prior to construction of the final cover the Discharger must submit a Monitoring and Contingency Plan with a plan for monitoring the cover to demonstrate it is meeting regulatory performance standards, and must propose alternatives for the cover if it fails to meet the performance standards. The plan must include proposed criteria for demonstrating compliance with performance standards as specified in CCR, title 27.

F. Notification of Closure

The Discharger shall notify the Water Board that the Landfill is to be closed 180 days prior to beginning of final closure activities (for the entire Unit or portion thereof), or shall notify CalRecycle as required pursuant to CCR, title 27, section 21110, whichever is sooner.

VII. TIME SCHEDULE

A. Closure and Post-Closure Maintenance Plan

The Discharger must update the preliminary closure and post-closure maintenance plan (PCPCMP) **any time there is a change** that will increase the amount of the closure and post-closure maintenance cost estimate. The updated PCPCMP must be submitted to the Water Board, the Local Enforcement Agency, and CalRecycle. The updated PCPCMP must meet the requirements of CCR, title 27, section 21769(b), and include an itemized and lump-sum estimate of the costs of carrying out all actions necessary to close the Facility, preparing detailed design specifications, developing the Final Closure Plan, and to carry out the first 30 years of post-closure maintenance. A Final Closure and Post-Closure Maintenance Plan must be submitted prior to closure and closure must not be conducted in the absence of closure WDRs.

B. Known or Reasonably Foreseeable Release Plan

The Discharger must update the plan for a Known or Reasonably Foreseeable Release (KRFR), pursuant to CCR, title 27, section 20380(b), as necessary, and submit the KRFR Plan to the Water Board **annually**. The KRFR Plan must include the applicable requirements of CCR, title 27, sections 22220 to 22222, including a cost estimate to implement the plan and a proposed financial assurance instrument.

C. Financial Assurance - PCPCM

Evidence that a separate Financial Assurance Instrument(s) providing adequate funding for the Preliminary Closure and Post-Closure Maintenance Lump Sum Estimate in Section VI.D of this Order must be submitted to the Water Board, pursuant to CCR, title 27, section 22207 and 22212 by **January 15, 2013, revised as necessary and re-submitted every two years thereafter.**

D. Financial Assurance - KRFR

Evidence that a separate Financial Assurance Instrument(s) providing adequate funding for the Known or Reasonably Foreseeable Release lump sum estimate required in section VI.D of this Order must be submitted to the Water Board, pursuant to CCR, title 27, section 22222 by **January 15, 2013** and revised, as necessary, and re-submitted **annually thereafter**. This can be submitted with the KRFR Plan required in Section VII.B. of this Order.

E. Construction Quality Assurance Plan

Pursuant to CCR, title 27, sections 20323 and 20324, the Discharger must submit a final Construction Quality Assurance Plan **at least 90 days prior to beginning construction** of any Landfill expansion for review and approval by the Water Board Executive Officer.

F. Final Proposed Construction Drawings, Specifications, and Descriptions

Pursuant to CCR, title 27, section 21760(a)(1), **at least 90 days prior to beginning construction** of the Landfill expansion, the Discharger must submit final proposed plans, specifications, and descriptions associated with the construction for review and acceptance by the Water Board Executive Officer. The submittals should include specifications and descriptions for all excavation, grading, liners, LRCS components, leak detection components, precipitation and drainage control facilities, interim covers, and vadose zone and groundwater monitoring wells required in the attached Monitoring and Reporting Program. The submittals should include a proposed schedule for the construction activities.

G. Final As-Built Construction Drawings, Specifications, and Descriptions

Pursuant to CCR, title 27, section 21760(a)(1), following the completion of construction of any Landfill expansion, and **at least 60 days prior to discharge** into the new Landfill cell, the Discharger must provide as-built plans, specifications, and descriptions for all excavation, grading, liners, LRCS components, leak detection components, precipitation and drainage control facilities, and interim covers for review and acceptance by the Water Board Executive Officer. This report can be combined with the Final Documentation reports discussed below (Section VII.H.).

H. Final Documentation Reports

Following the completion of construction of the Landfill expansion, and **at least 60 days prior to discharge** into the new Landfill cell, the Final Documentation report required in CCR, title 27, section 20324, subdivision (d)(1)(C), must be submitted for review and acceptance by the Water Board Executive Officer. This report must be submitted **no later than 180 days** after completion of construction activities. It must be certified by a registered civil engineer or a certified engineering geologist. It must contain sufficient information and test results to verify that construction occurred in accordance with the submitted design plans and specifications and with the accepted engineered alternative to the prescriptive standards and performance goals of CCR, title 27.

I. Seismic Event Inspection

1. **Within 90 days of the adoption of this Order**, the Discharger must submit a revised post-earthquake inspection plan for review and acceptance. The revised plan must include inspecting WMU liners and covers; LRCS riser pipes, sump pump operation, and storage tanks; including the flare station; drainage control facilities; and detection monitoring facilities for damage following an earthquake of Magnitude (M) 5.0 or greater within 25 miles of the facility or a M6.0 or greater earthquake within 50 miles of the facility.
2. An earthquake inspection must be conducted within 3 days following earthquakes of the magnitude as specified in Section VII. I.1. above. A report of the inspection must be submitted to the Water Board within 30 days after the inspection assessing any damage and must contain proposals to repair or replace any damaged structures or facilities.

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 Control Board, Lahontan Region, on July 12, 2012.

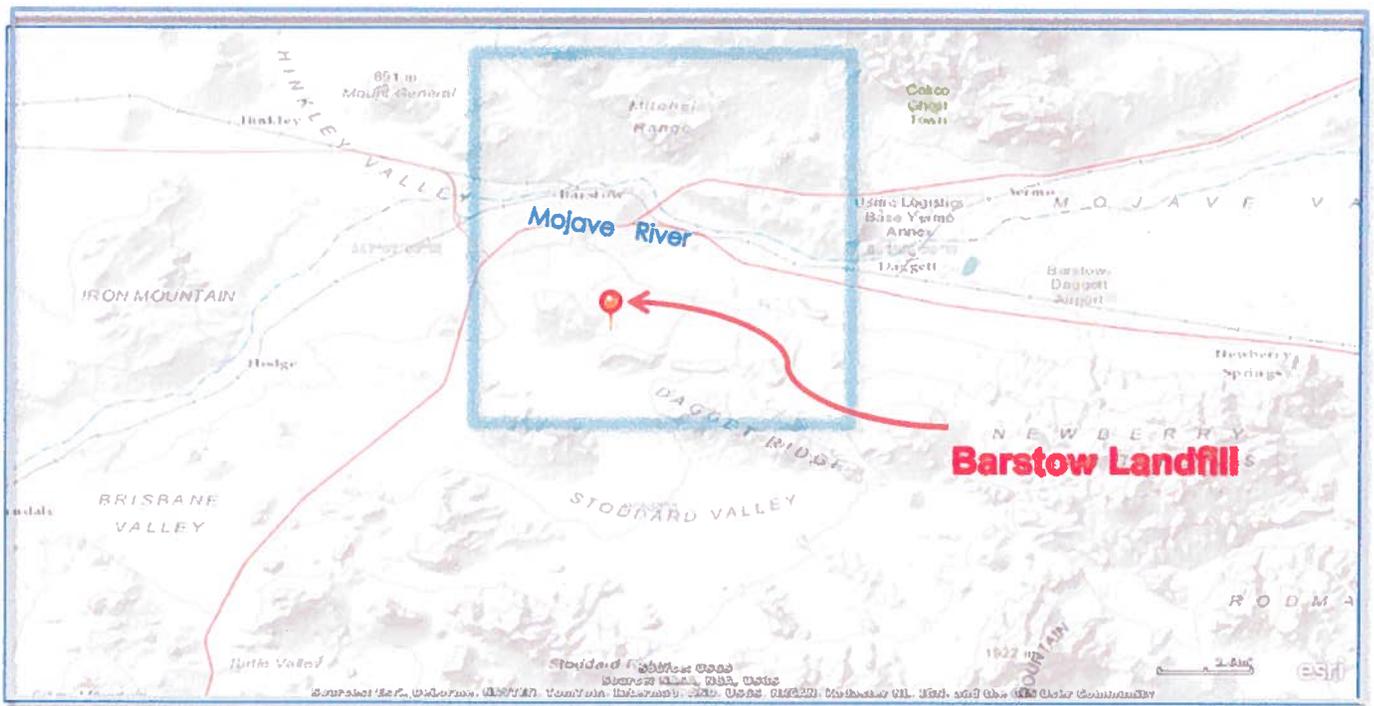
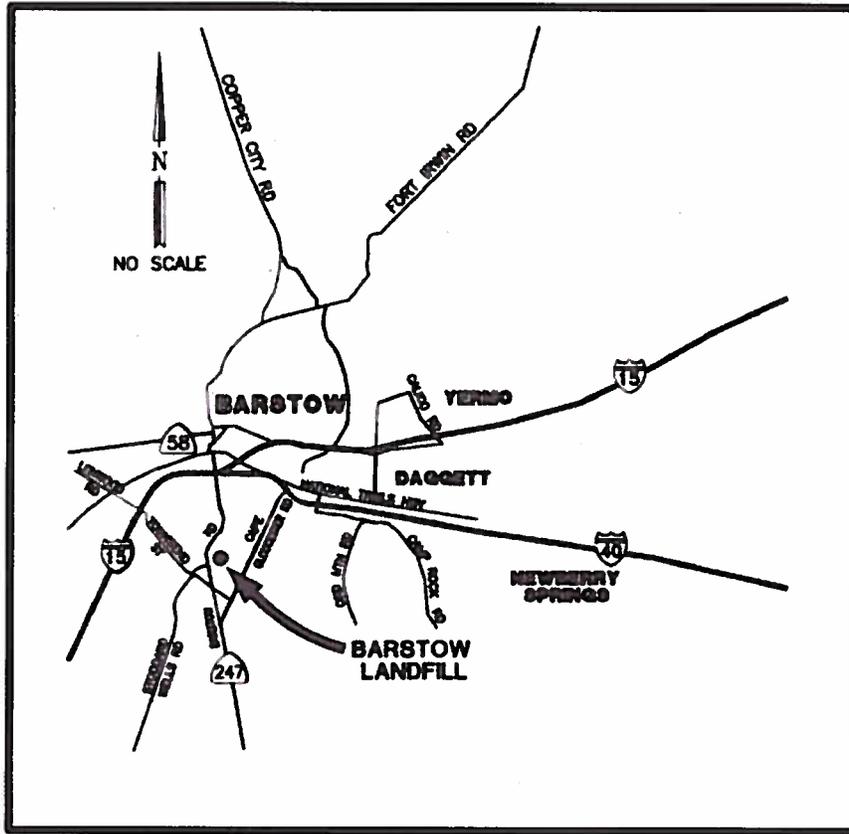
PATTY Z. KOUYOUMDJIAN
EXECUTIVE OFFICER

Attachments: A. Facility Location
B. Existing Facility and Proposed Phase 1 Borrow Area
C. Standard Provisions for Waste Discharge Requirements

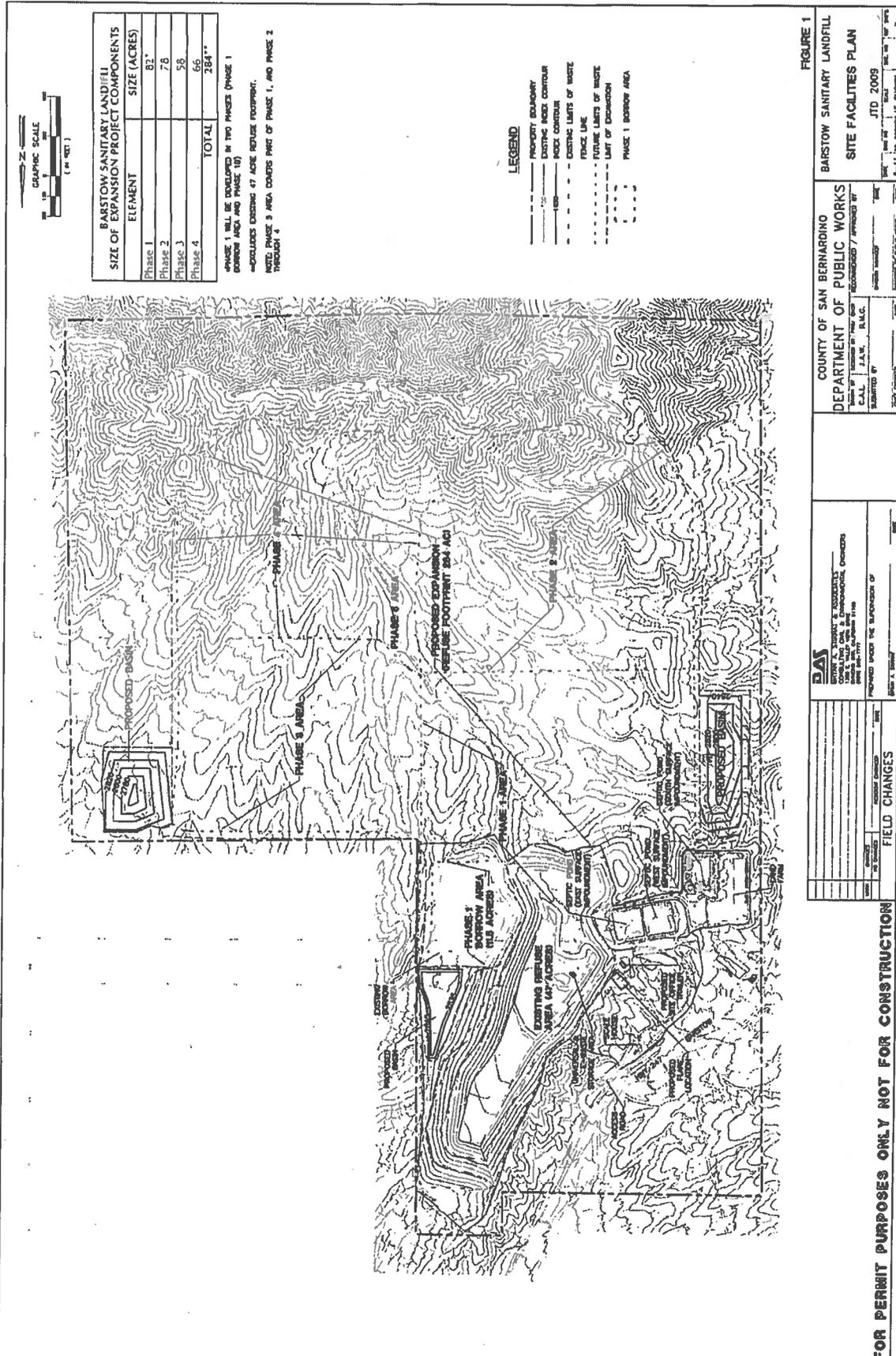
CH/rp BO 2012\Proposed\July\R6V-2012-PROP_BarstowLF_WDR_6-7/2012

PROPOSED 6/17/2012

Facility Location



Existing Facility and Proposed Phase 1 Borrow Area



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION**STANDARD PROVISIONS**
FOR WASTE DISCHARGE REQUIREMENTS1. 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.

ENCLOSURE 2

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION**

**MONITORING AND REPORTING PROGRAM NO. R6V-2012-(PROPOSED)
WDID NO. 6B360304005**

FOR

**BARSTOW CLASS III LANDFILL, CLASS II SURFACE IMPOUNDMENTS,
AND SEPTAGE SLUDGE LANDFARM**

_____San Bernardino County_____

I. REQUIRED MONITORING REPORTS

<u>Report</u>	<u>Frequency</u>
1. Groundwater Monitoring (Section IV.A)	See Table I
2. Unsaturated Zone Monitoring (Section IV.B)	See Table II
3. Leachate Monitoring (Section IV.C)	See Table III
4. Facility Monitoring (Section IV.D)	As necessary
5. Landfarm Septage Monitoring (Section IV.E)	As necessary
6. Incoming Waste Monitoring (IV.F.)	Annually/Semiannually
7. Treated Auto Shredder Waste (IV.G.)	Quarterly/Semiannually
8. Annual Monitoring Summary Report (VI.B.2)	Annually
9. Unscheduled Reports (Section VI.C.)	As necessary

II. REPORTING

In reporting the monitoring data required by this program, the Discharger must arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data must be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof. The Discharger must provide both a hardcopy of the monitoring report to the Water Board as specified in this Monitoring and Reporting Program (MRP) and upload the full monitoring report into Geotracker, as stipulated by California Code of Regulations (CCR), title 23. Each monitoring report must include a compliance evaluation summary, as specified in this MRP, Section VI. Reporting Requirements.

Field tests and laboratory results must be submitted in each monitoring report. Monthly, quarterly, semiannual, annual, two-and five-year monitoring reports must be submitted to the Water Board in accordance with the following schedule for the period in which samples were taken or observations made.

Monitoring Period	Reporting Frequency	Report Date Due
Weekly/Monthly	Semiannually	April 30 and October 31
Quarterly 1 st Oct 1 - Dec 31 2 nd Jan 1 - Mar 31 3 rd Apr 1 - Jun 30 4 th July 1 - Sept 30	Semiannually	April 30 and October 31
Semiannually 1 st Oct 1 - Mar 31 2 nd Apr 1 - Sept 30	Semiannually	April 30 and October 31
Annually * Oct 1 - Sept 30	Annually	October 31
2-year	Every 2 years	October 31
5-Year	Every 5 Years	April 30
* Year defined as October 1 through September 30		

The Discharger must submit an Annual Monitoring Summary Report (Annual Report) to the Water Board covering the previous monitoring year. The Annual Report must contain the information specified in this MRP, Section VI. Reporting Requirements, below, and a discussion of compliance with the waste discharge requirements and the Water Quality Protection Standard. The Annual Report, and, when applicable, the 2-year monitoring report can be combined with the year-end Semiannual Report such that three summary reports are not required by the October 31 due date. The last 5-year Constituent-of-Concern (COC) groundwater monitoring event was conducted during 2010; therefore, the next COC event is scheduled to take place in 2015.

III. WATER QUALITY PROTECTION STANDARD

- A. For each waste management unit (Class III Landfill, Class II Surface Impoundment, and Land Treatment Unit), the Water Quality Protection Standard (WQPS) must consist of all constituents of concern (COCs), the concentration limit for each COC, the point of compliance, and all water quality monitoring points. A WQPS is required by CCR, title 27, section 20390, to assure the earliest possible detection of a release from the Landfill, Surface Impoundments, and Land Treatment Unit (collectively the Facility) to the underlying soil and/or groundwater. The WQPS for waste constituents

consists of the COCs, the concentration limits, and the point of compliance and all monitoring points.

Proposed modifications of the WQPS must be submitted to the Water Board in a report for review and acceptance. The report must:

1. Identify all distinct bodies of surface water and groundwater that could be affected in the event of a release from the Facility or portion of the Facility. This list must include at least the uppermost aquifer and any permanent or ephemeral zones of perched groundwater underlying the Facility.
2. Include a map showing the monitoring points and background monitoring points for the surface water monitoring program, groundwater monitoring program, and the unsaturated zone monitoring program. The map must include the point of compliance in accordance with CCR, title 27, section 20405.
3. Evaluate the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).
4. The WQPS must be certified by a California-registered civil engineer or geologist as meeting the requirements of CCR, title 27. 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.

B. Constituents of Concern

The 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 the Facility. The COCs for all portions of the Facility are those listed in Tables I – IV (Attachments A – D) for the specified monitored medium. The Discharger must monitor all non-monitoring parameter COCs (Uninvolved Parameters [UnPars]) every five years. During that test, each monitoring point (MonPt)/UnPar pair's Concentration Limit shall be either the upper 85th percentile of its reference background data set or, if that value is less than the highest practical quantitation limit (PQL) value associated with the background data set, then the pair's Concentration Limit is that highest associated PQL for that data set. If a MonPt/UnPar pair's first sample, taken within the beginning part of the Reporting Period¹, exceeds its Concentration Limit, and a retest sample collected during the mid-Period also exceeds that

¹ Reporting Period – defined as any one of a continuing series of consecutive quarterly or six-month-long periods as required in this MRP during which the Discharger collects and analyzes monitoring data and includes the results in a monitoring report.

Concentration Limit, then that COC becomes a Monitoring Parameter (MonPar) at all compliance-testing MonPts as of the next Reporting Period.

For any COC that has less than eight background data points, the Discharger shall collect additional data (at the background sampling location for that COC) on a quarterly basis until a background sample size of at least eight is achieved.

C. Monitoring Parameters

Monitoring parameters (MonPars) are COCs that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from a Unit. The MonPars for all Units are those listed in Tables I – IV (Attachments A- D) for the specified monitored medium.

D. Concentration Limits

The Discharger shall list the then-applicable background data set for each COC at each compliance-testing Monitoring Point (i.e., for each MonPt/COC pair) in the annual summary monitoring report, pursuant to Section VI.B.2.e of this MRP. The Discharger shall determine each MonPt/COC pair's Concentration Limit by applying its approved data analysis method to its background data set. Nevertheless, for any MonPt/COC pair whose background data set rarely shows a datum that exceeds the COC's MDL, its Concentration Limit shall be the highest PQL value associated with its background data set. The Discharger shall propose an update for each MonPt/COC pair's background data set using the approach described for that purpose in the U. S. Environmental Protection Agency's (USEPA's) Unified Guidance (2009) for statistical analysis of groundwater monitoring data², which method is hereby incorporated by reference, and recalculate each revised pair's Concentration Limit by applying its data analysis method to the updated background data set. The revised Concentration Limits become effective during the Reporting Period following their approval. The background data set for each MonPt/MonPar shall be updated every three years, and less frequently for each MonPt/UnPar background data set.

E. Point of Compliance

The point of compliance for the water standard at each Unit is a vertical surface located at the hydraulically downgradient limit of the Unit that extends through the uppermost aquifer underlying the Unit. The Discharger must indicate the location of each Unit's Point of Compliance in the Monitoring Report.

² *Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities Unified Guidance*, USEPA, March 2009, (EPA 530/R-09-007) or appropriate updated version.

F. Compliance Period

The compliance period for each Unit must be the number of years equal to the active life of the Unit plus the closure period. The compliance period is the minimum period during which the Discharger must conduct a water quality monitoring program subsequent to a release from the Unit. The compliance period must begin anew each time the Discharger initiates an evaluation monitoring program. The estimated duration of the compliance period for the Landfill shall equal 62 years in accordance with CCR, title 27, section 20410. The compliance period may be extended if the facility is not in compliance with its WQPS.

IV. MONITORING

Groundwater detection monitoring for the Landfill expansion waste units must be installed, be operational, and have one year of quarterly monitoring data collected prior to the discharge of wastes. All monitoring must be conducted in accordance with a Sampling and Analysis Plan (SAP), which includes quality assurance/quality control standards.

All downgradient monitoring wells, including those located along the point of compliance, established for the detection monitoring program shall constitute the monitoring points for the groundwater WQPS. All detection monitoring program groundwater monitoring wells, unsaturated zone monitoring devices, and leachate monitoring points must be sampled and analyzed for monitoring parameters and COCs as indicated and listed in Tables I – IV (Attachments A – D).

Method detection limits (MDLs) and PQLs must be reported for any determination that is at-or-below the constituent's PQL. In addition, all trace value determinations shall include a concentration estimate (e.g., in square brackets and with a J-flag). All chromatograph peaks must be reported, including those which cannot be quantified. Metals must be analyzed in accordance with the methods listed in Table V (Attachment E).

The Discharger may use alternative analytical test methods, including new USEPA approved methods, provided the methods have method detection limits equal to or lower than the analytical methods specified in this MRP.

A. Groundwater

1. The Discharger must operate and maintain a groundwater detection monitoring system that complies with the applicable provisions of CCR, title 27, sections 20415 and 20420, in accordance with the approved DMP, where appropriate. The monitoring system must be certified by a California-licensed professional civil engineer or geologist as meeting the requirements of CCR, title 27. The

Discharger must collect, preserve, and transport groundwater samples in accordance with the approved SAP.

2. The Discharger must measure groundwater depth in all groundwater monitoring wells semiannually and assess the groundwater flow rate and direction in the uppermost aquifer and in any zones of perched water and in any additional zone of saturation monitored pursuant to this MRP and report the results semiannually, including the times of expected highest and lowest elevations of the water levels in the wells, if applicable. The parameters listed below must be calculated and reported in tabular form semi-annually. Each Monitoring Report must include a figure illustration showing the boundary of waste units, direction of groundwater movement, location of monitoring points, the contoured groundwater surface in feet above mean sea level, and each Unit's Point of Compliance.

Parameter

Units

Slope of Groundwater (Gradient)	Feet/mile
Direction of Groundwater Gradient	Degrees from true north
Velocity of Groundwater Flow	Feet/year

3. Groundwater samples must be collected from the following monitoring wells or approved replacements, as applicable. Samples must be collected and analyzed for the monitoring parameters and COCs in accordance with the methods and frequency specified in Table I and Table IV (Attachments A and D). The groundwater monitoring well locations are shown in Attachment F of this MRP, and the specific wells are listed below.

Landfill Detection Monitoring Groundwater Monitoring Wells			
Well Name¹	Purpose	Total Depth (feet below ground surface)	Screened Interval (feet below ground surface)
BRGW-1 ²	upgradient	810	740-800
BRGW-2	compliance	811	720-800
BRGW-3 ³	piezometer	806	746-806
BRGW-4 (proposed)	compliance	850 ⁴	To be determined

¹ Or approved replacement.
² Well BRGW-1 sampled for all COCs every 5-years only.
³ Well BRGW-3 used to monitor water levels only.
⁴ Projected depth of well BRGW-4.

B. Unsaturated Zone

The Discharger must operate and maintain an unsaturated zone detection monitoring system that complies with the applicable provisions of CCR, title 27, sections 20415, 20420, and 20435 in accordance with an approved DMP. The Discharger must collect, preserve, and transport samples in accordance with the quality assurance/quality control standards contained in the approved SAP.

Unsaturated zone samples must be collected from the monitoring devices of the approved unsaturated zone monitoring system. The collected samples must be analyzed for the listed constituents in accordance with the methods and frequency specified in Tables II and IV (Attachments B and D). Samples for the COCs specified in Tables II, IV, and V must be collected and analyzed every five years, at a minimum. Tables II, IV, and V (Attachments B, D, and E) presents the list of analytes and media to be sampled (liquid or soilpore gas and soil, as applicable).

Upon detection of water in a previously dry lysimeter, the Discharger must immediately sample the liquid and must continue to sample the lysimeter as described in Tables II, IV, and V. The quantity of water pumped from each sump must be measured continuously and reported as subdrain flow (total gallons/month).

Quarterly, the neutron probes (for the Impoundments) must be analyzed for soil moisture. The results must be compared against background moisture, as was measured prior to operation/waste discharges to the Impoundments. All equipment used to measure/derive soil moisture must be calibrated as required by manufacturer's recommendations.

Unsaturated zone monitoring reports must be included with the corresponding semiannual groundwater monitoring and must include an evaluation of potential impacts on the unsaturated zone and compliance with the WQPS.

1. Landfill and Surface Impoundments

The existing Landfill unsaturated zone monitoring program consists of 11 soil gas monitoring probes, and 2 lysimeters. Unsaturated zone monitoring for the Phase 1 Borrow Area will include a pan lysimeter beneath the LCRS sump. The existing Impoundments unsaturated zone monitoring program consists of 8 moisture probes (neutron probes, BV-1 through BV-8 or approved replacements). The locations of these monitoring points are shown on Attachment F of this MRP.

2. Landfill Gas

Landfill gas samples must also be collected from all gas probes (Attachment F) on a semi-annual basis as a part of the unsaturated zone landfill gas detection monitoring program and monitored for methane and organic vapors using field instruments (Tables II and IV, Attachment B and D). Probes to be monitored include BRSG-1, BRSG-2, BRSG-3, BARSTOW-07, BARSTOW-08, BARSTOW-09, BARSTOW-10, BARSTOW-11, BARSTOW-12, BARSTOW-13, and BARSTOW-14 (or approved replacements).

If the photoionization detector indicates the presence of organic vapors at 5 part per million (ppm) or greater, or methane at 5.0 percent or greater in a gas monitoring probe, then a gas sample must be obtained and analyzed for VOCs using USEPA Method TO-15.

3. Landfarm

The unsaturated zone monitoring program at the Land Treatment Unit (Landfarm) consists of soil sampling, at 5-foot depths, from four soil borings from the Landfarm area annually. Background soil analyses will be compared to these results.

Annually, the Discharger must verify that the COCs and soil treatment nutrients are not migrating past the 5-foot vertical treatment zone underlying the Landfarm. Soil samples must be collected immediately below the 5-foot zone and analyzed for the monitoring parameters listed below. If results of sample analyses indicate that monitoring parameter concentrations are greater than the limits indicated below, then the Discharger must repeat sample collection at 1-foot intervals until laboratory analytical results show that concentrations are no greater than background. If monitoring parameter concentrations are found below the 5-foot treatment zone, the Discharger must report evidence of a release. The samples must be collected and composited according to methods specified in the USEPA's current version of the manual "Test Methods for Evaluating Solid Waste" (SW-846).

Landfarm Soil Monitoring Parameters	Units ¹	Limit ²
Volatile organic compounds (USEPA Method 8260)	µg/Kg	2 x MDL
Semi-volatile organic compounds (USEPA Method 8270)	µg/Kg	2 x MDL
Title 22 metals - arsenic, antimony, barium, beryllium, cadmium, total chromium, cobalt, copper, lead, mercury, molybdenum, nickel, selenium, silver, thallium, vanadium, and zinc.	mg/Kg	Upper 95 Tolerance Limit/ 2x MDL
Other nutrients added to septage soil	mg/Kg	MDL

¹ µg/Kg = micrograms per kilogram; mg/Kg = milligrams per kilogram.

² For metals not detected in background samples, the limit is two times the method detection limit (MDL); otherwise the limit for metals is the upper 95 percent tolerance limit of metals detected in background soil.

C. Leachate/Seep Monitoring

1. Landfill Leachate Collection and Removal System

The Discharger must conduct the following inspections and testing of the leachate collection and removal system (LCRS) for the Landfill and report results in the semiannual monitoring reports:

- a. All landfill LCRS sumps must be inspected monthly for leachate generation. Upon detection of leachate in a previously dry sump, leachate must be sampled immediately and analyzed for the constituents listed in Tables III and IV (Attachments C and D). Leachate must then be sampled and analyzed for monitoring parameters annually in accordance with Tables III and IV thereafter, with a retest during the following quarter if constituents are detected that have not been previously detected. Leachate field parameters must be sampled and analyzed in accordance with Table III. The COCs list must include all constituents listed in Table V (Attachment E). The quantity of leachate pumped from each sump must be measured and reported monthly as a leachate flow rate (in gallons/month). Initial annual sampling may occur in October until the highest flow rates are observed, after which annual sampling must take place during periods of maximum leachate flow rates.
- b. All LCRS sumps must be tested annually to demonstrate operation in conformance with these waste discharge requirements. The results of these tests must be reported to the

Water Board and must include comparison with earlier tests made under comparable conditions.

- c. Leachate which seeps to the surface from any Unit must be sampled and analyzed for the monitoring parameters and COCs listed in Tables III, IV and V (Attachment C, D and E) upon detection. The quantity of leachate from seeps must be estimated and reported as a leachate flow rate (in gallons/day).

2. Surface Impoundment LCRS

The Discharger must conduct the following inspections and testing of the LCRS for the Surface Impoundments and report results in the semiannual monitoring reports:

- a. Weekly, visual inspection for liquid in the leakage detection sumps. The results of those inspections must be recorded in a paper or electronic log. The quantity of leachate pumped from each sump must be measured and reported monthly as a leachate flow rate (in gallons/day).
- b. Any volume of liquid accumulated since last pumped out of the leakage detection sumps must be recorded along with date, time, and discharge location in a paper or electronic log kept on-site. Report this volume in total gallons and as calculated gallons per day per acre. The Discharger must follow the Action Response Plan described below when liquid is detected in the LCRS sumps.
- c. Annually, each LCRS must be tested to demonstrate proper operation. The results of the testing must be submitted in the annual monitoring reports. The Annual Report must include a description of the method used to test each LCRS.

3. Action Leakage Rates

The factors set by the Water Board and used to calculate the Action Leakage Rates (ALRs) for the Surface Impoundments are shown in the table below.

LCRS ACTION LEAKAGE RATES			
Sump Monitoring Point	Surface Area (Acres)	Unit Leakage Rate (Gallons per day/acre)	Action Leakage Rate (Gallons per day)
BN-East	1.2	500	600 ¹
BN-West	1.29	500	645 ¹
BN-South ²	1.35	500	675 ³ /109 ¹

¹ Weekly monitoring/pumping.
² Action leakage rate based on sump capacity.
³ Daily monitoring/pumping.

4. Action Response Plan

If liquids are detected in the LCRS Surface Impoundment sumps, the Discharger must respond as specified below:

Reporting Flow Rate	Action/Response
Less than the ALR	Record weekly flow rate in gallons per day and submit recorded flow rates with the next semiannual report.
Greater than the ALR	<ol style="list-style-type: none"> 1. Notify the Water Board per MRP Section VI.C.4. 2. Assess the source of the leak. 3. Take immediate actions to lower leakage to below ALR. 4. The Discharger must immediately collect a grab sample of the leachate and must analyze for the parameters identified in MRP Section IV.C. above and any other constituents as necessary to determine the source. 5. Leachate collected in sumps must be returned to a Surface Impoundment that is not exceeding the ALR.

D. Facility Monitoring

1. Annually, prior to the anticipated rainy season, but no later than **September 30**, the Discharger must conduct an inspection of the Facility. The inspection must assess damage to the drainage control system and groundwater monitoring equipment (including wells, etc.). Any necessary construction, maintenance, or repairs must be completed by **October 31**, annually. By **November 15**, the Discharger must submit an Annual Report describing the results of the inspection and the repair measures implemented, including photographs of the problem and repairs.

2. Storm Events

The Discharger must inspect all precipitation, diversion, and drainage facilities for damage **within 7 days** following major storm events. Necessary repairs must be completed **within 30 days** of the inspection. The Discharger must report any damage and subsequent repairs within 45 days of completion of the repairs, including photographs of the problem and repairs.

3. Surface Impoundments

- a. Monthly, measure the freeboard from the top of the lowest part of the Impoundment dike to the wastewater surface in feet. If the Impoundment is dry, indicate that it is dry or empty.

- b. Weekly, the integrity of the Impoundment dikes and liners must be inspected. Should the inspection indicate that any unauthorized discharge has occurred, or may occur, the Water Board must be notified within 48 hours, followed by confirmation in writing.
- c. Data must be collected and analyzed for the constituents listed above in accordance with the approved load checking program for waste discharged to the Impoundments which includes:
 - i. Septage load checking sampling analyses,
 - ii. Semi-annual grab sample analyses of wastewater, and
 - iii. Two-year grab sample analyses of dried sludge.

E. Landfarm

- 1. Representative septage solid samples must be collected and analyzed for the constituents listed above (MRP, Section IV.B.3.) for every batch of treated septage sludge prior to removal from the Landfarm for disposal into the Landfill. The status and/or results of sample analyses must be reported semi-annually. Septage solids discharged to the Landfill must not contain VOCs or SVOCs greater than 100 times the method detection limit for each COC in liquid. Metals must not be discharged to the Landfill at levels exhibiting toxicity pursuant to CCR, title 22.
- 2. Data must be collected and recorded in accordance with the approved SAP.

F. Incoming Waste Monitoring Program

The Discharger must monitor all waste discharged to the Class III Landfill, Class II Surface Impoundments, and Landfarm on a monthly basis and report to the Water Board as follows:

Report Parameters	Units	Reporting Frequency
Nonhazardous Solid Waste	Cubic Yards & Tons	Annually
Designated Liquid Waste	Gallons	Semiannually
Designated Liquid Waste	Millions of gallons (cumulative)	Semiannually
Septage Sludge	Cubic Yards	Semiannually
Location of Discharge	Map	Semiannually
Capacity of Landfill Units Remaining	Percent	Annually

G. Treated Auto Shredder Waste

The following information regarding Treated Auto Shredder Waste (TASW) shall be reported in each monitoring report submittal.

1. Quarterly, the Discharger must provide results of laboratory analyses of TASW for the constituents listed below in accordance with an approved sampling and analysis plan. Samples analyzed according to the Waste Extraction Text (WET) procedure described in CCR, title 22, section 66261.126, Appendix II (Metals) and Appendix II, Table 4 (PCBs), for the following constituents:

Constituent	Limits	Unit
Cadmium and/or cadmium compounds	1.0	mg/L
Chromium (total) compounds	560	mg/L
Chromium (VI) compounds	5.0	mg/L
Copper and/or copper compounds	25	mg/L
Lead and/or lead compounds	50	mg/L
Mercury and/or mercury compounds	0.2	mg/L
Nickel and/or nickel compounds	20	mg/L
Zinc and/or zinc compounds	250	mg/L
Polychlorinated biphenyls (PCBs)	5.0	mg/L

2. The Discharger must tabulate and report the quantity of TASW deposited each calendar month and the number of loads deposited from the TASW generators. Copies of all analytical results of TASW deposited shall be included with each report.
3. The Discharger must notify the Water Board within 24 hours, and confirm in writing within five calendar days, of each load of TASW refused for disposal and the reason for refusal.
4. The Discharger must certify that each discrete load of TASW accepted for use as ADC at the landfill is non-hazardous.

V. DATA ANALYSES

The Discharger shall conduct all data analyses as follows, always taking the first sample within the first 10 days of the Reporting Period:

A. Test Methods

1. Statistical Test for a Readily-Detected MonPt/MonPar Pair

For any MonPt/MonPar pair that is readily detectable in background, the Discharger shall use a Parametric Upper Prediction Limit method or Shewhart CUSUM Control Chart method pursuant to the USEPA Unified Guidance (2009), or the Gamma 95% Upper Prediction Limit

method (Gibbons/Bhaumik and Bhaumik/Gibbons, 2006), as approved by the Water Board Executive Officer for use with that MonPt/MonPar pair. All statistical tests shall use a pass-1-of-3 retesting approach, which is described in the USEPA Unified Guidance (2009), Chapter 19. Where feasible, the Discharger shall validate that the proposed method provides at least a 50% statistical power for any release strength three or more standard deviations above the background mean.

2. Nonstatistical Test for a MonPt/UnPar Pair

When the five-yearly UnPar testing comes due, the Discharger shall use the Upper 85th Percentile of Background Nonstatistical Data Analysis Method under a pass-1-of-2 retesting approach for each such a pair, which is described in Attachment G.

3. Nonstatistical Test for a Release-Testing MonPt/MonPar Pair

For any given compliance testing Monitoring Point, the Discharger shall use the California Nonstatistical Data Analysis Method (CNSDAM), jointly, for all MonPars there that have not shown a verified release indication and have mostly non-detect (ND) values in their background data set, under a pass-1-of-2 retesting approach. This method is contained in Attachment G to this MRP and is hereby incorporated by reference.

4. Nonstatistical Test for a Release-Effectuated MonPt/MonPar Pair

For any given MonPt/MonPar pair that has shown a verified release indication, the Discharger shall use the Concentration-Versus-Time Plotting Nonstatistical Method under a pass-1-of-2 retesting approach. For this nonstatistical method, the background mean value functions as the Concentration Limit for the release-affected pair, serves as the target cleanup concentration, and shall be shown on the plot as a horizontal line.

B. Retesting

1. Retesting nullifies or verifies the preliminary indication as follows:

a. Retesting Under Nonstatistical Release Detection Tests

For a nonstatistical test for a MonPt/UnPar pair or release-testing MonPt/MonPar pair, the single mid-Period retest (pass-1-of-2 approach) decides the issue. If the retest sample exceeds the pair's Concentration Limit, this verifies the preliminary indication; whereas not exceeding the Concentration Limit nullifies the preliminary indication. A

verified exceedance for a MonPt/UnPar pair causes that UnPar COC to begin functioning, instead, as a MonPar COC at all compliance-testing Monitoring Points as of the following Reporting Period; whereas a verified exceedance for a release-testing MonPt/MonPar pair constitutes a measurably significant release indication for that pair resulting in its beginning to use the Concentration-Versus-Time-Plot data analysis method beginning with the next Reporting Period;

- b. **Retesting Under Statistical Release Detection Test**
For a release-testing MonPt/MonPar pair using a statistical test, the mid-Period retest sample is the first of up to two retests, the second (if needed) being undertaken just prior to the end of the Period. The first of these two possible retests that does not exceed the MonPt/MonPar's Concentration Limit nullifies the preliminary indication. The preliminary indication is verified only if both retests agree with the preliminary indication or the Discharger decides not to retest. If a second retest sample is taken (near the end of the Reporting Period), that retest sample replaces the sample that would normally be taken at the beginning of the next Reporting Period for that pair. A verified exceedance constitutes a measurably significant release indication for that pair, resulting in its beginning to use the Concentration-Versus-Time-Plot data analysis method beginning with the next Reporting Period; and
 - c. For a MonPt/MonPar pair that has shown a verified release indication (using the Concentration-Versus-Time-Plotting nonstatistical data analysis method), and if the datum taken at the start of the Reporting Period plots at-or-below the pair's Concentration Limit line (on the plot), the Discharger shall take and plot a single mid-Period retest sample. If the retest sample plots at-or-below the pair's Concentration Limit, then that pair shall be considered ready for undergoing its three year Proof Period of quarterly sampling, culminating in an end-of-Proof-Period test that provides formal validation that the pair is no longer in violation of its Concentration Limit.
2. For any release-test that identifies a verified release indication for a given MonPt/MonPar pair, the Discharger shall immediately implement the requirements of VI.C.1 of this MRP and shall begin testing that pair under the Concentration-Versus-Time Plotting Nonstatistical Method as of the next Reporting Period.

VI. REPORTING REQUIREMENTS

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

A. General Provisions

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

B. Scheduled Reports to be Filed with the Water Board

1. Semi-annual, annual, two-year, and five-year monitoring reports must be submitted to the Water Board no later than 30 days following the monitoring period and include the following.

- a. Results of sampling analyses, including concentration limits used at each groundwater monitoring point tested;
- b. Results of laboratory analyses of soil gas must include time-series plots for all soil gas COCs at all monitoring points;
- c. Data collected in accordance with the approved load-checking program for the Impoundments;
- d. Data collected in accordance with the approved Sampling and Analysis Plan for the Landfarm;
- e. Semi-annually, information on the effectiveness of the load-checking program for the Landfill and Impoundments;
- f. A letter transmitting the essential points in each report must accompany each report. The letter must include a discussion of any requirement violations found since the last report was submitted and must describe actions taken or planned for correcting those violations;
- g. If the Discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to the correspondence transmitting this schedule will be satisfactory. If no violations have occurred since the last submittal, this must be stated in the letter of transmittal; and,
- h. A map or aerial photograph showing the locations of the monitoring points.

2. Annual Monitoring Summary Report

Annual Reports must be submitted to the Water Board no later than **October 31** of each year. The reports must include the following:

- a. Time series data plots of the past five years of groundwater, soil gas, and soil moisture analyses at a minimum;
- b. A map showing the groundwater elevation and monitoring points;
- c. An assessment of the adequacy of financial assurance, as required by this Order;
- d. The Discharger must review the Preliminary Closure and Post-Closure Maintenance Plan (PCPCMP) annually to determine if significant changes in the operation of the Landfill warrant an update of the PCPCMP. Changes to the PCPCMP must be submitted annually; and
- e. The Discharger shall include the following three tabulations in each annual summary monitoring report:
 - i. Background Data Sets Table -- the then-current background data set applicable to each COC at each compliance-testing Monitoring Point (i.e., for each MonPt/COC pair), segregated by monitored medium, where applicable;
 - ii. Data Analysis Methods Table -- a description of each approved statistical or nonstatistical data analysis method, together with a listing of the MonPt/COC pairs to which it applies (segregated by monitored medium, where applicable), current as of the date of that annual summary monitoring report; and
 - iii. Retesting Results -- A synopsis of each retest carried out during that Monitoring Year, segregated by Reporting Period and indicating, for each MonPt/COC pair subjected to retesting, its name and Concentration Limit type (e.g., "MW-1/TDS: interwell background using background well BW-1"), its Concentration Limit (its calculated retest-triggering concentration, if exceeded), the retest type (e.g. pass-1-of-3), the initial datum (that triggered retesting) and each retest datum, and a brief synopsis of the result of the retesting.

3. Five-Year UnPar Monitoring Program

Pursuant to CCR, title 27, section 20420(g), every five years the Discharger must sample for all COCs that are not MonPars (i.e., for what this Order refers to as UnPars) with successive direct monitoring efforts being carried out alternatively during October through March of

one five-year sampling event and April through September of the next five-year sampling event, and every fifth year, thereafter. The next five-year COC sampling event must take place during April through September of 2015 (winter/spring monitoring period) and reported no later than 30 days following the monitoring period. The test method shall be as described in section V.A.2 of this MRP.

C. Unscheduled Reports to be Filed With the Water Board

1. Evaluation Monitoring Program

The Discharger must, within 90 days of verifying a release, submit a technical report, pursuant to section 13267(b) of the California Water Code, proposing an Evaluation Monitoring Program (EMP). 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.

2. Engineering Feasibility Study

The Discharger must, within 180 days of verifying a release, submit a technical report discussing conclusions and recommendations from the DMP and the EMP. The report must include an Engineering Feasibility Study along with a proposed corrective action program (CAP) or recommend a return to DMP in accordance with CCR, title 27, section 20425.

3. Revised Septage Management Plan

The Discharger must submit a revised Septage Management Plan should septage handling conditions change to the extent that revisions to the load-checking program or septage sampling are required.

4. Exceeding Action Leakage Rate

Exceeding an Action Leakage Rate as specified in this MRP, Section IV. C.3., is an Adverse Condition. The Discharger must notify the Water Board verbally within 24-hours whenever a determination is made that leakage into the LCRS exceeds the Action Leakage Rate. This verbal notification must be followed by written notification via certified mail within 7-days of such determination. This written notification must be followed by a technical report via certified mail within 30 days of such determination. The technical report must describe the actions taken to abate the adverse condition and must describe any proposed future actions to abate the adverse condition.

Ordered by: _____ Dated: _____

PATTY Z. KOUYOUMDJIAN
EXECUTIVE OFFICER

- Attachments:
- A. Table I - Groundwater Detection Monitoring Program
 - B. Table II - Unsaturated Zone Detection Monitoring Program
 - C. Table III - Leachate Detection Monitoring Program
 - D. Table IV - Monitoring Parameters
 - E. Table V - Constituents of Concerned & Approved USEPA Analytical Methods
 - F. Monitoring Points Location Map
 - G. Mandatory Nonstatistical Test Methods and Selected Definitions
 - H. General Provisions for Monitoring and Reporting

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PROPOSED 6/17/2012

TABLE I
GROUNDWATER DETECTION MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
Field Parameters¹		
Depth to Groundwater	Feet below ground surface	Semiannual
Groundwater Elevation	Feet & hundredths, above Mean Sea Level	Semiannual
Temperature	Degrees Centigrade	Semiannual
Electrical Conductivity	µmhos/cm	Semiannual
pH	pH units	Semiannual
Turbidity	Turbidity units	Semiannual
Monitoring Parameters²		
Chemical Oxygen Demand	mg/L	Semiannual
Total Dissolved Solids (TDS)	mg/L	Semiannual
Chloride	mg/L	Semiannual
Bicarbonate	mg/L	Semiannual
Sulfate	mg/L	Semiannual
Volatile Organic Compounds (USEPA Method 8260, see Table IV)	µg/L	Semiannual
Supplemental Parameters³		
Carbonate	mg/L	Semiannual
Nitrate – (as Nitrogen)	mg/L	Semiannual
Constituents of Concern (see Table V)		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years
Organochlorine Pesticides (USEPA Method 8081A)	µg/L	5 years
Polychlorinated Biphenyls (USEPA Method 8082)	µg/L	5 years

¹ Field parameters are collected for informational purposes to document groundwater conditions at the time of sampling and are not included in statistical analyses.

² Discharger must apply the statistical and nonstatistical analyses described in Section V of this MRP to the inorganic monitoring parameters included on this list.

³ Supplemental parameters provide important information regarding groundwater geochemistry, but these parameters are not included in routine statistical analyses.

TABLE II
UNSATURATED ZONE DETECTION MONITORING PROGRAM

SOIL-PORE GAS

<u>Field Parameters</u>	<u>Units</u>	<u>Frequency</u>
Organic Vapors	parts per million (ppm)	Semiannual
Methane	Percent	Semiannual
<u>Monitoring Parameters</u>		
Volatile Organic Compounds (USEPA Method TO-15)	µg/cm ³	Conditional to field sampling results

PAN LYSIMETERS (or other unsaturated zone monitoring device)

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
Field Parameters		
Electrical Conductivity	µmhos/cm	Quarterly
pH	pH units	Quarterly
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/L	Annually
Chloride	mg/L	Annually
Carbonate	mg/L	Annually
Bicarbonate	mg/L	Annually
Nitrate - (as Nitrogen)	mg/L	Annually
Sulfate	mg/L	Annually
Volatile Organic Compounds (USEPA Method 8260B, see Table IV)	µg/L	Annually
Constituents of Concern (see Table V)		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years
Organochlorine pesticides (USEPA Method 8081A)	µg/L	5 years
Polychlorinated Biphenyls (USEPA Method 8082)	µg/L	5 years

TABLE III
LEACHATE DETECTION MONITORING PROGRAM

<u>Parameter</u>	<u>Units</u>	<u>Frequency</u>
Field Parameters		
Total Flow	Gallons	Quarterly
Flow Rate	Gallons/Month	Quarterly
Electrical Conductivity	µmhos/cm	Quarterly
pH	pH units	Quarterly
Monitoring Parameters		
Total Dissolved Solids (TDS)	mg/L	Annually
Chloride	mg/L	Annually
Carbonate	mg/L	Annually
Bicarbonate	mg/L	Annually
Nitrate - (as Nitrogen)	mg/L	Annually
Sulfate	mg/L	Annually
Volatile Organic Compounds (USEPA Method 8260B, see Table IV)	µg/L	Annually
Constituents of Concern (see Table V)		
Total Organic Carbon	mg/L	5 years
Inorganics (dissolved)	mg/L	5 years
Volatile Organic Compounds (USEPA Method 8260B, extended list)	µg/L	5 years
Semi-Volatile Organic Compounds (USEPA Method 8270C)	µg/L	5 years
Chlorophenoxy Herbicides (USEPA Method 8151A)	µg/L	5 years
Organophosphorus Compounds (USEPA Method 8141A)	µg/L	5 years
Organochlorine pesticides (USEPA Method 8081A)	µg/L	5 years
Polychlorinated Biphenyls (USEPA Method 8082)	µg/L	5 years

TABLE IV
VOLATILE ORGANIC COMPOUNDS MONITORING PARAMETERS
USEPA Method 8260B

Acetone	Styrene
Acrylonitrile	1,1,1,2-Tetrachloroethane
Benzene	1,1,2,2-Tetrachloroethane
Bromochloromethane	Tetrachloroethylene (Tetrachloroethene; Perchloroethylene)
Bromodichloromethane	Toluene
Bromoform (Tribromomethane)	1,1,1-Trichloroethane (Methylchloroform)
Carbon disulfide	1,1,2-Trichloroethane
Carbon tetrachloride	Trichloroethylene (Trichloroethene)
Chlorobenzene	Trichlorofluoromethane (CFC-11)
Chloroethane (Ethyl chloride)	1,2,3-Trichloropropane
Chloroform (Trichloromethane)	Vinyl acetate
Dibromochloromethane (Chlorodibromomethane)	Vinyl chloride
1,2-Dibromo-3-chloropropane (DBCP)	Xylenes
1,2-Dibromoethane (Ethylene dibromide; EDB)	
o-Dichlorobenzene (1,2-Dichlorobenzene)	
p-Dichlorobenzene (1,4-Dichlorobenzene)	
trans-1,4-Dichloro-2-butene	
1,1-Dichloroethane (Ethylidene chloride)	
1,2-Dichloroethane (Ethylene dichloride)	
1,1-Dichloroethylene (1,1 -Dichloroethene; Vinylidene chloride)	
cis-1,2-Dichloroethylene (cis-1,2- Dichloroethene)	
trans-1,2-Dichloroethylene (trans-1,2- Dichloroethene)	
1,2-Dichloropropane (Propylene dichloride)	
cis-1,3-Dichloropropene	
trans-1,3-Dichloropropene	
Ethylbenzene	
2-Hexanone (Methyl butyl ketone)	
Methyl bromide (Bromomethane)	
Methyl chloride (Chloromethane)	
Methylene bromide (Dibromomethane)	
Methylene chloride (Dichloromethane)	
Methyl ethyl ketone (MEK: 2-Butanone)	
Methyl iodide (Iodomethane)	
Methyl t-butyl ether	
4-Methyl-2-pentanone (Methyl isobutylketone)	

TABLE V

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Dissolved Inorganics (USEPA Method¹)

Aluminum (6010)
Antimony (7041)
Barium (6010)
Beryllium (6010)
Cadmium (7131A)
Chromium (6010)
Cobalt (6010)
Copper (6010)
Silver (6010)
Tin (6010)
Vanadium (6010)
Zinc (6010)
Iron (6010)
Manganese (6010)
Arsenic (7062)
Lead (7421)
Mercury (7470A)
Nickel (7521)
Selenium (7742)
Thallium (7841)
Cyanide (9010B)
Sulfide (9030B)

¹ The Discharger may use alternative methods, including new USEPA-approved methods, provided the method detection limits are equal to or lower than the analytical methods specified.

TABLE V (Continued)

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Volatile Organic Compounds (USEPA Method 8260)

Acetone	cis-1,3-Dichloropropene
Acetonitrile (Methyl cyanide)	trans-1,3-Dichloropropene
Acrolein	Di-isopropylether (DIPE)
Acrylonitrile	Ethanol
Allyl chloride (3-Chloropropene)	Ethyltertiary butyl ether
Benzene	Ethylbenzene
Bromochloromethane	Ethyl methacrylate
(Chlorobromomethane)	Hexachlorobutadiene
Bromodichloromethane	Hexachloroethane
(Dibromochloromethane)	2-Hexanone (Methyl butyl ketone)
Bromoform (Tribromomethane)	Isobutyl alcohol
Carbon disulfide	Methacrylonitrile
Carbon tetrachloride	Methyl bromide (Bromomethane)
Chlorobenzene	Methyl chloride (Chloromethane)
Chloroethane (Ethyl chloride)	Methyl ethyl ketone (MEK; 2-Butanone)
Chloroform (Trichloromethane)	Methyl iodide (Iodomethane)
Chloroprene	Methyl t-butyl ether
Dibromochloromethane	Methyl methacrylate
(Chlorodibromomethane)	4-Methyl-2-pentanone (Methyl isobutyl ketone)
1,2-Dibromo-3-chloropropane (DBCP)	Methylene bromide (Dibromomethane)
1,2-Dibromoethane (Ethylene dibromide; EDB)	Methylene chloride (Dichloromethane)
o-Dichlorobenzene (1,2-Dichlorobenzene)	Naphthalene
m-Dichlorobenzene (1,3-Dichlorobenzene)	Propionitrile (Ethyl cyanide)
p-Dichlorobenzene (1,4-Dichlorobenzene)	Styrene
trans-1,4-Dichloro-2-butene	Tertiary amyl methyl ether
Dichlorodifluoromethane (CFC 12)	Tertiary butyl alcohol
1,1-Dichloroethane (Ethylidene chloride)	1,1,1,2-Tetrachloroethane
1,2-Dichloroethane (Ethylene dichloride)	1,1,2,2-Tetrachloroethane
1,1-Dichloroethylene (1,1-Dichloroethene; Vinylidene chloride)	Tetrachloroethylene (Tetrachloroethene; Perchloroethylene; PCE)
cis-1,2-Dichloroethylene (cis-1,2-Dichloroethene)	Toluene
trans-1,2-Dichloroethylene (trans-1,2-Dichloroethene)	1,2,4-Trichlorobenzene
1,2-Dichloropropane (Propylene dichloride)	1,1,1-Trichloroethane, Methylchloroform
1,3-Dichloropropane (Trimethylene dichloride)	1,1,2-Trichloroethane
2,2-Dichloropropane (Isopropylidene chloride)	Trichloroethylene (Trichloroethene; TCE)
1,1-Dichloropropene	Trichlorofluoromethane (CFC- 11)
	1,2,3-Trichloropropane
	Vinyl acetate
	Vinyl chloride (Chloroethene)
	Xylene (total)

TABLE V (Continued)
CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Semi-Volatile Organic Compounds (USEPA Method 8270 - Base, Neutral, & Acid Extractables)

Acenaphthene	4,4'-DDT
Acenaphthylene	Diallate
Acetophenone	Dibenz[a,h]anthracene
2-Acetylaminofluorene (2-AAF)	Dibenzofuran
Aldrin	Di-n-butyl phthalate
4-Aminobiphenyl	3,3'-Dichlorobenzidine
Anthracene	2,4-Dichlorophenol
Benzo[a]anthracene (Benzanthracene)	2,6-Dichlorophenol
Benzo[b]fluoranthene	Dieldrin
Benzo[k]fluoranthene	Diethyl phthalate
Benzo[g,h,i]perylene	p-(Dimethylamino)azobenzene
Benzo[a]pyrene	7,12-Dimethylbenz[a]anthracene
Benzyl alcohol	3,3'-Dimethylbenzidine
Bis(2-ethylhexyl) phthalate	2,4-Dimehtylphenol (m-Xylenol)
alpha-BHC	Dimethyl phthalate
beta-BHC	m-Dinitrobenzene
delta-BHC	4,6-Dinitro-o-cresol (4,6-Dinitro-2-methylphenol)
gamma-BHC (Lindane)	2,4-Dinitrophenol
Bis(2-chloroethoxy)methane	2,4-Dinitrotoluene
Bis(2-chloroethyl) ether (Dichloroethyl ether)	2,6-Dinitrotoluene
Bis(2-chloro-1-methylethyl) ether (Bis[2-chloroisopropyl] ether; DCIP)	Di-n-octyl phthalate
4-Bromophenyl phenyl ether	Diphenylamine
Butyl benzyl phthalate (Benzyl butyl phthalate)	Endosulfan I
Chlordane	Endosulfan II
p-Chloroaniline	Endosulfan sulfate
Chlorobenzilate	Endrin
p-Chloro-m-cresol (4-Chloro-3-methylphenol)	Endrin aldehyde
2-Chloronaphthalene	Ethyl methanesulfonate
2-Chlorophenol	Famphur
4-Chlorophenyl phenyl ether	Fluoranthene
Chrysene	Fluorene
o-Cresol (2-methylphenol)	Heptachlor
m-Cresol (3-methylphenol)	Heptachlor epoxide
p-Cresol (4-methylphenol)	Hexachlorobenzene
4,4'-DDD	Hexachlorocyclopentadiene
4,4'-DDE	Hexachloropropene
	Indeno(1,2,3-c,d)pyrene
	Isodrin
	Isophorone

TABLE V (Continued)

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Semi-Volatile Organic Compounds (USEPA Method 8270 - Base, Neutral, & Acid Extractables)

Isosafrole	Pronamide
Kepone	Pyrene
Methapyrilene	Safrole
Methoxychlor	1,2,4,5-Tetrachlorobenzene
3-Methylcholanthrene	2,3,4,6-Tetrachlorophenol
Methyl methanesulfonate	o-Toluidine
2-Methylnaphthalene	Toxaphene
1,4-Naphthoquinone	2,4,5-Trichlorophenol
1-Naphthylamine	0,0,0-Triethyl phosphorothioate
2-Naphthylamine	sym-Trinitrobenzene
o-Nitroaniline (2-Nitroaniline)	
m-Nitroaniline (3-Nitroaniline)	
p-Nitroaniline (4-Nitroaniline)	
Nitrobenzene	
o-Nitrophenol (2-Nitrophenol)	
p-Nitrophenol (4-Nitrophenol)	
N-Nitrosodi-n-butylamine (Di-n-butylnitrosamine)	
N-Nitrosodiethylamine (Diethylnitrosamine)	
N-Nitrosodimethylamine (Dimethylnitrosamine)	
N-Nitrosodiphenylamine (Diphenylnitrosamine)	
N-Nitrosodipropylamine (N-Nitroso-N-dipropylamine; Di-n-propylnitrosamine)	
N-Nitrosomethylethylamine (Methylethylnitrosamine)	
N-Nitrosopiperidine	
N-Nitrosopyrrolidine	
5-Nitro-o-toluidine	
Pentachlorobenzene	
Pentachloronitrobenzene (PCNB)	
Pentachlorophenol	
Phenacetin	
Phenanthrene	
Phenol	
p-Phenylenediamine	
Polychlorinated biphenyls (PCBs; Aroclors)	

TABLE V (Continued)

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Chlorophenoxy Herbicides (USEPA Method 8151A)

2,4-D (2,4-Dichlorophenoxyacetic acid)
Dinoseb (DNBP; 2-sec-Butyl-4,6-dinitrophenol)
Silvex (2,4,5-Trichlorophenoxypropionic acid; 2,4,5-TP)
2,4,5-T (2,4,5-Trichlorophenoxyacetic acid)

Organophosphorus Compounds (USEPA Method 8141A)

Atrazine
Chlorpyrifos
0,0-Diethyl 0-2-pyrazinyl phosphorothioate (Thionazin)
Diazinon
Dimethoate
Disulfoton
Ethion
Methyl parathion (Parathion methyl)
Parathion
Phorate
Simazine

Organochlorine Pesticides (USEPA Method 8081A)

Aldrin	Endosulfan sulfate
-BHC	Endrin
-BHC	Endrin aldehyde
-BHC (Lindane)	Endrin ketone
-BHC	Heptachlor
-Chlordane	Heptachlor epoxide
-Chlordane	Hexachlorobenzene
Chlordane - not otherwise specified (n.o.s.)	Hexachlorocyclopentadiene
Chlorobenzilate	Isodrin
1,2-Dibromo-3-chloropropane (DBCP)	Methoxychlor
4,4'-DDD	Toxaphene
4,4'-DDE	
4,4'-DDT	
Diallate	
Dieldrin	
Endosulfan I	
Endosulfan II	

TABLE V (Continued)

CONSTITUENTS OF CONCERN & APPROVED USEPA ANALYTICAL METHODS

Polychlorinated Biphenyls (USEPA Method 8082)

Aroclor 1016
Aroclor 1221
Aroclor 1232
Aroclor 1242
Aroclor 1248
Aroclor 1254
Aroclor 1260
2-Chlorobiphenyl
2,3-Dichlorobiphenyl
2,2',5-Trichlorobiphenyl
2,4',5-Trichlorobiphenyl
2,2',3,5'-Tetrachlorobiphenyl
2,2',5,5'-Tetrachlorobiphenyl
2,3',4,4'-Tetrachlorobiphenyl
2,2',3,4,5'-Pentachlorobiphenyl
2,2',4,5,5'-Pentachlorobiphenyl
2,3,3',4',6-Pentachlorobiphenyl
2,2',3,4,4',5'-Hexachlorobiphenyl
2,2',3,4,5,5'-Hexachlorobiphenyl
2,2',3,5,5',6-Hexachlorobiphenyl
2,2',4,4',5,5'-Hexachlorobiphenyl
2,2',3,3',4,4',5-Heptachlorobiphenyl
2,2',3,4,4',5,5'-Heptachlorobiphenyl
2,2',3,4,4',5,6-Heptachlorobiphenyl
2,2',3,4',5,5',6-Heptachlorobiphenyl
2,2',3,3',4,4',5,5',6-Nonachlorobiphenyl

Monitoring Points Location Map

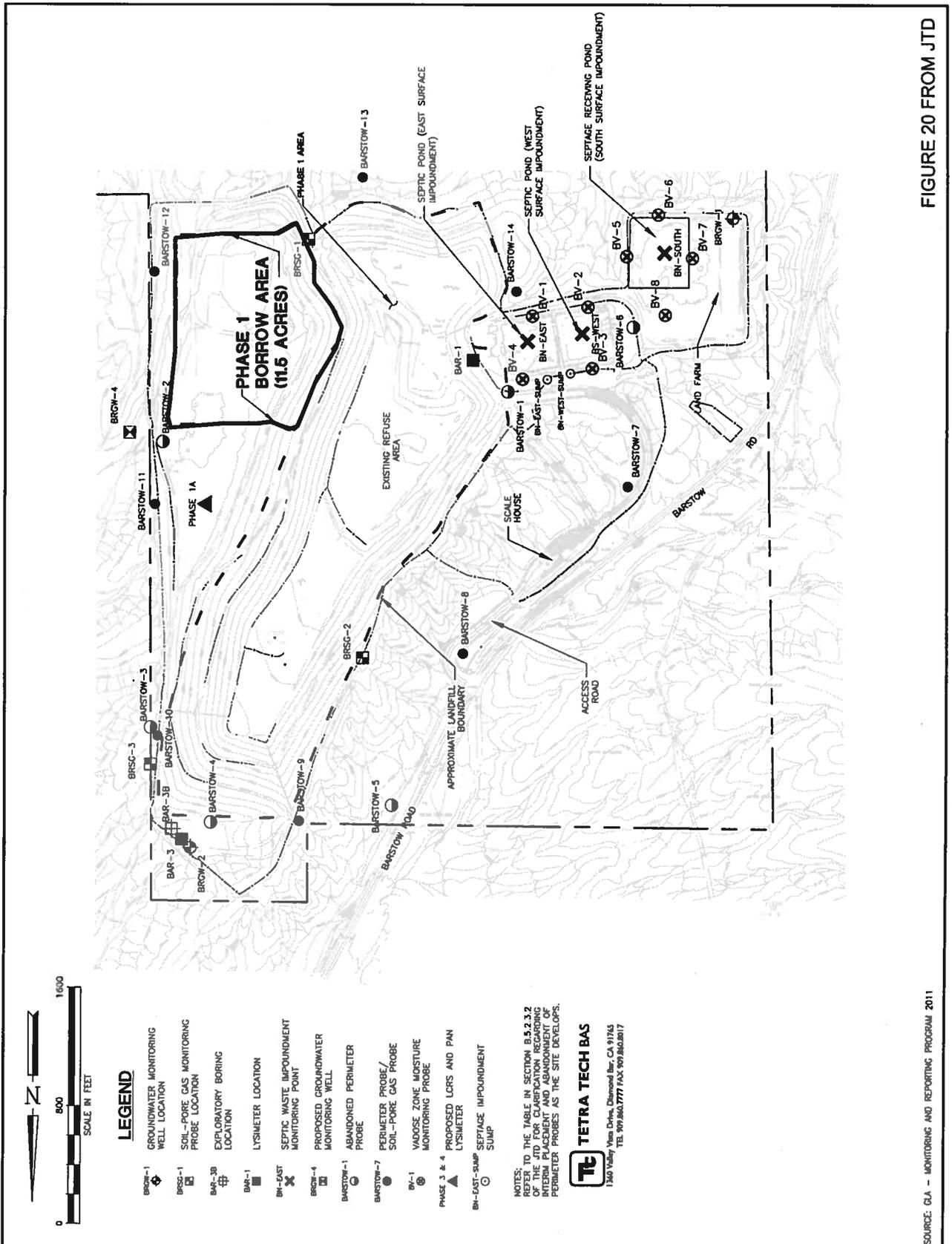


FIGURE 20 FROM JTD

SOURCE: GLA - MONITORING AND REPORTING PROGRAM 2011

MANDATORY NONSTATISTICAL TEST METHODS AND SELECTED DEFINITIONS

I. CALIFORNIA NONSTATISTICAL DATA ANALYSIS METHOD (CNSDAM)

A. Nonstatistical Test Method

For any given compliance-testing monitoring point (MonPt) that is subject to this data analysis method, regardless of the current monitoring program at that waste management unit (Detection Monitoring Program, Evaluation Monitoring Program, or Corrective Action Program), this method applies, jointly, to all Standard Status Monitoring Parameters (MonPars) that are qualifying constituents (as determined below [Initial Qualifying Constituent List]) for that Reporting Period.

1. **Initial Qualifying Constituents List** – For the initial test (on the sample taken from that compliance testing MonPt at the start of that Reporting Period), the qualifying constituents list shall include all Standard Status MonPars (for that MonPt) that exceed their reference method detection limit (MDL, i.e., the highest MDL associated with the background data set for that constituent) in less than 10% of their respective background data set at that MonPt. For each such qualifying constituent, in addition to its reference MDL, note its reference Practical Quantitation Limit (PQL) as the highest PQL value associated with the background data set at that MonPt.
2. **Two Triggers** – From the qualifying constituents list created for this MonPt (for an initial test or, for a retest, the revised list under B.2., Revised List, below): **1)** identify how many (Standard Status) VOCs are on that list; **2)** identify each qualifying constituent in the **current** sample from that MonPt that exceeds its reference method MDL; and **3)** identify each qualifying constituent that exceeds its reference PQL.

The Discharger shall conclude that those qualifying constituents that exceed their reference MDL or reference PQL provide a preliminary indication, at that MonPt, if **either or both** of the following occur:

- a. **Triggering Condition No. 1** – at least 'X' of the qualifying constituents exceed their respective reference MDL, where 'X' is the larger of either two (2) or the integer equal to half the number of qualifying constituents that are (Standard Status) VOC MonPars at that MonPt (round down to obtain 'X', in a case where there is an uneven number of Standard Status VOCs); **or**
- b. **Triggering Condition No. 2** – at least one of the qualifying constituents exceeds its reference PQL.

B. Single Discrete Retest (Pass-1-of-2 Retesting Plan)

1. In the event that the initial test (see A.2. above for Two Triggers) indicates that there is a preliminary indication of a release at that MonPt, then the Discharger shall notify the Water Board within 24 hours by phone or email and shall collect and evaluate a new independent retest sample from the indicating MonPt at mid-Reporting-Period.
2. **Revised List** – For the retest sample, the Discharger shall use, from the retest analysis, only the laboratory analytical results for those constituents that tripped either-or-both triggering conditions in the initial test, (see A.2. above for Two Triggers) and these indicating constituents shall comprise the revised qualifying constituents list for that MonPt for use in the retest. As soon as the retest sample's data are available, the Discharger shall apply the same test (see A.2. above for Two Triggers, but substituting this revised list) to analyze the retest sample's data at that MonPt. For the retest, the value of 'X' (see A.2.a. above for Triggering Condition No.1) is recalculated based upon the number of (Standard Status) VOCs in the revised qualifying constituents list.
3. If the retest sample trips either (or both) of the triggers (see A.2. above for Two Triggers), then the Discharger shall conclude that there is a measurably significant increase at that Monitoring Point for those MonPar(s) that triggered the indication in the validating retest sample, and shall so notify the Water Board immediately. Each of these triggering constituents, at this MonPt, will be monitored in Tracking Status, beginning with the next Reporting Period, and shall no longer be included in the qualifying constituents list for applying the CNSDAM test at that MonPt (see A.1. above Initial Qualifying Constituents List or B.2. Revised List). The Discharger shall highlight all such changes in the summary pages and body of the Monitoring Report for the Reporting Period when the test was done. Regardless of the retest outcome, the test is included in the Retesting Table of that Monitoring Year's Annual Summary Monitoring Report.

II. NONSTATISTICAL UPPER 85th PERCENTILE OF BACKGROUND UNPAR TEST METHOD

A. Concentration Limit

For any given UnPar at an assigned UnPar-testing Monitoring Point, its Concentration Limit shall be the upper 85th percentile value of its background data set. Nevertheless, for an MonPt/UnPar pair whose upper 85th percentile value lies below the highest PQL value associated with the background data set

for that pair, then its Concentration Limit is, instead, that highest-associated-PQL value¹.

B. Test and Pass-1-of-2 Retest

If, during an UnPar test, an UnPar exceeds its respective Concentration Limit (in the initial sample taken at the start of the Reporting Period) at an UnPar-testing MonPt, then the Discharger shall notify the Water Board immediately (by phone or email), and shall take one retest sample (for the indicating MonPt/UnPar pair) at mid-Period (about 90 days later).

If that single retest sample's concentration does not exceed the Concentration Limit for that MonPt/UnPar pair, then the Discharger shall conclude that the original indication was in error, shall notify Water Board, and shall include the test information and conclusion in the Monitoring Report for that Reporting Period. If, instead, the single retest sample's concentration for that UnPar exceeds the Concentration Limit for that MonPt/UnPar pair, then that constituent becomes a MonPar COC at all MonPts in the indicating monitored medium only (groundwater, surface water, or the unsaturated zone), beginning with the next Reporting Period. In that case, the Discharger shall report this change to the Water Board immediately, shall declare that change clearly in the Monitoring Report (including its summary page) for that Reporting Period, and, once the landfill begins compliance tracking and analysis under the GeoTracker Land Disposal Program Module, shall update the Facility Compliance Spreadsheet accordingly. Such newly-created MonPt/MonPar pairs begin being tested as such as of the next Reporting Period, under an approved Standard Status data analysis method.

Regardless of the outcome of the pass-1-of-2 retest, the retested MonPt/UnPar pair shall be included in the Retesting Table in the Annual Summary Monitoring Report for that Monitoring Year.

III. SELECTED DEFINITIONS

Background – as defined in CCR, title 27, 20164: the set of collected concentrations (or measures) of a given constituent or indicator parameter in water or soil that has not been affected by waste constituents released from the waste management unit (Unit) being monitored. This reference data set is used to derive the "Concentration Limit" for that "Monitoring Point/Constituent of Concern (MonPt/COC) pair."

¹ If the then-current PQL value was used as the Concentration Limit, then the tendency for PQL values to become lower, over time, could result in the MonPt/UnPar pair giving a false-positive indication. This would trigger a need for that COC to change (from an UnPar to a MonPar) based on repeated exceedance of a PQL value that is lower than many or most other background data points. The use of the highest PQL value associated with the background data set avoids this problem.

Concentration Limit – for any given “Constituent of Concern (COC),” whether it is a “Monitoring Parameter (MonPar)” or an “Uninvolved Parameter (UnPar)” for that monitored medium, means the calculated-or-adopted reference concentration used in testing that MonPt/COC pair. Except for a “Concentration Limit Greater than Background (CLGB),” which is an adopted cleanup goal, all other such reference concentrations (Concentration Limits) are derived by applying the approved data analysis method to the reference “background data set.”

Constituents of Concern (COCs) – means the waste constituents that could be mobilized in a release from a Unit. For a “municipal solid waste (MSW) landfill” only, the potential COCs include those listed in Appendix II to the Code of Federal Regulations (CFR), Title 40, Part 258, except for those that the Discharger has shown would not be mobilized in the event of a release from that landfill. The scope of constituents included in the term is the same for each water-bearing monitored medium (groundwater, surface water, and the unsaturated zone) at the Unit. However, the constituents involved are divided separately, for each such medium, into that medium’s own MonPars and UnPars in order to minimize the total number of MonPt/MonPar pairs subjected to being tested each Reporting Period. This approach helps to maximize the statistical power each “Standard Status” statistical test can have while maintaining the “facility-wide false-positive rate (FWFPR)” at an annual rate of 10%, as suggested by the USEPA (Unified Guidance, 2009).

Facility-Wide False-Positive Rate (FWFPR) – means the likelihood, in percent, that at least one “Standard Status” “MonPt/MonPar pair” will show a retest verified indication that is incorrect during any given monitoring year.

Measurably Significant Increase – means that, under an approved retesting approach, the concentration (or reading, in the case of pH or EC parameters) for a “Standard Status” “MonPt/COC pair” has repeatedly exceeded the pair’s respective “Concentration Limit.” Note: see also the related terms “Water Quality Protection Standard” and “Concentration Limit.”

Monitoring Parameter (MonPar) – means a “Constituent of Concern (COC)” that is monitored every “Reporting Period” at every compliance testing MonPt in a given monitored medium at a given Unit. Prior to the discovery of a release (from the Unit to that monitored medium), the constituents so monitored are those COCs that are likely to provide the earliest and most reliable indication of a release (e.g., VOCs and a few specified inorganic COCs that are far stronger in leachate than in waters from that medium). Subsequent to the discovery of a release from the Unit to that medium, the number of MonPars (for that medium) will increase to include all COCs that have shown repeated elevated concentrations, relative to their respective Concentration Limit. The transition from UnPar to MonPar is the result of repeated elevated concentrations during any scheduled (at-least-five-yearly) UnPar test at that Unit’s compliance-testing Field Points in that medium, or during the unscheduled UnPar test of that medium after its first verified release indication.

MonPt/COC Pair – means a given COC tested at a given compliance testing Monitoring Point (MonPt). The term is useful when referring to *any* COC that is tested at that MonPt,

regardless of whether the constituent serves as a MonPar or as an UnPar for that monitored medium.

MonPt/MonPar Pair – means a given Monitoring Parameter (MonPar) that is tested at a given compliance testing Monitoring Point (MonPt) each "Reporting Period."

MonPt/UnPar Pair – means a given Uninvolved Parameter at a given compliance testing Monitoring Point. The term is useful when addressing the testing of non-MonPar COCs (UnPars) at least every five years (and after the discovery of a release).

Qualifying Constituents List – is a term used only for the California Nonstatistical Data Analysis Method, when applied to a given compliance testing MonPt. The term means the suite of Standard Status MonPars that are subject to being tested using that data analysis method at that MonPt because less than 10% of its background data set exceed the highest MDL value associated with that background data set. For the pass-1-of-2 retest approach used in this nonstatistical data analysis method, this list is shortened to include only those constituents that triggered the preliminary indication, and this shorter list (used for the retest) is called the revised qualifying constituents list.

Reporting Period – means the consecutive six-month-long period during which the Discharger collects and analyzes monitoring data and includes the results in a Monitoring Report.

Standard Status – when the "MonPt/MonPar pair" is in this (compliance) Status, it has not shown a verified release indication. Retesting is used to verify or countermand a preliminary release indication. The data analysis method is applied to the reference "background data set" of a MonPt/MonPar pair's to identify the "Concentration Limit" which, in this instance, represents the highest concentration that is likely to be drawn from the background population, by chance alone, more than a given specified decimal fraction of the time (called the method's 'alpha' level). A release is indicated by the pair's current and retest samples' repeatedly exceeding this "Concentration Limit."

Tracking Status – when the MonPt/MonPar pair is in this (compliance) Status, testing involves plotting new concentration data on an ongoing concentration-versus-time plot to identify when the constituent's concentration appears no longer to be in violation of its "Concentration Limit." Under this nonstatistical data analysis method, the MonPt/MonPar pair's then-current concentration is compared to the pair's background mean value, or highest PQL value associated with its background data set as specified in this MRP, Section III.D, which functions as the "Concentration Limit" for that MonPt/MonPar pair. The "Concentration Limit" shows up as a horizontal line on the plot and serves as that pair's cleanup goal.

Uninvolved Parameter (UnPar) – means any one of a Unit's COCs that, in a given monitored medium, both are (1) comparatively poor release indicators; and (2) have not shown evidence of a concentration increase in that medium sufficient to cause the constituent to become a MonPar. Each monitored medium for a given Unit may have different constituents serving in this capacity, with the remaining COCs functioning as more-regularly-

tested MonPars for that medium. The testing of each such (UnPar) constituent at each compliance testing MonPt occurs of (1) at least every five years; (2) during the "Reporting Period" after it is first identified as a new COC; and (3) at each compliance testing MonPt in a monitored medium that showed its first release indication during the prior "Reporting Period."

Upper 85th Percentile of Background Nonstatistical Data Analysis – when testing a MonPt/UnPar pair, one uses the clean-water Null Hypothesis that the pair's concentration does not show a concentration that is sufficiently elevated above background that the UnPar should become, instead, a MonPar for that monitored medium. If the pair's concentration exceeds its "Concentration Limit" (e.g., its upper 85th percentile of background concentration) in the initial test and in the single retest sample taken three months later, then one rejects this Null Hypothesis and accepts the Alternative Hypothesis that the UnPar is exhibiting a concentration increase over its background mean that warrants its becoming a MonPar at all MonPts in that monitored medium.

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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:PROVISIONS WDRS

file: general pro mrp

ENCLOSURE 3

DEPARTMENT OF PUBLIC WORKS

FLOOD CONTROL • LAND DEVELOPMENT & CONSTRUCTION • OPERATIONS
SOLID WASTE MANAGEMENT • SURVEYOR • TRANSPORTATION



COUNTY OF SAN BERNARDINO

SOLID WASTE MANAGEMENT DIVISION

222 West Hospitality Lane, Second Floor • San Bernardino, CA 92415-0017 • (909) 386-8701
Administration/Engineering Fax (909) 386-8900

GRANVILLE M. "BOW" BOWMAN, P.E., P.L.S.
Director of Public Works

March 20, 2012

Ms. Christy Hunter, P.G., Engineering Geologist
California Regional Water Quality Control Board
Lahontan Region/Victorville Office
14440 Civic Drive, Suite 200
Victorville, California 92392

**RE: TENTATIVE REVISED WASTE REQUIREMENTS FOR BARSTOW CLASS III
LANDFILL, CLASS II SURFACE IMPOUNDMENTS AND SEPTAGE SLUDGE
LANDFARM, SAN BERNARDINO COUNTY**

Dear Ms. Hunter:

The County of San Bernardino Solid Waste Management Division is submitting the attached written comments in response to the Tentative Revised Waste Requirements for Barstow Class III Landfill, Class II Surface Impoundments and Septage Sludge Landfarm

If you should have any questions regarding this submittal, please feel free to contact me at (909) 386-8775 or Johnny Gayman at (909) 386-8697.

Sincerely,

Arthur L. Rivera, P.E., Chief Engineer
Engineering Section

ALR:JDG:ev

Attachments:
Written Comments

cc: Paul Wilman, BAS
John Hower, Geo-Logic Associates

Board of Supervisors

GREGORY C. DEVEREAUX
Chief Executive Officer

BRAD MITZELFELT First District

JANICE RUTHERFORD Second District

JOSIE GONZALES Fifth District

NEIL DERRY Third District

GARY C. OVITT Fourth District

**Comments TENTATIVE REVISED WASTE REQUIREMENTS FOR BARSTOW
CLASS III LANDFILL, CLASS II SURFACE IMPOUNDMENTS AND SEPTAGE
SLUDGE LANDFARM, SAN BERNARDINO COUNTY**

We concur with proposed requirements

We concur; comments attached

We do not concur; comments attached

Johnny Gayman (Sign)

Johnny Gayman (Type or print name)

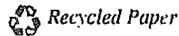
County of San Bernardino, DPW, Solid Waste Management Division (Organization)

222 W. Hospitality Ln, 2nd Floor (Address)

San Bernardino, California (City and State)

909-386-8697 (Telephone)

California Environmental Protection Agency



March 19, 2012

Tentative Revised Waste Discharge Requirements for Barstow Class III Landfill, Class II Surface Impoundments and Septage Sludge Landfarm.

The County has reviewed the Tentative Revised Waste Discharge Requirements for Barstow Sanitary Landfill prepared by the Lahontan Regional Water Quality Control Board to incorporate changes to the Barstow Sanitary Landfill Class III, its Class II Surface Impoundment, and Septage Sludge Landfarm associated with the proposed expansion of the site. Editorial and technical issues with the documents are outlined herein along with proposed remedies.

Item 1 Discharger (Page 2)

g. Delete the word “the” from the following sentence, “Proposed ~~the~~ use of various materials as alternative daily cover.”

h. The paragraph below 1.g. does not have a letter reference, letter “h” should be used. This section makes reference to a letter dated February 19, 1997. This reference should be eliminated since this letter concerned Norcal. Since Norcal is no longer the County’s contract operator, County Counsel believes this reference is invalid.

We propose to use this statement instead (taken from the JTD):

“The Landfill is operated by a contract operator (Contractor) under a contractual agreement (Contract) with the Discharger (County). The Contractor performs all of the day-to-day operations at the Facility. The County has full responsibility for all operations, corrective action, closure and post-closure maintenance of the landfill and all activities undertaken by the contract operator. The County also has full responsibility for maintaining compliance with waste discharge requirements and all applicable statues and regulations. As such, it is unnecessary to also name the Contractor as a Discharger.”

Item 2 Facility (Page 2)

First paragraph, last sentence, add the words “the expansion” to the sentence, “This Order prohibits discharge into ~~the~~ **expansion** areas outside of the Phase 1 Borrow Area.”

Without this clarification, it sounds like we couldn’t continue landfilling in the unlined area.

March 19, 2012

Second paragraph, second sentence, delete the word “Landfill”. Sentence should read, “~~Landfill~~ For the purposes of this Order, the unlined Landfill, Impoundments, Landfarm and Phase 1 Borrow Area are collectively referred to as the “Facility.”

Item 3 Reason for Action (Page 3)

Second sentence, the County has six regional facilities, not five. Sentence should read, “The landfill expansion project is part of a regional plan to reduce the number of County-operated landfills to ~~five~~ **six** regional facilities, including the Barstow Sanitary Landfill.”

Item 6 Existing Landfill Description (Page 4)

First paragraph, last sentence should read, “It is currently ~~scheduled for closure in 2012.~~ **estimated that it will reach capacity under the Existing Final Grading Plan in 2014.**”

Item 7 Proposed Landfill Expansion Project Description (Page 4)

In regards to the second paragraph, we just want to make it clear that the numbers you state are for the entire expansion area, not just the Phase 1 Borrow Area.

Item 11 Treated Auto Shredder Waste (Page 6)

DTSC has classified TASW as non-hazardous waste. The County proposes deletion of the comment about DTSC considering TASW being managed as hazardous waste. Until DTSC classifies it as hazardous waste, TASW should be allowed. The County proposes this section be re-written as:

“Treated (stabilized) auto shredder waste (TASW) is any non-recyclable waste from the shredding of automobile bodies (from which batteries, muffler, mercury switches, and exhaust pipes have been removed), household appliance, and sheet metal. The Discharger proposes to use TASW as alternative daily cover (ADC), beneficial reuse material, in the lined portion of the Landfill. TASW from certain authorized facilities, under a determination issued by the Department of Toxic Substances Control (DTSC), and managed pursuant to CCR, title 22, section 66260.200(f), and DTSC Policy and Procedure No. 88-6, is classified as non-hazardous waste. The Discharger must obtain a non-hazardous waste classification from the DTSC to discharge TASW at this lined Landfill.”

Item 12 Alternative Daily Cover (Page 6)

The County already went through the approval process on several of these ADC's; we suggest revising this section and removing the items already approved. This would correlate better with Item 8 on page 22. We propose the following change to the first sentence of the paragraph:

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“The Discharger is proposing to use various non-hazardous and designated wastes as alternative daily cover (ADC) on the Landfill, ~~including wood, green waste, compost materials, dried sludge, ash, cement kiln dust, dredge spoils, shredded tires, processed construction and demolition debris,~~ and contaminated soil.”

Item 14 Waste Management Unit Classification (Page 7)

Last sentence, we ask the word “solid waste” be added so the sentence reads, “The Discharge proposes to construct a new 11.5acre Class III waste management unit for discharge of nonhazardous **solid waste**, MSW, and inert waste.”

Item 24 Gas Extraction System (Page 10)

Barstow does not have a flare, it has a granular activated carbon system (GAC). We propose the following change to the second sentence and fourth sentence:

“The system consists of a series of gas collection wells interconnected by above-ground laterals and a main header pipe connected to a granular activated carbon (GAC) system.”

“Gas condensate is collected and gravity-flows to multiple low-point collection sumps. The condensate levels in the sumps are pumped twice a week into a transfer tank. The condensate in the transfer tank is transferred to a holding tank. When the holding tank is approximately 85% full, arrangements are made for the transfer of the condensate to a regional landfill that has a flare system where the condensate can be destroyed.”

Item 25 Liner Design (Page 10) and Item B.2. Construction Specifications (Page 29)

These two sections should match, we propose the following for clarification to both sections:

Bottom Liner System Design

- a. 24-inch thick protective cover soil layer;
- b. Geotextile filter layer;
- c. 9-inch thick LCRS gravel layer;
- d. Geotextile layer;
- e. 60-mil HDPE geomembrane;
- f. Geotextile-backed geosynthetic clay liner (GCL) with a permeability of 3×10^{-9} centimeters per second (cm/s) or less; and

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- g. 12-inch thick layer of screened on-site soil material.

Slope Liner System Design

- a. 24-inch thick protective cover soil layer;
- b. Geotextile filter layer;
- c. 60-mil HDPE geomembrane;
- d. Geotextile-backed geosynthetic clay liner (GCL) with a permeability of 3×10^{-9} centimeters per second (cm/s) or less; and
- e. Prepared subgrade.

Also the paragraph below the above section should be re-written to read:

“The Discharger proposes to install a geotextile-backed GCL encapsulated within 60-mil HDPE on the floor and slopes of the Landfill in areas where stability analyses indicate that additional strengths are needed in the liner design and to maintain the required static factor of safety of at least 1.5 as specified in CCR, Title 27, Section 21750. In lieu of achieving a factor of safety of 1.5 under dynamic conditions, the Discharger has demonstrated that the proposed liner design will experience minimal (less than 1 inch) of permanent, seismically-induced displacement under the earthquake-loading conditions derived from a site-specific Probabilistic Seismic Hazard Assessment.”

Item 29 Site Topography (Page 12)

Last sentence should reference Attachment B, not Attachment A.

Item 32 Landfill Closure and Post-Closure Maintenance (Page 13)

Per our discussions, we indicated that there was sufficient data produced during the studies for the cover used at Phelan, Apple Valley, Newberry, Yermo, Trona-Argus, Hesperia, Lenwood-Hinkley and Baker. We feel further monitoring would be redundant and request that this requirement be eliminated.

Item 39 Other Considerations and Requirements for Discharge (Page 16)

There should be a space added between the sentence below section e. “The Discharger is not responsible for developing housing within the region.” and “f. The need to develop and use recycled water.”

Item 14 (Page 21)

We propose re-writing the paragraph so it reads:

“The discharge of treated auto shredder wastes (TASW) at the Landfill facility is prohibited if DTSC makes the determination that this material requires management at a

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Class I facility or if the Discharger fails to obtain a determination from DTSC classifying TASW as non-hazardous waste. The discharge of untreated auto shredder waste is prohibited.”

Item 7 (Page 22)

VOCs or SVOCs are usually detectable at very low concentrations (eg 100 ppb) and would not appear to represent a water quality issue. We suggest adding a threshold value in place of the non-detect requirement.

Item 10 (Page 22)

This paragraph makes reference to section II. Requirements and Prohibitions, **A.15**. Is this the correct reference because A.15 is more geared towards waste being too wet to be landfilled.

Item 6 (Page 23)

The word “seepage” should be replaced with the word “septage”.

Item 2 (Page 29)

This section should match item 5 on page 10.

Bottom Liner System Design

- a. 24-inch thick protective cover soil layer;
- b. Geotextile filter layer;
- c. 9-inch thick LCRS gravel layer;
- d. Geotextile layer;
- e. 60-mil HDPE geomembrane;
- f. Geotextile-backed geosynthetic clay liner (GCL) with a permeability of 3×10^{-9} centimeters per second (cm/s) or less; and
- g. 12-inch thick layer of screened on-site soil material.

Alternative Bottom Liner System Design

- a. Minimum 24-inch thick protective cover soil;
- b. Geotextile;
- c. 9-inch thick LCRS gravel layer;
- d. Geotextile;
- e. 60 mil (0.60 inch thick HDPE geomembrane (textured on both sides);
- f. GCL;
- g. 60 mil (0.60 inch) thick HDPE geomembrane (textured on both sides);
- h. 12-inch thick layer of screened on-site soil material.

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Slope Liner System Design

- a. 24-inch thick protective cover soil layer;
- b. Geotextile filter layer;
- c. 60-mil HDPE geomembrane;
- d. Geotextile-backed geosynthetic clay liner (GCL) with a permeability of 3×10^{-9} centimeters per second (cm/s) or less; and
- e. Prepared subgrade.

Alternative Slope Liner System Design

- a. Minimum 24-inch thick protective cover soil;
- b. Geotextile;
- c. 60 mil (0.60 inch thick HDPE geomembrane (single-sided textured; textured side down);
- d. GCL;
- e. 60 mil (0.60 inch) thick HDPE geomembrane (textured on both sides);
- f. 16-ounce per square yard cushion geotextile; and
- g. Prepared subgrade.

Item G (Page 31)

We suggest the last paragraph of this section be revised to read:

“In addition to the interim drainage controls, the facility will be operated using a combination of BMPs as dictated in the SWPPP for storm water discharges. Examples of BMPs include but are not limited to erosion control mats, mulching, hydro seeding, coir logs, straw wattle, and straw bale check dams.”

Item E (Page 33)

Per our discussions, we indicated that there was sufficient data produced during the studies and associated monitoring for the cover used at Phelan, Apple Valley, Newberry, Yermo, Trona-Argus, Hesperia, Lenwood-Hinkley and Baker. We feel that post-closure final cover monitoring would be redundant and request that this requirement be eliminated.

Item E Construction Quality Assurance Plan (Page 34)

We would like to request the time requirement for submittal be changed from 90 days to 60 days.

Item F Final Proposed Construction Drawings, Specifications, and Descriptions (Page 34)

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We would like to request the time requirement for submittal be changed from 90 days to 60 days.

Item G Final As-Built Construction Drawings, Specifications and Descriptions (Page 34)

We would like to request the time requirement for submittal be changed from 60 days to 30 days. We would also like to add the following language at the end of the paragraph: "The submittal deadline may be adjusted by the RWQCB on a case by case basis."

Item H Final Documentation Reports (Page 35)

Attachment B

The attached drawing is an older version and difficult to read. We suggest using the attached drawing.

Monitoring and Reporting

Page 3, Item B – Constituents of Concern, Second Paragraph.

A space should be inserted prior to the last line of the paragraph so that "Monitoring Parameters" is separated from the Paragraph and identified as Item C. Items C, D, and E on Page 4 should be renumbered as Items D, E, and F, respectively.

Page 4, Item C – Concentration Limits

We request that concentrations limits be evaluated every year, and recalculated at a minimum of once every 5 years following sampling and analysis for constituents of concern. Should data trends suggest significant changes in background water quality, concentrations limits would be re-analyzed more frequently.

Page 4, Item IV – MONITORING, Third Paragraph, Second Sentence

Please revise the second sentence to read as follows: "All chromatograph peaks must be reported, including those which cannot be identified."

Page 4, Item IV – MONITORING, Third Paragraph, Third Sentence

Please revise the third sentence to read as follows: "Metals must be analyzed in accordance with the methods listed in Table V (Attachment G).

Page 6, Item B – Unsaturated Zone, Fifth Paragraph, First Sentence

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Please revise the first sentence to read as follows: “Quarterly, the neutron probes beneath the Impoundments must be analyzed for soil moisture.

Page 7, Item B1 – Landfill and Surface Impoundments, Second Sentence

Please revise the second sentence to read as follows: “Unsaturated zone monitoring for the Phase 1 Borrow Expansion Area will include a pan lysimeter beneath the LCRS sump.

Page 7, Item B2 – Landfill Gas, First Sentence.

The reference table for the Landfill Gas analyte list should be changed to Table II, Attachment D. Please either remove carbon dioxide and oxygen content from the text or add them to Table II.

Note: pan lysimeters are not designed for gas sampling and may not yield representative samples. Also, if LFG is detected it, could be from unlined areas and not the lined area above. The lysimeter is not at the point of compliance, and as a result, SWMD does not believe it is a representative monitoring point. The perimeter LFG probes are at the point of compliance, and SWMD requests that these perimeter monitoring probes be used as compliance monitoring points.

Page 8, Item C – Leachate/Seep Monitoring

For clarification, it is suggested that each numbered paragraph should contain a subheading. For example, Item C1 should be headed, “Landfill LCRS”. Item C2 should be headed, “Surface Impoundment LCRS”.

Page 8, Item C1, 5th Sentence.

The reference table for COC analytes should be changed to Table V (Attachment G).

Page 11, Item E – Landfarm.

We request clarification of the term “every batch” in this section of the MRP. A sampling frequency based on cubic yards or tons of septage removed would be helpful.

Attachment C – Table 1

The RWQCB has greatly expanded the list of Monitoring Parameters and has added “Supplemental Parameters” to the list of routine semiannual monitoring parameters. In our experience, the Supplemental Parameters - calcium, magnesium, potassium, and sodium - do not provide unique data, and generally reflect the same conditions that affect chloride and TDS concentrations. As a result, we recommend that they be removed from the list of Supplemental Parameters. We also suggest that Total Kjeldahl Nitrogen (TKN) be moved from the Monitoring Parameter for the Groundwater Detection

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Monitoring Program and the Monitoring Parameter List for the Leachate Detection Monitoring Program list to the Constituents of Concern List.

Attachment C – Table I

The reference table for USEPA Method 8260 should be changed to Table IV. The reference table for Constituents of Concern should be changed to Table V.

Attachment D – Table II

Under the Soil-Pore Gas portion of the table: Add Field Parameters: Methane and Organic Vapors with the appropriate units and sampling frequency to be consistent with Section IV.B.2 of the MRP. Methane should be removed from the Parameter list (it is a field parameter only per IV.B.2), and the Volatile Organic Compound method should be changed to USEPA Method TO-15.

Under the Pan Lysimeter (or other unsaturated zone monitoring device) portion of the table: As with the groundwater monitoring parameters, we do not see the value in adding calcium, magnesium, potassium, and sodium to the list of monitoring parameters. In our experience, the historical groundwater chemistry data trends at sites that have included these four metals as well chloride and TDS in their routine monitoring programs suggest that there are generally no significant differences in data trends among these constituents. As a result, more often than not, these four metals provide redundant information. We recommend removing these four metals from the Pan Lysimeter Monitoring Parameter list. The reference table for USEPA Method 8260 should be changed to Table IV.

Attachment E - Table III

Per our discussions, is the correct protocol being listed on Attachment E? Please change the reference table for USEPA Method 8260 to Table IV.

Attachment F – Table IV

This table should be retitled, “Appendix I VOC List” or similar to reflect its reference use throughout the MRP. The list of surrogates for Metallic Constituents should be removed from the table.

Attachment G – Table V

The RWQCB should consider adding the specific organochlorine pesticides and polychlorinated biphenyls to ensure that all of the desired compounds are analyzed.

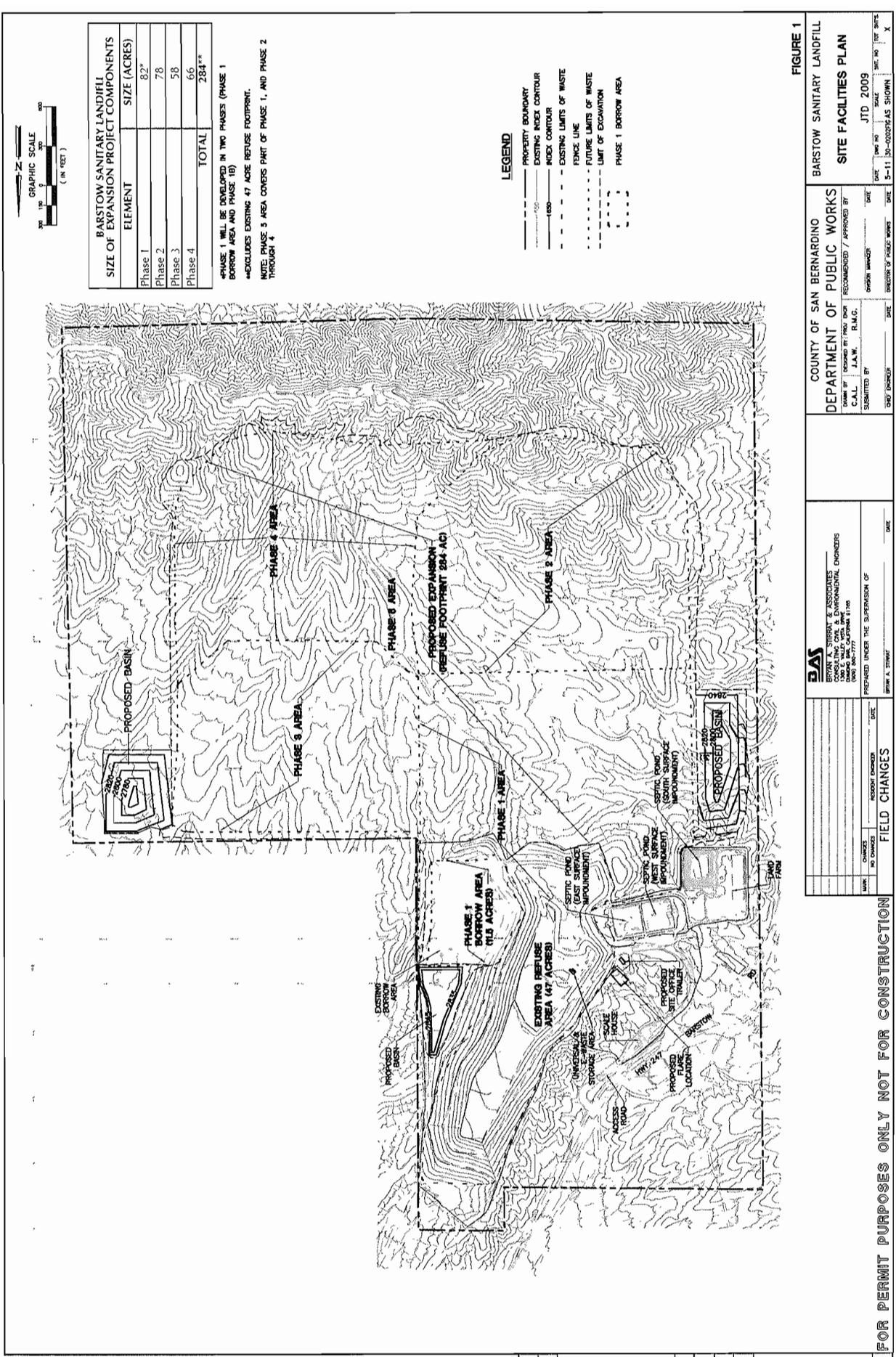


FIGURE 1
BARSTOW SANITARY LANDFILL
SITE FACILITIES PLAN
 JTD, 2009
 5-11-09-0020245 SHOWN

COUNTY OF SAN BERNARDINO
DEPARTMENT OF PUBLIC WORKS
 DRAWN BY: J.A.W. R.M.C.
 CHECKED BY: J.A.W. R.M.C.
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ENCLOSURE 4

Lahontan Regional Water Quality Control Board

May 3, 2012

WDID No. 6B360304005

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RESPONSE TO COMMENTS: TENTATIVE WASTE DISCHARGE REQUIREMENTS BARSTOW SANITARY LANDFILL PROPOSED EXPANSION, SAN BERNARDINO COUNTY

The California Regional Water Quality Control Board, Lahontan Region (Water Board) staff received San Bernardino County (County) comments (included as an attachment) to the tentative draft Waste Discharge Requirements (WDRs) for the Barstow Sanitary Landfill proposed expansion on March 20, 2012. Water Board staff concur with those comments that reference corrections to typographical errors, or minor omissions, as cited¹. Water Board staff concur with the County's request, in the listed comments below, to remove some constituents from leachate / groundwater monitoring and exclude gas sampling from the pan lysimeter beneath the landfill leachate collection sump. Water Board staff responses to those County comments (italicized) regarding portions of the WDRs and the Monitoring and Reporting Program (MRP) for which Water Board staff do not concur, or concur but with modified language,¹ are discussed below.

Waste Discharge Requirements

Item 7 [Finding 7] - Proposed Landfill Expansion Project Description (Page 4)

In regards to the second paragraph, we just want to make it clear that the numbers [estimated leachate generation] you state are for the entire expansion area, not just the Phase 1 Borrow Area.

Response:

This finding reflects the information submitted in the Joint Technical Document (JTD) and will be modified to clarify that the modeled production rate for leachate is based

¹ Water Board staff **concur** with the County's comments with regard to typographical errors and minor omissions in the following findings/sections of the Order and will make appropriate changes and/or corrections: WDRs, Findings (Items) 1, 2, 3, 6, 14, 29, 39, and Section II.C. No. 6 (Item 6), and Attachment B; MRP: Section III.B (Page 3, Item B), Section IV. Monitoring (third paragraph, second and third sentences [Page 4, Item IV]), Section IV.B. (fifth paragraph, first sentence [Page 6 Item B]), Section IV.C. (Page 8, Item C), Section IV.C.1 (fifth sentence [Page 8, Item C1]), Attachment C - Table 1, Attachment F - Table IV, and Attachment G - Table V.

on an area larger than the proposed expansion area that will be restricted to the Phase 1 Borrow Area, however Water Board staff request that the County provide an estimation of leachate production rate with a basis for that estimation for the Phase I Borrow area. If the leachate rate exceeds the rates established in the JTD, then the LCRS design must be re-evaluated as to its adequacy in handling the revised flow rate.

Item 11 [Finding 11] – Treated Auto Shredder Waste (Page 6)

DTSC has classified TASW as non-hazardous waste. The County proposes deletion of the comment about DTSC considering TASW being managed as hazardous waste. Until DTSC classifies it as hazardous waste, TASW should be allowed. The County proposes this section be re-written as:

“Treated (stabilized) auto shredder waste (TASW) is any non-recyclable waste from the shredding of automobile bodies (from which batteries, muffler, mercury switches, and exhaust pipes have been removed), household appliance, and sheet metal. The Discharger proposes to use TASW as alternative daily cover (ADC), beneficial reuse material, in the lined portion of the Landfill. TASW from certain authorized facilities, under a determination issued by the Department of Toxic Substances Control (DTSC), and managed pursuant to CCR, title 22, section 66260.200(f), and DTSC Policy and Procedure No. 88-6, is classified as non-hazardous waste. The Discharger must obtain a non-hazardous waste classification from the DTSC to discharge TASW at this lined Landfill.”

Response:

Water Board staff concur with requested change in terminology for DTSC determination of waste characterization and omission of reference to DTSC's intention on regulating TASW. In addition, Water Board staff have determined that in order for TASW to be accepted at the lined portions of the landfill, it is appropriate to include the requirement that the County must provide analytical sample results that show certain constituents in TASW meet threshold values and that the County must follow an approved sampling and analysis plan for sampling the TASW. DTSC classifies TASW as nonhazardous, provided processing is followed under the policy and procedures specified in the finding. It has become evident, based on recent enforcement actions in other regions that these processing procedures have not been uniformly followed and have, therefore, resulted in certain constituents detected above hazardous waste limits to enter into the waste stream going to Class III landfills. This finding will reflect this added requirement in the Order and omit the language in question.

Item 12 [Finding 12] – Alternative Daily Cover (Page 6)

The County already went through the approval process on several of these ADC's; we suggest revising this section and removing the items already approved. This would correlate better with Item 8 on page 22. We propose the following change to the first sentence of the paragraph:

[The County has proposed to remove from the list: wood, greenwaste, dried sludge, dredge spoils, shredded tires, and processed construction and demolition debris.]

Response:

Water Board staff do not concur. The purpose of this finding is to provide information as to the type of waste and how the waste will be used, as proposed in the JTD. The language will remain unchanged.

Item 24 [Finding 24] – Gas Extraction System (Page 10)

Barstow does not have a flare; it has a granular activated carbon system (GAC). We propose the following change to the second sentence and fourth sentence:

“The system consists of a series of gas collection wells interconnected by above-ground laterals and a main header pipe connected to a granular activated carbon (GAC) system.”

“Gas condensate is collected and gravity-flows to multiple low-point collection sumps. The condensate levels in the sumps are pumped twice a week into a transfer tank. The condensate in the transfer tank is transferred to a holding tank. When the holding tank is approximately 85% full, arrangements are made for the transfer of the condensate to a regional landfill that has a flare system where the condensate can be destroyed.”

Response:

Water Board staff have reviewed the JTD, and amendments, and find that this handling of gas condensate is not described in those sections describing the gas condensate collection. Water Board staff can modify this finding provided that the JTD describes the proposed activity, as intended, and that this activity was adequately evaluated in the environmental impact report (EIR). Water Board staff request that the JTD be amended to include this description and the County reference where in the EIR this activity was evaluated.

Item 25 [Finding 25] – Liner Design (Page 10)

As summarized by Water Board staff, the County references Finding 25 (Liner Design) and compares it with Section V.B.2. (Construction Specifications) for the liner system. The County states that the Finding and the Section should match (liner design description) and have proposed additional text summarizing those aspects of the liner design that provide for the required level of slope stability as evaluated in the JTD.

Response:

Water Board staff agree that additional language is needed in the finding to explain the proposed liner design that will provide the required level of slope stability for

specific areas of the lined expansion area. Water Board staff have determined that the finding should include additional language that cites appropriate sections in California Code of Regulations (CCR), title 27, that authorizes enforcement of the slope stability analysis. The design described in this section and the specifications in the WDRs have been slightly modified to be in agreement with the liner design proposed in the JTD. However, Water Board staff does not concur with the presumption that the findings should be identical to the Construction Specifications. Findings serve as information and justification for those parts of the Order that calls for restrictions/conditions for discharge. Water Board staff have also slightly modified the design to reflect the proposed design.

Item 32 [Finding 32] – Landfill Closure and Post-Closure Maintenance (page 13)

Per our discussions, we indicated that there was sufficient data produced during the studies for the cover used at Phelan, Apple Valley, Newberry, Yermo, Trona-Argus, Hesperia, Lenwood-Hinkley and Baker. We feel further monitoring would be redundant and request that this requirement be eliminated.

Response:

Water Board staff cannot recommend removing this requirement. As required in CCR, title 27, section 21090, this cover must perform as well as the prescriptive cover and, therefore, must have performance standards to be achieved. In order to satisfy this requirement, site-specific monitoring must be conducted to show compliance. This language will remain in this Board Order as drafted.

Item 14 [Section II.A. Requirements and Prohibitions, Numbered Paragraph 14] (page 21)

We propose re-writing the paragraph so it reads:

“The discharge of treated auto shredder wastes (TASW) at the Landfill facility is prohibited if DTSC makes the determination that this material requires management at a Class I facility or if the Discharger fails to obtain a determination from DTSC classifying TASW as non-hazardous waste. The discharge of untreated auto shredder waste is prohibited.”

Response:

Water Board staff concur with the suggested changes and, in addition, this Order will require the County to sample TASW and analyze for certain metals and PCBs, which must be at or lower than threshold values (included in the Order) to determine acceptance of the TASW at the landfill.

Item 7 [Section II.B. Requirements and Prohibitions, Numbered Paragraph 7] (page 22)

VOCs or SVOCs are usually detectable at very low concentrations (eg 100 ppb) and would not appear to represent a water quality issue. We suggest adding a threshold value in place of the non-detect requirement.

Response:

In order for a threshold value above non-detect to be considered, the County must have provided site-specific information in the JTD to allow the Water Board to find that the proposed limits above non-detect will not pose a threat to water quality. The JTD, as submitted, does not provide this information. If the County is proposing to discharge volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) at levels above background (non-detect) concentrations, then the JTD must be amended. Amending the JTD would likely cause the proposed WDRs to be withdrawn from the June 2012 Board meeting and would need to be rescheduled for a later date.

Item 10 [Section II.B. Requirements and Prohibitions, Numbered Paragraph 10] (page 22)

This paragraph makes reference to section II. Requirements and Prohibitions, A. 15. Is this the correct reference because A.15 is more geared towards waste being too wet to be landfilled.

Response:

This requirement accounts for stockpiled waste that has become saturated with storm water. Storm water that has otherwise come into contact with stockpiled waste must be handled as leachate. Without this exception, wetted waste for use as ADC would not be allowed to be used in the landfill unless or until the storm water component is eliminated (dried). With this exception, as long as the waste meets the criteria in Section II.A.15, it can be discharged to the landfill under this wetted condition.

Item 2 [Section V.B.2. Construction Specifications – Liner Design] (page 29)

This section should match item 5 [Finding 25] on page 10.

Response:

See Water Board staff response to Item 25 (Finding 25) above.

Item G [Section V.G, last paragraph] (Page 31)

We suggest the last paragraph of this section be revised to read:

“In addition to the interim drainage controls, the facility will be operated using a combination of BMPs as dictated in the SWPPP for storm water discharges. Examples of BMPs include but are not limited to erosion control mats, mulching, hydro seeding, coir logs, straw waddle, and straw bale check dams.”

Response:

Water Board staff concurs with the County's proposed text changes (as underlined below) for the last paragraph in item G:

"In addition to the interim drainage controls, the facility will be operated using a combination of BMPs as dictated in the SWPPP for storm water discharges. Examples of BMPs include but are not limited to erosion control mats, mulching, hydro seeding, coir logs, straw wattle, and straw bale check dams."

Item E [Section VI.E. Alternative Cover Monitoring and Contingency Plan] (Page 33)

Per our discussions, we indicated that there was sufficient data produced during the studies and associated monitoring for the cover used at Phelan, Apple Valley, Newberry, Yermo, Trona-Argus, Hesperia, Lenwood-Hinkley and Baker. We feel that post-closure final cover monitoring would be redundant and request that this requirement be eliminated.

Response:

Water Board staff do not concur. Please see Water Board staff response to Item 32 (Finding 32) above.

Items E, F, and G [Section VII. Time Schedule, E. Construction Quality Assurance Plan; F. Final Proposed Construction Drawings, Specifications, and Descriptions; and G. Final As-Built Construction Drawings, Specifications, and Descriptions] (Page 34)

As summarized by Water Board staff, the County has requested that the report submittal time frames for the sections/paragraphs listed above in the WDRs be shortened by 30 days, respectively.

Response:

Water Board staff does not concur. The specified amounts of time in the Order allows for more thorough review by Water Board staff. However, Water Board staff may be able to expedite review, to the extent feasible, as appropriate and as requested. These sections will not be modified.

Item H Final Documentation Reports (Page 35)Response:

This heading does not appear to include any comments from the County. Water Board staff is unable to provide an appropriate response.

Attachment B [Map of Facility]

The attached drawing is an older version and difficult to read. We suggest using the attached drawing.

Response:

The County has provided a map that better defines the Phase 1 Borrow Area. Water Board staff agree that this figure is superior and it will be substituted in the Order.

Monitoring and Reporting ProgramPage 4, Item C – Concentration Limits [Section III Water Quality Protection Standards C. Concentration Limits]

We request that concentrations limits be evaluated every year, and recalculated at a minimum of once every 5 years following sampling and analysis for constituents of concern. Should data trends suggest significant changes in background water quality, concentrations limits would be re-analyzed more frequently.

Response:

Water Board staff does not concur. This section has been modified to better account for statistical and non-statistical analyses. Changes in the background data trends may indicate a release and would need to be validated through another statistical approach. It is unclear how an increase in sampling frequency would better validate the background data set if it has been established that seasonal changes are not a factor in the detection monitoring program.

Page 7, Item B1 – Landfill and Surface Impoundments, Second Sentence [Section IV. Monitoring B.1. Landfill and Surface Impoundments]

Please revise the second sentence to read as follows: "Unsaturated zone monitoring for the Phase 1 Borrow Expansion Area will include a pan lysimeter beneath the LCRS sump."

Response:

Water Board staff do not concur. Referencing the proposed expansion area must be consistent with text throughout the JTD and this Order. The text will remain unchanged.

Page 7, Item B2 – Landfill Gas, First Sentence [Section IV. Monitoring, B.2. Landfill Gas]

The reference table for the Landfill Gas analyte list should be changed to Table II, Attachment D. Please either remove carbon dioxide and oxygen content from the text or add them to Table II.

Note: pan lysimeters [sic] are not designed for gas sampling and may not yield representative samples. Also, if LFG is detected it, could be from unlined areas and not the lined area above. The lysimeter is not at the point of compliance, and as a result, SWMD does not believe it is a representative monitoring point. The perimeter LFG probes are at the point of compliance, and SWMD [County] requests that these perimeter monitoring probes be used as compliance monitoring points.

Response:

Water Board staff concur. Based on technical merit presented, the MRP will be modified to reflect these changes.

Page 11, Item E – Landfarm [Section IV. Monitoring, E. Landfarm]

We request clarification of the term “every batch” in this section of the MRP. A sampling frequency based on cubic yards or tons of septage removed would be helpful.

Response:

This requirement reflects the Septage Management Plan included in Appendix K of the JTD. Water Board staff agree that a more definitive volume of septage that would be discharged to the landfill can be established, however this would in turn restrict the County’s operation of transferring septage to the landfill due to the consequence of requiring no less than the defined amount be discharged at any one time. Water Board staff suggests that the term ‘batch’ be defined in the Septage Management Plan. Therefore, Water Board staff recommend that the term ‘batch’ remain in the order and that a revised septage management plan be submitted that defines the volume of septage characterized or other process that will adequately characterize the septage prior to placement in the landfill. The sampling program must describe how the County will take a representative number of samples for each load or volume of septage taken to the landfill.

Attachment C – Table 1 [Groundwater Detection Monitoring Program]

The RWQCB [Water Board] has greatly expanded the list of Monitoring Parameters and has added “Supplemental Parameters” to the list of routine semiannual monitoring parameters. In our experience, the Supplemental Parameters - calcium, magnesium, potassium, and sodium - do not provide unique data, and generally reflect the same conditions that affect chloride and TDS concentrations. As a result, we recommend that they be removed from the list of Supplemental Parameters. We also suggest that Total Kjeldahl Nitrogen (TKN) be moved from the Monitoring Parameter for the Groundwater Detection Monitoring Program and the Monitoring Parameter List for the Leachate Detection Monitoring Program list to the Constituents of Concern List.

Response:

Water Board staff concur, based on technical merit presented, and the constituents calcium, magnesium, potassium, and sodium will be removed from the monitoring list. Attachment C will be modified to accommodate this change. In addition, TKN has been moved to the Constituents of Concern list (Attachment G, Table V).

Attachment D – Table II [Unsaturated Zone Detection Monitoring Program]

Under the Soil-Pore Gas portion of the table: Add Field Parameters: Methane and Organic Vapors with the appropriate units and sampling frequency to be consistent with Section IV.B.2 of the MRP. Methane should be removed from the Parameter list (it is a field parameter only per IV.B.2), and the Volatile Organic Compound method should be changed to USEPA Method TO-15.

Under the Pan Lysimeter (or other unsaturated zone monitoring device) portion of the table: As with the groundwater monitoring parameters, we do not see the value in adding calcium, magnesium, potassium, and sodium to the list of monitoring parameters. In our experience, the historical groundwater chemistry data trends at sites that have included these four metals as well chloride and TDS in their routine monitoring programs suggest that there are generally no significant differences in data trends among these constituents. As a result, more often than not, these four metals provide redundant information. We recommend removing these four metals from the Pan Lysimeter Monitoring Parameter list. The reference table for USEPA Method 8260 should be changed to Table IV.

Response:

Water Board staff concur. Based on technical merit, changes will be made to Attachment D for gas monitoring; and the constituents calcium, magnesium, potassium, and sodium will be removed from the monitoring list for unsaturated zone monitoring.

Attachment E – Table III [Leachate Detection Monitoring Program]

Per our discussions, is the correct protocol being listed on Attachment E? Please change the reference table for USEPA Method 8260 to Table IV.

Response:

Yes, the protocol listed on Attachment E (Table III – Leachate Detection Monitoring Program) is correct. Reference table for USEPA Method 8260 has been corrected to Table IV.

If you have any questions or need more information, please contact me at (760) 241-7373, or chunter@waterboards.ca.gov, or Patrice Copeland, Senior Engineering Geologist, at (760) 241-7404 or pcopeland@waterboards.ca.gov.

Sincerely,



Christy Hunter, P.G.
Engineering Geologist

cc: Johnny D. Gayman, P.E.
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Paul Willman, Principal Solid Waste Planner
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