

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

BOARD ORDER NO. R6V-2006-0026
WDID NO. 6B360304013

REVISED WASTE DISCHARGE REQUIREMENTS

FOR
SAN BERNARDINO COUNTY SOLID WASTE MANAGEMENT DIVISION
LENWOOD-HINKLEY CLASS III LANDFILL

San Bernardino County

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

1. Discharger

The County of San Bernardino owns and operates the Lenwood-Hinkley Class III Landfill. On September 16, 2004 the San Bernardino County Department of Public Work, Solid Waste Management Division submitted a complete Final Closure and Post-Closure Maintenance Plan for the Lenwood-Hinkley Class III Landfill. The Discharger also submitted an Engineering Feasibility Study for Corrective Action (revised April 2002) and a Proposed Monitoring and Reporting Program/Contingency Measures Report (August 2002) and a health risk assessment (in the report: *Additional information in support of proposed corrective action program*) (February, 2006). For the purpose of this Water Board Order (Order), the County of San Bernardino is referred to as the "Discharger."

2. Facility

The Lenwood-Hinkley Class III Landfill stopped receiving municipal solid waste in July 1997. On the southeast portion of the property the Discharger operated six unlined, Class II surface impoundments, which accepted liquid designated waste (septage and chemical toilet waste). The surface impoundments stopped receiving waste in late 1994 and were cleaned-closed in 1995. For the purposes of this Order, the Lenwood-Hinkley Class III Landfill and the former surface impoundment area is referred to as the "Landfill." There has been a detected release from the Landfill, and the facility is currently in a Corrective Action Program to remediate the release from the facility.

3. Order History

The Water Board previously adopted Waste Discharge Requirements (WDRs) for the Landfill under Board Order No. 6-85-134, which was adopted on November 14, 1985. Board Order No. 6-93-10042 was adopted on September 9, 1993, and amended the WDRs for the Landfill to incorporate the requirements of Title 40, Code of Federal Regulations, Parts 257 and 258 (Subtitle D) as implemented in the State of California under State Water Resources Control Board (SWRCB) Resolution No. 93-62. In September 14, 1995 the Water Board adopted WDRs under Board Order No. 6-95-104

and rescinded Board Order No.'s 6-85-134 and 6-93-10042.

4. Enforcement History

The Water Board Executive Officer issued Cleanup and Abatement Order (CAO) No. 6-94-1 to the Discharger on February 2, 1994 to require the cleanup and abatement of a condition of ground water pollution beneath the Landfill. The Discharger initiated an Evaluation Monitoring Program to investigate the condition of pollution.

On January 1, 1992 revised regulations pursuant to Article 5, Chapter 15, Title 23, California Code of Regulations (Chapter 15) became effective. These regulations include requirements for ground water monitoring, and describe a process for the investigation and cleanup and abatement of ground water pollution. Board Order No. 6-95-104 rescinded CAO No. 6-94-1 and implemented Monitoring and Reporting Program No. 95-104, which required the Discharger to continue an Evaluation Monitoring Program (EMP) and develop a final Corrective Action Program (CAP) as required by Chapter 15.

5. Reason for Action

The Water Board is issuing Closure WDRs to require the Discharger to achieve compliance with the requirements of sections 20385(a-c), 20415(a-e), 20420(a-k), 20950 and 21090 Title 27, California Code of Regulations (Title 27, CCR). This order implements SWRCB Resolution No. 93-62 by adopting a Corrective Action Program (CAP) that implements all applicable Title 27 CAP requirements and implements all additional federal requirements under 40CFR Part 258.58 including (a)(1)(i) of that section, which requires the Discharger to continue the federal Assessment Monitoring Program (AMP) while preparing for and implementing the CAP.

This CAP is required because of a detected release of thirteen Volatile Organic Constituents (VOCs) the primary ones being: vinyl chloride, trichloroethene (TCE), tetrachloroethene (PCE), cis-1,2-dichloroethene, and 1,1-dichloroethane. VOCs have been detected at levels above background (quantifiable concentrations) (see table below). Three VOCs are at concentration levels that exceed maximum contaminant levels (MCLs) for drinking water in wells located within the facility property. No off-site ground water monitoring wells exhibit any VOC concentrations exceeding drinking water standards. Elevated concentrations above background of nitrate, chloride, total dissolved solids and sulfate have also been detected and are evidence of a release.

Constituent	Minimum¹	Maximum¹	Average¹
1,1,dichloroethane	0.58	120	10
vinyl chloride	0.71	220	18.5
trichloroethene (TCE)	0.09	7.1	2
tetrachlorethene (PCE)	0.32	16	8.5
cis 1,2-Dichloroethene	0.12	200	10

1) micrograms/Liter

In order to evaluate a potential pump and treat groundwater remediation system, the Discharger operated a pilot-scale system in the southern portion of the property from 1996 to July 2000. Groundwater was typically pumped at less than 2.5 gallons per minute (gpm) from the well LH-8 and VOCs were stripped from the pumped water using sparging methods. Beginning in 1998, treated water was reinjected at well LH-18. Based on the results of the pump and treat system and groundwater modeling the Discharger has proposed a final corrective action program (CAP).

The Discharger has evaluated several alternative remediation technologies, ranging from both ex-situ and in-situ treatment that included: monitored natural attenuation (MNA), granulated carbon, air sparging, ion exchange, reverse osmosis, bio-enhancement, active extraction of Landfill gas (LFG) from the refuse, and passive gas venting. MNA is a viable alternative, since natural attenuation is known to be occurring at the site based on quarterly ground water sampling and analysis results.

6. Landfill Location

The Landfill is located approximately four miles north of the Community of Hinkley, off of State Highway 58, at 37751 Lenwood Road, San Bernardino County. It is within Section 20, T10N, R2W, San Bernardino Base and Meridian, (SBBM) as shown on Attachment "A," which is made part of this Order.

7. Description of Landfill

The Landfill is an unlined Landfill, which received greater than 100 tons of waste per day. The Landfill, while active, was permitted by the California Integrated Waste Management Board to receive 110 tons per day. Based on the quantity of waste received per day, the Landfill is a Large Landfill as defined in Subtitle D. As such, Subtitle D requirements became effective for this Landfill on October 9, 1993. Water Board staff has reviewed information submitted by the Discharger, which illustrates the footprint of waste discharged as of October 9, 1993. The footprint documents the limits of waste, which are exempt from Subtitle D requirements for composite liners, and is shown as Attachment "B", which is made a part of this Order.

8. Authorized Disposal Sites

The footprint of waste shown in Attachment "B" is the only authorized Landfill disposal site. The footprint of waste shown in Attachment "B" encompasses approximately 50 acres of the total 160-acre parcel.

9. Waste Classification

The Landfill received waste derived from the communities of Lenwood, Hinkley, and the surrounding desert communities. The waste is defined in Sections 20220 and 20230, Title 27, CCR, as inert and non-hazardous solid waste, respectively. The waste is

defined as municipal solid waste in Subtitle D.

10. Waste Management Unit Classification

Pursuant to Section 20260, Title 27, CCR, the Landfill is classified as a Class III waste management unit. The Landfill is classified as Large Landfill in Subtitle D.

11. Subtitle D Compliance Status

Board Order amendment No. 6-93-10042 required the submittal of several items in order to comply with Subtitle D for the Landfill. The Discharger has submitted complete information regarding the acceptance of liquids, the existing waste footprint, the distance from the Landfill to the nearest drinking water source, the Water Quality Protection Standard (WQPS), and whether the Landfill is located in a 100-year floodplain or a wetlands. The above listed items that have already been submitted fulfill the submittal requirements of Subtitle D as implemented by SWRCB Resolution No. 93-62.

12. Water Quality Protection Standard

The Water Quality Protection Standards consists of constituents of concern (including monitoring parameters), concentration limits, monitoring points, and the point of compliance. The standard applies over the closure and post-closure maintenance period, and the compliance period. The Water Quality Protection Standards is documented in Monitoring and Reporting Program No. R6V-2006-[PROPOSED].

The ground water at the point of compliance has been polluted by releases from the Landfill and/or formerly operated unlined septage ponds. The constituents of concern and monitoring points are described in Monitoring and Reporting Program R6V-2006-[PROPOSED], which is attached to and made part of this Order. The monitoring points have been established to evaluate the condition of ground water pollution during the EMP, and includes wells at the point of compliance. The Discharger submitted a WQPS Report in August 2002.

13. Constituents of Concern

The following parameters have been identified as COC:

- a. Subtitle D, Appendix I (short list) - VOCs, and metals;
- b. Subtitle D, Appendix II (long list) - VOCs, and metals; and
- c. total dissolved solids (TDS), chloride, sulfate, and nitrate.

14. Statistical Methods

Under this Order, at any given time, each well/Monitoring Parameter (Mpar) pair will be in one of two compliance status states. Prior to the MPar's exhibiting a measurably significant exceedance at a given well, that well/MPar pair will be in "Detection Mode" and monitoring will involve statistical or nonstatistical data analysis designed to detect

an unnatural increase at that well for that MPar. Once a well/MPar pair exhibits a measurably significant increase, it will change to "Tracking Mode" and monitoring will involve concentration-versus-time plotting to document changes in the release. Once in Tracking Mode, a well/MPar pair can return to Detection Mode after demonstrating completion of corrective action. Non-statistical methods for data analysis are described in Monitoring and Reporting Program No. R6V-2006-[PROPOSED]. The Water Board will require statistical analysis of monitoring data if a Detection Monitoring Program (DMP) is re-established.

15. Detection Monitoring

The DMP successfully detected a release from the Landfill. The Discharger has conducted an Evaluation Monitoring Program (EMP) to evaluate the extent of the impacts to water quality and to design a CAP. A DMP will be re-established pursuant to Section 20385, Title 27, CCR, once the condition of ground water impact is abated.

16. Evaluation Monitoring

An EMP is required, pursuant to Section 20425, Title 27, CCR, to evaluate evidence of a release, which has been verified at the Landfill. Monitoring and Reporting Program No. R6V-[PROPOSED] establishes and describes the EMP which is required to monitor the nature and extent of the release as well as detect any new release until the Corrective Action Program (CAP) monitoring has been implemented.

17. Corrective Action

A CAP to remediate VOCs in ground water beneath the existing Landfill portion of the Facility is required pursuant to Section 220430, Title 27, CCR. The Discharger submitted *Engineering Feasibility Study for Corrective Action* report (revised April 2002) to address the release to groundwater. The Discharger's proposed remediation is a combination of Monitored Natural Attenuation, and installation of a passive gas-venting system to be installed concurrent with closure construction procedures. The gas venting system will be subject to evaluation of its ability to adequately remediate gas generated from the Landfill. If the Water Board finds that the passive gas-venting system is insufficient in removing landfill gas, the Discharger must re-evaluate the system and propose an alternative remediation method. The CAP will consist of MNA. The CAP is documented in Monitoring and Reporting Program No. R6V-[PROPOSED].

MNA will use natural processes to degrade the contaminants in the unsaturated zone and ground water. The primary rationale for MNA is that natural attenuation currently appears to be occurring at the site. MNA is shown to be technically and economically the most feasible corrective action. Other remediation measures will include grading the surface area of the former septic ponds to allow stormwater runoff and constructing a final soil cover over the landfill waste footprint to prevent percolation.

Corrective Action Monitoring may be terminated when the Discharger demonstrates to the satisfaction of the Water Board that the concentrations of all COCs are reduced to levels below their respective Water Quality Protection Standards throughout the entire

zone affected by the release.

18. Discharge of Monitoring Well Purge Water

As part of regularly scheduled ground water sampling events, ground water monitoring wells are purged until parameters of pH, temperature, and conductivity are sufficiently stabilized to assure collection of a representative sample. Common practice is to discharge the purge water at the Landfill, which may include use of the water for dust control. Because VOCs pollute the aquifer beneath the Landfill, the purge water also contains these constituents at concentrations greater than background. The best practicable treatment technology can remove VOCs from water to non-detectable concentrations. This Order prohibits the discharge of purge water containing concentrations of VOCs which exceed Maximum Contaminant Levels (MCL) for drinking water at the Landfill.

19. Site Geology

The Landfill is in an area of fractured crystalline bedrock consisting mainly of Precambrian and Paleozoic metamorphic rocks (gneiss), intruded by Mesozoic latite dikes. Quaternary alluvium overlies the bedrock in the low-lying areas surrounding the septage ponds and the Landfill area. The alluvium is typically between three and 25 feet thick with the greatest accumulations occurring along Todd School Wash. The alluvium is comprised of loose to moderately cemented, coarse-grained sand and gravels derived from the adjacent igneous and metamorphic country rock. The bedrock is typically fractured and mineralization is common. The trace of a northwest-trending normal fault of unknown age is located approximately 2,000 feet southwest of the property boundary. The fault separates the bedrock from the alluvium of Hinkley Valley.

20. Site Hydrogeology

Ground water exists in the fractured bedrock beneath the Landfill at depths of approximately 85 to 177 feet below ground surface. Groundwater flow directions beneath the site are generally from east to west. Along the west side of the site, groundwater flow diverges, with a portion of the flow going to the northwest and a portion of the flow to the southwest. This results in two separate flow regimes, a northern flow regime and a southern flow regime. Groundwater flows toward the north-northwest with an average hydraulic gradient of 0.003 feet/feet (ft/ft) and with an average gradient of 0.005 ft/ft to the southwest. The average groundwater velocities are 0.04 ft/day for the northern flow regime and 0.07 ft/day for the southern flow regime.

21. Site Surface Hydrology and Storm Water Runoff

There is no perennial surface water flow at the site. Ephemeral surface water flow can occur in an unnamed wash that extends along the southern edge of the Landfill. All storm water from the Landfill is regulated under the state Amended General Industrial Activities Storm Water Permit.

22. Topography

Site topography is shown on Attachment "A", which is made a part of this Order. The site is located on the southeastern slopes of Mt. General with ground elevations at the site ranging from about 2,000 to 2,350 feet above mean sea level. The site lies within a northwest-trending range of low hills, and is positioned within a bowl-shaped feature surrounded by low-lying hills. The low-lying portions of the property slope eastward and are terminated by the Todd School Wash, a seasonal stream that traverses the site from the northeast to the southwest.

23. Climatology

The Landfill is in an area that can be characterized as arid with infrequent rain, low relative humidity, and hot, dry conditions during the summer months. Summer temperatures in the region typically range between 60 and 103 degrees Fahrenheit (°F). Winter temperatures range between 31 and 66 °F . The mean annual rainfall in the area of the Landfill is approximately four inches occurring mostly during November through April. Potential evaporation in the area is approximately 82 inches per year.

24. Land Uses

The land uses at and surrounding the Landfill consists of rural residential, and open desert land.

25. Closure and Post-Closure Maintenance

The Discharger has submitted a Final Closure and Post-Closure Monitoring Plan (CPCMP). The Final CPCMP generally proposes in place closure of the waste and an extended period of site monitoring. The Final CPCMP for the Lenwood-Hinkley Landfill consists of an alternative cover system to the prescriptive standard. The cover system is composed of a minimum three-foot thick engineered layer composed of select soil materials. The Discharger has demonstrated through an "alternative cover demonstration project" that the evapotranspiration cover will meet or exceed the prescribed performance criteria and will be more economical for site closure than prescriptive standards. The monitoring media includes the unsaturated zone, ground water, and final cover materials. This Order provides Water Board acceptance of the Final CPCMP. The California Integrated Waste Management Board (CIWMB) approved the CPCMP plan on October 29, 2004. This Order requires that the Discharger review the plan annually to determine if significant changes in the closure maintenance of the Landfill warrant an update of the plan.

26. Financial Assurance

The Discharger has provided documentation that a financial assurance fund has been developed for closure, post-closure maintenance, and potential corrective action

requirements. The fund has been developed as a single entity for all landfills owned and/or operated by the County of San Bernardino. The fund meets the requirements of Sections 22247 and 22245, Title 27, CCR for financial assurance. This Order requires the Discharger to report the amount of money available in the fund as part of the annual report.

27. Receiving Waters

The receiving waters are the ground waters of the Middle Mojave River Ground Water Basin (Department of Water Resources Hydrologic Unit No. 6-42).

28. Lahontan Basin Plan

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

29. Beneficial Ground Water Uses

The present and probable beneficial uses of the ground waters of the Middle Mojave River Valley Ground Water Basin as set forth and defined in the Basin Plan are:

- a. municipal and domestic supply;
- b. agricultural supply;
- c. industrial service supply;
- d. freshwater replenishment; and
- e. aquaculture.

30. California Environmental Quality Act

The action to revise waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000 et seq.) in accordance with Section 15301 of the CEQA Guidelines.

31. Notification of Interested Parties

The Water Board has notified the Discharger and all known interested agencies and persons of its intent to adopt revised WDRs for the project.

32. Consideration of Interested Parties

The Water Board, in a public meeting, heard and considered all comments pertaining to the discharge.

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

I. DISCHARGE SPECIFICATIONS

A. Receiving Water Limitations

The discharge of waste shall not cause a violation of any applicable water quality standard for receiving water adopted by the Water Board or the SWRCB as required by the Federal Water Pollution Control Act, the California Water Code (CWC) and regulations adopted thereunder. The discharge shall not cause the presence of the following substances or conditions in ground waters of the Middle Mojave River Ground Water Basin (except as provided in Section II.A.8. below):

1. Bacteria - Waters shall not contain concentrations of coliform organisms attributable to human wastes. The median concentration of coliform organisms, over any seven-day period, shall be less than 1.1/100 ml in groundwaters.
2. Chemical Constituents - Ground waters designated as Municipal and Domestic Supply (MUN) shall not contain concentrations of chemical constituents in excess of the MCL or Secondary Maximum Contaminant Level (SMCL) based upon drinking water standards specified in Title 22, CCR: Table 64431-A of Section 64431 (Inorganic Chemicals), Table 64431-B of Section 64431 (Fluoride), Table 6444-A of Section 64444 (Organic Chemicals), Table 64449-A of Section 64449 (SMCL-Consumer Acceptance Limits), and Table 64449-B of Section 64449 (SMCL-Ranges).
3. Chemicals Affecting the Agricultural Supply (AGR) Use - Waters designated as AGR shall not contain concentrations of chemical constituents in amounts that adversely affect the water for beneficial uses (i.e., agricultural purposes).
4. Chemicals - Waters shall not contain concentrations of chemical constituents that adversely affect the water for beneficial uses.
5. Radioactivity - Radionuclides shall not be present in concentrations that are deleterious to human, plant, animal, or aquatic life, or that result in the accumulation of radionuclides in the food chain to an extent that it presents a hazard to human, plant, animal, or aquatic life. Waters shall not contain concentrations of radionuclides in excess of limits specified in the CCR, Title 22, Chapter 15, Article 5, Section 64443.
6. Taste and Odors - Ground waters shall not contain taste or odor-producing substances in concentrations that cause nuisance or that adversely affect beneficial uses. For ground waters designated as MUN, at a minimum, concentrations shall not exceed adopted SMCLs specified

in Table 64449-A of Section 64449 (SMCLs - Ranges), and Table 64449-B of Section 64449 (SMCLs - Ranges) of Title 22 of the CCR, including future changes as the changes take effect.

7. The waste discharge shall not result in any perceptible color, odor, taste, or foaming in surface or ground waters of the Middle Mojave Hydrologic Area of the Mojave Hydrologic Unit.
8. The discharge shall not result in the presence of undesirable tastes or odors in fish flesh or other edible organisms from surface waters of the Middle Mojave Hydrologic Area of the Mojave Hydrologic Unit.
9. The discharge shall not cause the presence of toxic substances that individually, collectively or cumulatively cause detrimental physiological responses in human, plant, animal or aquatic life in any surface or ground water of the Middle Mojave Hydrologic Area of the Mojave Hydrologic Unit

II. REQUIREMENTS AND PROHIBITIONS

A. General

1. The discharge shall not cause a pollution as defined in Section 13050 of the California Water Code (CWC), or a threatened pollution.
2. The discharge shall not cause a nuisance as defined in Section 13050 of the CWC.
3. The discharge of solid wastes, leachate, or any other deleterious material to the ground waters of the Middle Mojave Valley Ground Water Basin is prohibited.
4. The discharge of waste except to the authorized disposal site is prohibited.
5. Water used for dust control during closure site operations shall be limited to a minimal amount. A "minimal amount" is defined as that amount which will not result in runoff.
6. Wastes shall not be placed in ponded water from any source whatsoever.
7. Any discharge which causes violation of any narrative water quality objective contained in the Basin Plan, including the Nondegradation Objective is prohibited.
8. Any discharge which causes violation of any numeric water quality objective contained in the Basin Plan is prohibited.

9. Where any numeric or narrative water quality objective contained in the Basin Plan is already being violated, any discharge which causes further degradation or pollution is prohibited.
10. The discharge of untreated sewage, garbage, other solid wastes, or industrial wastes into surface waters of the Region, is prohibited.
11. The disposal sites shall be protected from inundation, washout, or erosion of wastes and erosion of covering materials resulting from a storm or a flood having recurrence interval of once in 100 years.
12. Surface drainage from tributary areas, and internal site drainage from surface or subsurface sources shall not contact or percolate through solid wastes discharged at the site.
13. The exterior surfaces of the disposal sites shall be graded to promote lateral runoff of precipitation and to prevent ponding.
14. At closure, all facilities must be closed in accordance with the final CPCMP accepted by the Water Board.
15. The Discharger shall immediately notify the Water Board of any flooding, slope failure or other change in site conditions, which could impair the integrity of waste containment facilities or of precipitation and drainage control structures.
16. Pursuant to Section 21090(a)(4)(C), Title 27, CCR, the Discharger shall repair, in a timely manner, any breach or other cover problem discovered during periodic inspection of the Landfill cover. Repairs to the upper soil cover material must follow a Construction Quality Assurance (CQA) plan as required in Section 20323 and defined in Section 20324, Title 27, CCR, and the final CPCMP.
17. Pursuant to Section 20322, Title 27, CCR, the Discharger is required to carry out the construction of the final cover in accordance with a CQA plan certified by an appropriately registered professional. If the Water Board finds that any construction of the final cover system was undertaken in the absence of a CQA plan that satisfies the requirements of Section 20324, the Water Board shall require the Discharger to undertake any corrective construction needed to achieve such compliance.

B. Detection Monitoring Program

Because the Landfill is currently in a CAP, DMP monitoring is not presently required.

C. Evaluation Monitoring Program

The Discharger shall continue with Evaluation Monitoring as described in the Monitoring and Reporting Program until the Discharger implements the Corrective Action Program monitoring. The Discharger shall re-establish a revised EMP whenever there is significant evidence of a new release from the Landfill as required in Section 20385, Title 27, CCR.

D. Corrective Action Program

The Discharger shall institute the CAP as required pursuant to Section 20430 (c), Title 27, CCR. The Discharger shall continue implementing the CAP until the Discharger demonstrates to the satisfaction of the Water Board that the concentrations of all COCs are reduced to levels below their respective concentration limits throughout the entire zone affected by the release. The Water Board is requiring, annual and five-year evaluation reports, pursuant to Section 20430(h), Title 27, CCR. These progress reports will evaluate the effectiveness of the CAP. Any modifications to the CAP shall be submitted for Water Board review prior to implementation.

Corrective action measures may be terminated when the Discharger demonstrates that the concentrations of all COCs are reduced to levels below their respective concentration limits throughout the entire zone affected by the release.

III. DATA ANALYSIS

A. Statistical and Nonstatistical Analysis

The Discharger shall determine whether there is significant statistical or non-statistical evidence of a new release from the Landfill. Non-statistical evidence may include time series plots, unexplained volumetric changes in the Landfill, unexplained stress in biological communities, unexplained changes in soil characteristics, visible signs of leachate migration, and unexplained water table mounding beneath or adjacent to the Landfill, or any other change in the environment that could be reasonably be expected to be the result of a new release from the Landfill.

B. Verification Procedures

1. The Discharger shall immediately initiate verification procedures as specified below whenever there is a determination by the Discharger or Executive Officer that there is evidence of a new release. If the Discharger declines the opportunity to conduct verification procedures, the Discharger shall submit a technical report as described below under the heading Technical Report Without Verification Procedures.

2. The verification procedure shall only be performed for the constituent(s) that has shown evidence of a new release, and shall be performed for those monitoring points at which a new release is indicated.
3. The Discharger shall either conduct a composite retest using data from the initial sampling event with all data obtained from the resampling event or shall conduct a discrete retest in which only data obtained from the resampling event shall be analyzed in order to verify evidence of a new release.
4. The Discharger shall 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. The Discharger shall determine, within 45 days after completion of sampling, whether there is evidence of a new release from the Landfill at each monitoring point. If there is evidence of a new release, the Discharger shall immediately notify the Water Board by certified mail. The Executive Officer may make an independent finding that there is evidence of a new release.
6. If the Discharger or Executive Officer verifies evidence of a new release, the Discharger is required to submit, within 90 days of a determination that there is or was a new release, a technical report pursuant to Section 13267(b) of the CWC. The report shall propose a revised EMP **OR** make a demonstration to the Water Board that there is a source other than the Landfill that caused evidence of a new release.

C. Technical Report Without Verification Procedures

If the Discharger chooses not to initiate verification procedures, a technical report shall be submitted pursuant to Section 13267(b) of the CWC. The report shall propose a revised EMP, **OR**, attempt to demonstrate that the new release did not originate from the Landfill.

IV. PROVISIONS

A. Rescission of Waste Discharge Requirements

Board Order No. 6-95-104 is rescinded.

B. Standard Provisions

The Discharger shall 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 CWC Section 13267(b), the Discharger shall comply with the Monitoring and Reporting Program No. R6V-2006-[PROPOSED] as specified in the Monitoring and Reporting Program attached to this Order. These reports are needed to monitor for compliance with the Waste Discharge Requirements and determine the effect of the discharge on water quality.
2. The Discharger shall 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. Closure Construction

The Final CPCMP dated September 15, 2004, which includes an alternative final cover is accepted.

E. Corrective Action Work

Within **60 days** of the adoption of this order, the Discharger shall initiate the Corrective Action Program as described in this Order and proposed in the Engineering Feasibility Study for Corrective Action (final revision).

F. Financial Assurance

The Discharger shall submit a report annually providing evidence that adequate financial assurance pursuant to the requirements of the WDRs has been provided for closure/postclosure and for potential releases. Evidence shall include the total amount of money available in the fund developed by the Discharger. In addition, the Discharger shall either provide evidence that the amount of financial assurance is still adequate or increase the amount of financial assurance by the appropriate amount. An increase may be necessary due to inflation, a change in regulatory requirements, a change in the accepted closure plan, or other unforeseen events.

V. TIME SCHEDULE

Additional Technical Reports

Pursuant to Section 21880, Title 27, CCR, the Discharger shall submit to the Water Board a certification, under penalty of perjury, that the solid waste landfill has been closed in accordance with the final CPCMP and the Construction Quality Assurance (CQA) plan. The certification, which shall include any other documentation as necessary to support the certification, shall be incorporated into the CPCMP. This report shall be submitted to the Water Board no later than 180 days after completion of construction activities. The certification shall be completed by a California registered civil engineer or a California certified engineering geologist and include a report with supporting documentation.

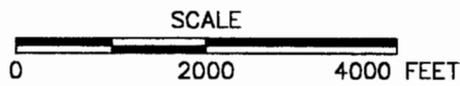
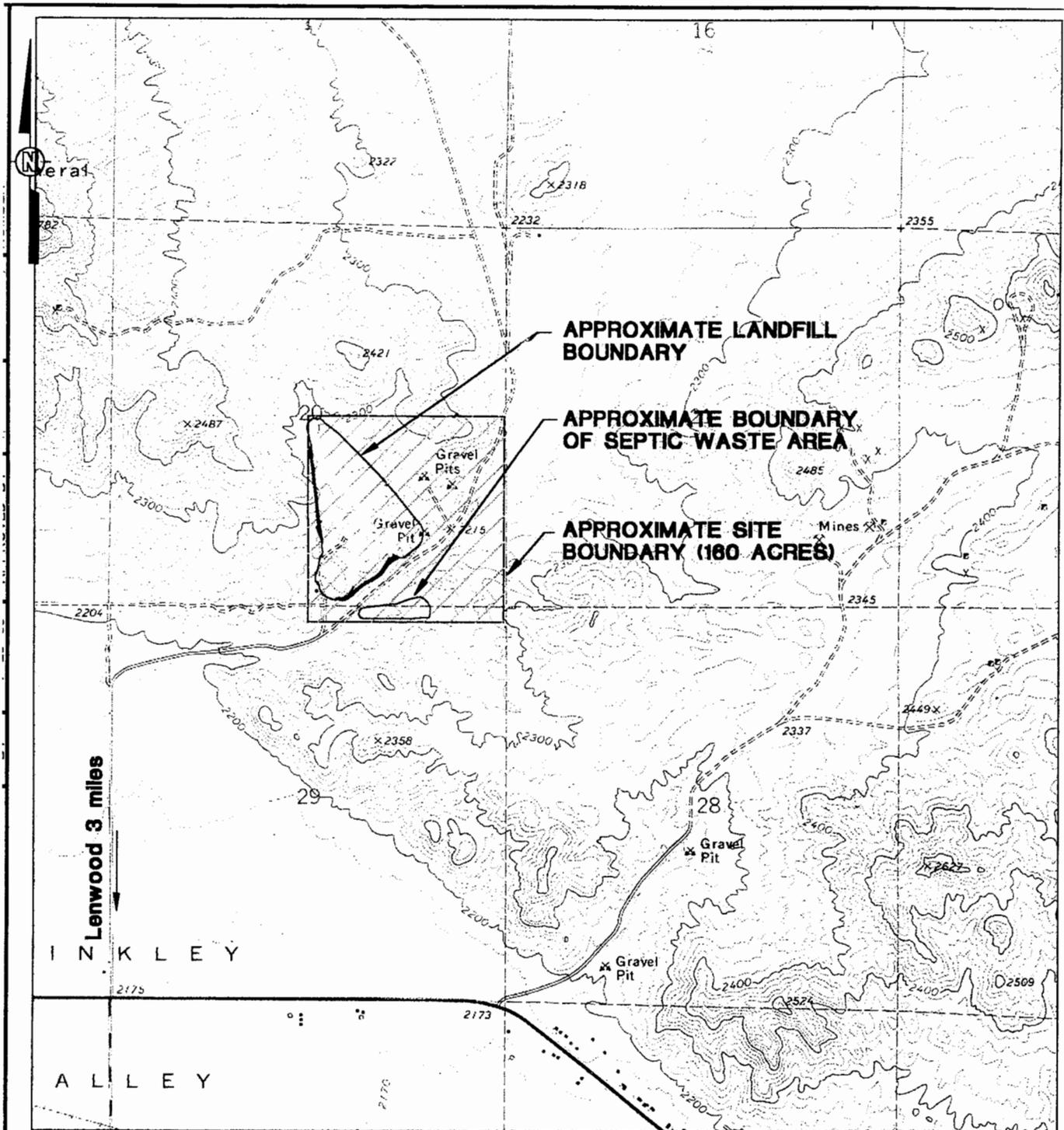
I, Harold J. Singer, Executive Officer, do hereby certify that the foregoing is a full, true, and correct copy of an Order adopted by California Regional Water Quality Control Board, Lahontan Region, on June 14, 2006.

“Original Signed By”

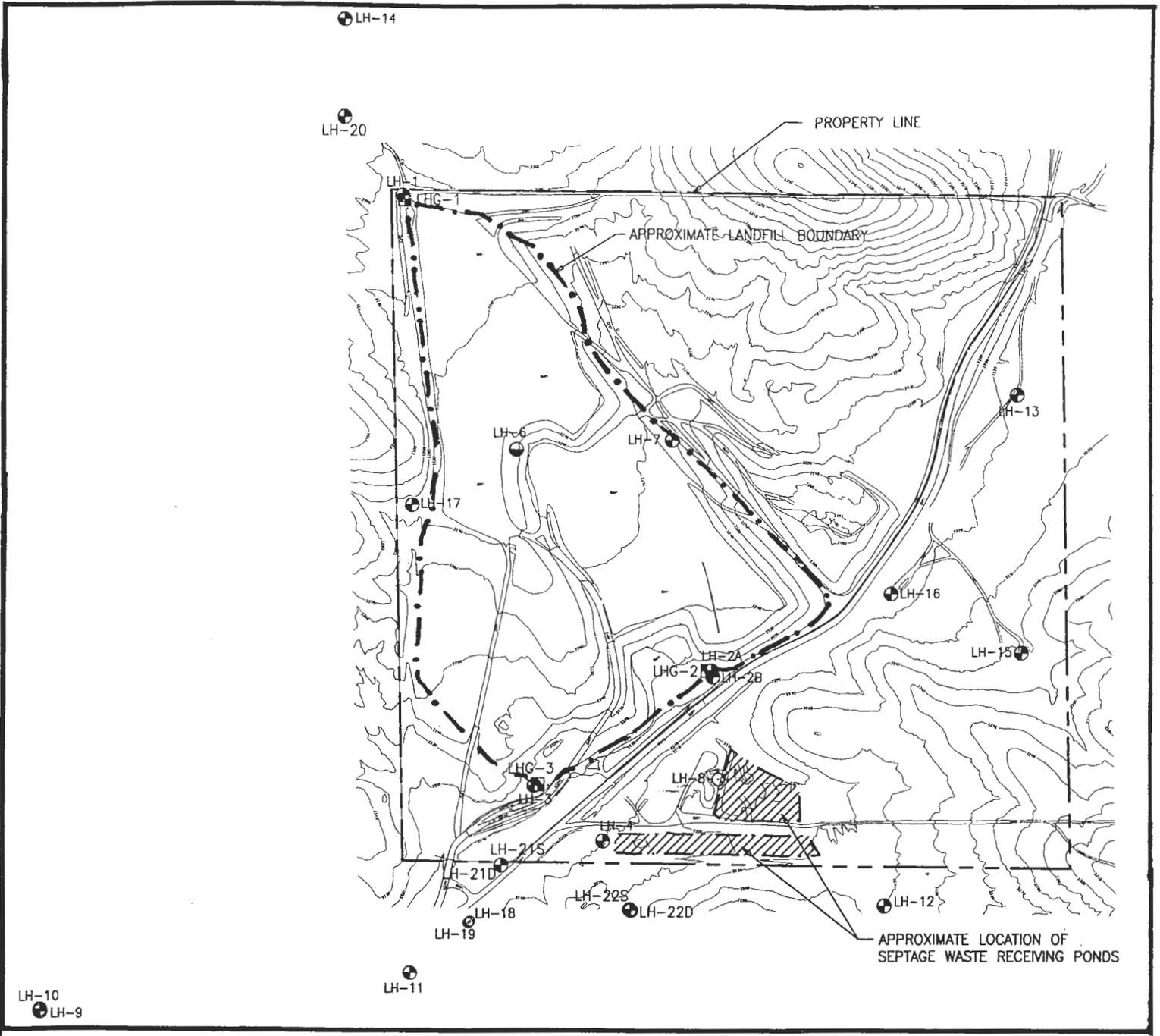
HAROLD J. SINGER
EXECUTIVE OFFICER

Attachments: A. Location Map and Topography
 B. Landfill Footprint of Waste
 C. Standard Provisions for Waste Discharge Requirements

ATTACHMENT A



ATTACHMENT B



LH-10
● LH-9

● LH-11

EXPLANATION:

- LH-6 ● ABANDONED MONITORING WELL LOCATION
- LH-8 ○ EXTRACTION WELL LOCATION
- LH-18 ⊙ INJECTION WELL LOCATION
- LHG-1 □ SOIL-PORE GAS MONITORING PROBE LOCATION
- LH-1 ● GROUNDWATER MONITORING WELL LOCATION



GRAPHIC SCALE



(IN FEET)

1 inch = 400 ft.

LENWOOD-HINKLEY LANDFILL

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

STANDARD PROVISIONS
FOR WASTE DISCHARGE REQUIREMENTS

1. Inspection and Entry

The Discharger shall permit Regional Board staff:

- a. to enter upon premises in which an effluent source is located or in which any required records are kept;
- b. to copy any records relating to the discharge or relating to compliance with the Waste Discharge Requirements (WDRs);
- c. to inspect monitoring equipment or records; and
- d. to sample any discharge.

2. Reporting Requirements

- a. Pursuant to California Water Code 13267(b), the Discharger shall immediately notify the Regional Board by telephone whenever an adverse condition occurred as a result of this discharge; written confirmation shall follow within two weeks. An adverse condition includes, but is not limited to, spills of petroleum products or toxic chemicals, or damage to control facilities that could affect compliance.
- b. Pursuant to California Water Code Section 13260 (c), any proposed material change in the character of the waste, manner or method of treatment or disposal, increase of discharge, or location of discharge, shall be reported to the Regional Board at least 120 days in advance of implementation of any such proposal. This shall include, but not be limited to, all significant soil disturbances.
- c. The Owners/Discharger of property subject to WDRs shall be considered to have a continuing responsibility for ensuring compliance with applicable WDRs in the operations or use of the owned property. Pursuant to California Water Code Section 13260(c), any change in the ownership and/or operation of property subject to the WDRs shall be reported to the Regional Board. Notification of applicable WDRs shall be furnished in writing to the new owners and/or operators and a copy of such notification shall be sent to the Regional Board.
- d. If a Discharger becomes aware that any information submitted to the Regional Board is incorrect, the Discharger shall immediately notify the Regional Board, in writing, and correct that information.

- e. Reports required by the WDRs, and other information requested by the Regional Board, must be signed by a duly authorized representative of the Discharger. Under Section 13268 of the California Water Code, any person failing or refusing to furnish technical or monitoring reports, or falsifying any information provided therein, is guilty of a misdemeanor and may be liable civilly in an amount of up to one thousand dollars (\$1,000) for each day of violation.
- f. If the Discharger becomes aware that their WDRs (or permit) are no longer needed (because the project will not be built or the discharge will cease) the Discharger shall notify the Regional Board in writing and request that their WDRs (or permit) be rescinded.

3. Right to Revise WDRs

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

4. Duty to Comply

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

5. Duty to Mitigate

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

6. Proper Operation and Maintenance

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

7. Waste Discharge Requirement Actions

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

8. Property Rights

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

9. Enforcement

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

10. Availability

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

11. Severability

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

12. Public Access

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

13. Transfers

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

14. Definitions

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

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

15. Storm Protection

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

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

**MONITORING AND REPORTING PROGRAM
NO. R6V-2006-0026
WDID NO. 6B360304013**

**FOR
SAN BERNARDINO COUNTY SOLID WASTE MANAGEMENT DIVISION
LENWOOD-HINKLEY CLASS III LANDFILL**

San Bernardino County

I. WATER QUALITY PROTECTION STANDARD

- A. A Water Quality Protection Standard (WQPS) is required by Title 27, California Code of Regulations (CCR) to assure the earliest possible detection of a release from the Lenwood-Hinkley Class III Landfill (Landfill) to the underlying soil and/or ground water. The County of San Bernardino, Solid Waste Management Division referred to as the Discharger submitted an updated WQPS Report in August 2002. A release has been detected for some constituents of concern. This Monitoring and Reporting Program and the Correction Action Program (CAP) requires the Discharger to continue ground water monitoring with the addition of parameters for Monitored Natural Attenuation to evaluate the effectiveness of the CAP. Currently, the Landfill is in Corrective Action due to detected release from the waste management unit. A WQPS is necessary during the CAP to determine if any new releases occur. For this Landfill, the WQPS shall consist of all constituents of concern, the concentration limit for each constituent of concern, the point of compliance, and all water quality monitoring points.

The Executive Officer shall review and approve the WQPS, or any modification thereto, for each monitored medium. The report shall:

1. Identify **all distinct ground water bodies** that could be affected in the event of a release from the Landfill Unit or portion of the Landfill.
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 shall include the point of compliance in accordance with Section 20405 of Title 27.
3. Evaluate the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).

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 site, the Discharger may request modification of the WQPS.

B. Groundwater

1. Constituents of Concern

The constituents of concern 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 Landfill. The constituents of concern for the Landfill are those listed in Tables I through III for the specified monitored medium. The Discharger shall monitor all constituents of concern every five years, or more frequently as required in accordance with an Evaluation Monitoring Program (EMP) and CAP.

2. Monitoring Parameters

Monitoring parameters are constituents of concern that are the waste constituents, reaction products, hazardous constituents, and physical parameters that provide a reliable indication of a release from the Landfill. The monitoring parameters for the Landfill are those listed in Tables I through III for the specified monitored medium.

3. Concentration Limits

For a naturally occurring constituent of concern, the detection monitoring and corrective action concentration limit for each constituent of concern shall be determined as follows:

- a. By calculation in accordance with a statistical method pursuant to Section 20415 of Title 27; or
- b. By an alternate statistical method acceptable to the Executive Officer in accordance with Section 20415 of Title 27.
- c. Concentration limits greater than background (CLGB) for corrective action may be proposed by the Discharger in accordance with Section 20430 of Title 27 if, after proposed corrective action measures reveal that it is technically and economically infeasible to achieve background levels.
- d. Site specific concentration limits have been established for Lenwood-Hinkley Landfill and are the following both for detection and corrective action:

Use of upper tolerance limits (TL_u) may be used to set concentration limits for inorganic constituents, calculated by the using the mean plus two standard deviations. For inorganic constituents that have never been

detected the concentration limit is the lowest method detection limit reported (MDL). For inorganic constituents that have not been detected with sufficient frequency to calculate the mean and standard deviation (a minimum of four detections), the concentration limit is the highest measured concentration.

Concentration limits for organic constituents, or non-naturally occurring constituents, are based on background conditions, which are non-detect (ND). Therefore the concentration limit for these constituents are the laboratory method detection limit for each compound.

In order to provide the best assurance of the earliest possible detection of a new release of non-naturally occurring waste constituents from the Landfill, this Order specifies a non-statistical method for the evaluation of monitoring data.

The specified non-statistical method for evaluation of monitoring data provides two criteria (or triggers) for making the determination that there has been a release of non-naturally occurring waste constituents from a Unit. The presence of two non-naturally occurring waste constituents above their respective MDL, or one non-naturally occurring waste constituent detected above its practical quantitation limit (PQL), indicates that a release of waste from a Landfill has occurred. Following an indication of a release, verification testing will be conducted to determine whether there has been a release from the Unit, or there is a source of the detected constituents other than the landfill, or the detection was a false detection. Although the detection of one non-naturally occurring waste constituent above its MDL is sufficient to provide for the earliest possible detection of a release, the detection of two non-naturally occurring waste constituents above the MDL as a trigger is appropriate due to the higher risk of false-positive analytical results and the corresponding increase in sampling and analytical expenses from the use of one non-naturally occurring waste constituent above its MDL as a trigger.

4. Point of Compliance

The point of compliance for the water standard at the Landfill is a vertical surface located at the hydraulically downgradient limit of the Landfill that extends through the uppermost aquifer underlying the Unit.

5. Compliance Period

The compliance period for the Landfill shall be the number of years equal to the active life of the Landfill plus the closure period. The compliance period is the minimum period during which the Discharger shall conduct a water quality monitoring program subsequent to a release from the Unit. The compliance period shall begin anew each time the Discharger initiates

an EMP.

C. Unsaturated Zone

1. Monitoring Parameters and Constituents of Concern

The monitoring parameters for soil gas shall be methane, carbon dioxide, oxygen, and nitrogen as listed in Table 3. The constituents of concern shall be the volatile organic constituents listed under the laboratory analytical method TO-15.

2. Concentration Limits

The concentration limits for all constituents of concern in soil gas shall be the MDL. The monitoring parameters shall not be required to have concentration limits because these parameters exist naturally in soil gas and development of background concentrations would be technically infeasible.

II. MONITORING

A. Cover Monitoring

The Discharger shall monitor the condition of the cover system as outlined in the Cover-Integrity Monitoring and Maintenance Program that is part of the Post Closure Maintenance Plan. The purpose of this monitoring is to ensure the integrity of the cover and evaluate the cover's capability to promote runoff and prevent ponding. Pursuant to Section 21090, Title 27, CCR, the elements addressed in this report shall include the items on the following list 1 through 6. A report of the results of this monitoring addressing items 1 through 4 shall be submitted **annually**, item 5 shall be addressed in a report submitted every **five years**.

1. areas of the vegetative cover, if any, requiring replanting;
2. eroded portions of the cover components requiring regrading, repair, or (for areas where the problem persistently reoccurs) increased erosion resistance installation;
3. areas lacking free drainage;
4. areas damaged by equipment operation; and
5. localized areas identified either in the five-year iso-settlement survey as having sustained repeated or severe differential settlement.

B. Evaluation Monitoring Program

The Discharger has developed an EMP to determine the extent of the release, and to develop corrective action measures. The EMP consists of installing and sampling a variety of monitoring wells. The EMP shall be as follows:

1. Ground Water

a. Monitoring Points

Ground water samples shall be collected from wells LH-1, LH-7, LH-11, LH-12, LH-15, LH-16, LH-17, LH-18, LH-20, LH-21D, LH-21S, LH-22D, LH-22S¹. Ground water samples shall be analyzed for the monitoring parameters listed in this Monitoring and Reporting Program.

b. Monitoring Parameters and Constituents of Concern

The monitoring parameters are the metal surrogates chloride, sulfate, nitrate as nitrogen, total dissolved solids, and volatile organic constituents as defined by Appendix I of 40 Code Federal Regulations (CFR), Part 258, Table 1. The constituents of concern are the monitoring parameters and those constituents listed in Appendix II of 40 CFR, Part 258. Any Appendix II constituent that is detected and confirmed at one or more ground water monitoring points becomes a new constituent of concern (**COC**) for that monitoring well and shall also be added to the Landfill's Monitoring Parameter (MPar) list, pursuant to 40CFR Part 258.55(b-d).

c. Aquifer Parameters

The parameters listed in Table 1 shall be calculated and reported in graphic and tabular form. Include a figure illustration of the Aquifer parameters listed in Table 1.

d. Monitoring Frequency

The frequency of sampling shall be in accordance with Table I of this Monitoring and Reporting Program. Ground water samples shall be collected and submitted for laboratory analysis at all monitoring points for the monitoring parameters and constituents of concern listed in this Monitoring and Reporting Program.

- i. Five-Yearly COC Scan - Every five years, the Discharger shall analyze a sample from each ground water monitoring point known to be within the release for the detectable presence (including trace determinations) of all COCs that are not yet on the Monitoring Parameter list. During each such COC scanning event, the Discharger shall obtain and analyze a minimum of one sample from each affected well. Upon detecting (including trace value) a COC that

¹ Or acceptable Alternate Monitoring Location

is not yet on the MPar list, the Discharger shall, within 30 days, take a single resample from the indicating affected well(s) and reanalyze it only for the newly-detected constituent(s). Any COC detected in samples collected from a groundwater monitoring well, and verified by a retest, automatically becomes part of the Monitoring Parameter list for the facility. The Discharger shall notify Water Board staff of any such change immediately, via phone or e-mail, shall note it in the operating record within 14 days of the verification, and shall note prominently the constituent(s) added to the Monitoring Parameter list in the next scheduled monitoring report, along with a listing of which well(s) were involved in this detection and verification. This constitutes the means by which the Discharger shall meet the requirements of 40CFR Part 258.55(d)(2).

e. Concentration Limits

The Discharger has collected background water quality data for the monitoring parameters contained in this Monitoring and Reporting Program, which include concentration limits that define background water quality for naturally occurring constituents of concern. Concentration limits for organic constituents of concern are based on background conditions at the Landfill, which are non-detect (ND).

2. Unsaturated Zone

a. Monitoring Points

The unsaturated zone monitoring system at the Facility consists of soil gas monitoring wells (LHG-1, LHG-2, and LHG-3)² each site monitoring various depths into the Vadose zone. The soil gas monitoring points are shown on Attachment "A" of this Monitoring and Reporting Program.

The unsaturated monitoring period shall coincide with the groundwater monitoring period. The Discharger may use field monitoring equipment to monitor for the monitoring analyte gases, oxygen, nitrogen, carbon dioxide and methane in all vadose gas wells. If methane gas reaches a threshold value detected during field monitoring, then gas samples will be taken (during that monitoring event) and analyzed for the monitoring analytes and VOCs using EPA method TO-14A, or TO-15. The threshold value shall be set at 5 percent of methane gas volume in air.

Gas samples shall be collected from the landfill gas wells on a semi-annual basis in accordance with Table 3 of this Monitoring and

² Or acceptable Alternate Monitoring Location

Reporting Program.

C. Corrective Action Program

The Discharger has developed a CAP to remediate releases from the existing Landfill to the ground water beneath and in the vicinity of the Landfill. The proposed CAP is monitored natural attenuation (MNA) and includes a water quality-monitoring program to demonstrate the effectiveness of the CAP. The locations of the existing ground water monitoring wells, and landfill gas probes are illustrated on Attachment "A" to this Monitoring and Reporting Program. Correction action measures may be terminated when the Discharger demonstrates to the satisfaction of the Water Board that the concentrations of all COCs are reduced to levels below their respective concentration limits throughout the entire zone affected by the release. At the conclusion of the CAP, the Water Board may revise the sampling periods and reporting requirements, accordingly. The CAP is as follows:

1. Ground Water

a. Monitoring Points

The following ground water well samples shall be collected from the following wells, on a semi-annual frequency: LH-2A, LH-3, LH-4, LH-8, and those additional monitoring wells included in the EMP and listed above. Ground water samples shall be collected and submitted for laboratory analysis at all monitoring points for the monitoring parameters and constituents of concern listed in this Monitoring and Reporting Program. Additional monitoring points that shall be used to monitor the groundwater elevation only are the wells: LH-10, LH-12, LH-13, and LH-15, and shall be monitored coincident with groundwater sampling of the other wells.

b. Monitoring Parameters and Constituents of Concern

The monitoring parameters are the metal surrogates, chloride, sulfate, nitrate as nitrogen, total dissolved solids, dissolved oxygen, reduction oxidation potential, the volatile organic constituents as defined by Appendix I of 40 CFR, Part 258, (Table 1 in this MRP), and other parameters listed in Table 1. The constituents of concern are the monitoring parameters and those constituents listed in Appendix II of 40 CFR, Part 258. Any Appendix II constituent that is detected and confirmed at one or more ground water monitoring points becomes a new constituent of concern (**COC**) for that monitoring well and shall also be added to the Landfill's Monitoring Parameter (MPar) list, pursuant to 40CFR Part 258.55(b-d) as described below.

c. Monitoring Frequency

The frequency of sampling shall be in accordance with Table I of this Monitoring and Reporting Program.

d. Five-Yearly COC Scan

Every five years, the Discharger shall analyze a sample from each ground water monitoring point known to be within the release for the detectable presence (including trace determinations) of all COCs that are not yet on the Monitoring Parameter list. During each such COC scanning event, the Discharger shall obtain and analyze a minimum of one sample from each affected well. Upon detecting (including trace value) a COC that is not yet on the MPar list, the Discharger shall, within 30 days, take a single resample from the indicating affected well(s) and reanalyze it only for the newly-detected constituent(s). Any COC detected in samples collected from a groundwater monitoring well, and verified by a retest, automatically becomes part of the Monitoring Parameter list for the facility. The Discharger shall notify Water Board staff of any such change immediately, via phone or e-mail, shall note it in the operating record within 14 days of the verification, and shall note prominently the constituent(s) added to the Monitoring Parameter list in the next scheduled monitoring report, along with a listing of which well(s) were involved in this detection and verification. This constitutes the means by which the Discharger shall meet the requirements of 40CFR Part 258.55(d)(2).

e. Water Quality Monitoring Approach

The monitoring approach used for each well/Monitoring Parameter (well/MPar) pair shall be controlled by whether that MPar has exhibited a measurably significant increase at that well. Therefore, the Discharger shall monitor each well/MPar pair in one of two modes, as follows:

i. Detection Mode

For an MPar that has not produced a measurably significant increase at that well, the purpose of monitoring, for that well/MPar pair, is to watch for the MPar's arrival at that well at a concentration strong enough to trigger a measurably significant indication using an appropriate statistical or nonstatistical data analysis method; or

ii. Tracking Mode

For an MPar that has produced a measurably significant increase

at a given well, the purpose of the monitoring, for that well/MPar pair, is to verify the suitability and effectiveness of the existing or proposed corrective measures by tracking changes in the MPar's concentration at that location via an evolving concentration-versus-time plot.

iii. Detection Mode Data Analyses

The following applies to all detection mode data analyses (i.e., this does not apply to the 5year COC sampling event or to well/MPar pairs that are in tracking mode):

iv. MPar's Readily Detectable in Background

At any given ground water monitoring point, the Discharger shall apply an approved statistical analysis method for each detection mode MPar that exceeds its respective MDL in 10% or more of the applicable background data set. For each well/MPar pair (separately), an approved statistical analysis is a method, other than Analysis Of Variance (**ANOVA**), that is Executive Officer agrees meets the performance standards of 27CCR Section 20415(e)(9).

(a) For any such well/MPar pair that, as of the effective date of this order, does not have an approved statistical analysis method, the Discharger shall propose and substantiate an appropriate statistical method within 30 days of the adoption of this Order;

(b) After the adoption of this order, for any new MPar that qualifies for statistical analysis by meeting the above 10% rule at a given well, the Discharger shall propose and substantiate an appropriate statistical method for that well/MPar pair.

2. Unsaturated Zone

Currently the Landfill has an unsaturated zone monitoring system. The system consists of three, multi-depth soil gas probes (LHG-1, LHG-2, and LHG-3)³. The locations are included in Attachment "A" of this Monitoring and Reporting Program. The sampling frequency for soil gas constituents of concern is the same as listed in the EMP above for all ground water monitoring parameters.

The monitoring parameters shall not be required to have concentration limits because these parameters exist naturally in soil gas and development of background concentrations is, at this time, technically infeasible. The Constituents of Concern concentration limit shall be background levels, which are non-detect. The Method of Monitoring shall be as described in the EMP.

³ Or acceptable Alternate Monitoring Location

D. Facility Monitoring

a. Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess damage to the drainage control system, groundwater monitoring equipment (including wells, etc.), and shall include adequate observations to assess the Landfill condition. Any necessary construction, maintenance, or repairs shall be completed by **31 October**. By **15 November** of each year, the Discharger shall submit an annual report describing the results of the inspection and the repair measures implemented, including photographs of the problem and the repairs.

b. Storm Events

The Discharger shall inspect all precipitation, diversion, and drainage facilities for damage **within 10 days** following *major storm events*. Necessary repairs shall be completed **within 30 days** of the inspection. The Discharger shall report any damage and subsequent repairs within 45 days of completion of the repairs, including photographs of the problem and the repairs.

E. Gas Monitoring

The Discharger shall monitor the gas generated from the landfill. An evaluation of the effectiveness of the passive gas venting system, proposed in *Engineering Feasibility Study for Corrective Action* (April, 2002), prepared by GeoLogic Associates of existing landfill gases (LFG) must be made and reported on a semiannual basis. Data from landfill gas monitoring from the gas venting system, at an appropriate collection point, shall be collected for at least five years and must show a decreasing trend in LFG concentrations. Trend analysis shall be graphed and included in the semiannual reports. If these trends do not show a decrease in LFG concentrations, the Water Board requires the Discharger to propose an alternative solution to remediate LFG. LFG levels must be remediated to achieve background levels, which would be non-detectable. Gas monitoring will begin following closure capping of the landfill and installation of the landfill gas venting system.

III. SAMPLING AND ANALYSIS

The Discharger is responsible for ensuring that the laboratory analysis of all samples from all Monitoring Points meets the following requirements:

A. Method Selection

The methods of analysis and the detection limits used must be appropriate for the expected concentrations. For detection monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., "trace") in historical data for that medium, the SW-846 analytical method having the lowest MDL shall be selected from among those methods which would provide valid results in light of any Matrix Effects involved.

A Matrix Effect is any increase in the MDL or PQL for a given constituent as a result of the presence of other constituents, either of natural origin or introduced through a release, that are present in the sample being analyzed.

Table 1. Groundwater Monitoring Program

Parameters	Units	EPA Method ¹	Sampling Frequency ⁴	Reporting Frequency
Field/ Aquifer Parameters				
Slope of Ground Water Gradient	percent	Not Applicable	Semi-annual	Semi-annual
Direction of Ground Water Gradient	degrees	NA	Semi-annual	Semi-annual
Velocity of Ground Water Flow	feet/1000 feet	NA	Semi-annual	Semi-annual
Depth to Ground Water	Feet bgs	NA	Semi-annual	Semi-annual
Static Water Level	Feet above mean sea level	NA	Semi-annual	Semi-annual
Electrical Conductivity	micromhos/cm	120.1	Semi-annual	Semi-annual
pH	pH Units	150.1	Semi-annual	Semi-annual
Temperature	degrees F or C	170.1	Semi-annual	Semi-annual
Turbidity	NTUs	180.1	Semi-annual	Semi-annual
Monitoring Parameters				
Dissolved Iron/Manganese	milligrams/liter	Hach 890 Colorimeter	Semi-annual	Semi-annual
Total Dissolved Solids	milligrams/liter	E160.1	Semi-annual	Semi-annual
Anions - Chloride, sulfate, bicarbonate, carbonate, nitrate	milligrams/liter		Semi-annual	Semi-annual
Cations- Calcium, Potassium, Magnesium, Sodium	milligrams/liter	SW8260 E300/A2320/A 4500F-C	Semi-annual	Semi-annual
Total Alkalinity	milligrams/liter	310.1	Semi-annual	Semi-annual
Hardness	milligrams/liter	SM-2340B	Semi-annual	Semi-annual
Volatile Organic Compounds ² (+ oxygenates)	micrograms/liter	8260B	Semi-annual	Semi-annual
Dissolved Oxygen	micrograms/liter		Semi-annual	Semi-annual
Reduction oxidation potential	mV or Eh		Semi-annual	Semi-annual
Constituents of Concern				
Inorganics (dissolved) see Table 2	micrograms/liter		5 year	5 yr
Volatile Organic Compounds ³ (+oxygenates extended list)	micrograms/liter	8260	5 yr	5 yr
Semivolatile Organic Compounds ³	micrograms/liter	8270	5 yr	5 yr
PCBs and Pesticides ³	micrograms/liter	8082/8081	5 yr	5 yr
Chlorinated Herbicides ³	micrograms/liter	8151	5 yr	5 yr
Organophosphorus Pesticides ³	micrograms/liter	8141	5 yr	5 yr

1) The Discharger shall analyze for all constituents using the United States Environmental Protection Agency (USEPA) analytical methods indicated or the most recently approved SW-846 USEPA method or other equivalent USEPA method;

2) As defined in Appendix I, 40 CFR Part 258;

3) As defined in Appendix II, 40 CFR Part 258.

4) Monitoring Frequency shall be quarterly during anomalous groundwater conditions, e.g. observed groundwater mounding due to stormwater recharge from adjacent borrow pit.

Table 2. Inorganic Constituents Of Concern

Parameter	USEPA Method ¹	Units
Antimony	7062	milligrams/liter (mg/L)
Arsenic	7062	mg/L
Barium	6010	mg/L
Beryllium	6010	mg/L
Cadmium	7131	mg/L
Cobalt	6010	mg/L
Chromium	6010	mg/L
Copper	6010	mg/L
Cyanide	9010	mg/L
Lead	7421	mg/L
Mercury	7471	mg/L
Nickel	7521	mg/L
Selenium	7742	mg/L
Silver	6010	mg/L
Sulfide	9030	mg/L
Thallium	7841	mg/L
Tin	6010	mg/L
Vanadium	6010	mg/L
Zinc	6010	mg/L

1) The Discharger shall analyze for all constituents using the United States Environmental Protection Agency (USEPA) analytical methods indicated or the most recently approved SW-846 USEPA method or other equivalent USEPA method

Table 3. Gas Monitoring Program

Monitoring Parameters	Units ¹	EPA Method ²	Sampling Frequency	Reporting Frequency
Gases - Methane	ppm or %	ASTM-D1946	Semi-annual	Semi-annual
Gases - Carbon Dioxide, Oxygen, Nitrogen	ppm or %	ASTM-D1946	Semi-annual	Semi-annual
Constituents of Concern				
Volatile Organic Constituents	ppb or micrograms/L	TO-15	Semi-annual	Semi-annual

1) parts per million (ppm), parts per billion (ppb); 2) ASTM = American Society for Testing and Methods

B. Trace Results

Results falling between the MDL and the Practical Quantitation Limit (PQL) shall be reported as "trace," and shall be accompanied by both the (nominal or estimated) MDL and PQL values for that analytical run. The PQL is the lowest acceptable calibration standard (acceptable as defined for a linear response or by actual curve fitting) times the sample extract dilution factor times any additional factors to account for Matrix Effect. The PQL shall reflect the quantitation capabilities of the specific analytical procedure and equipment used by the laboratory. PQLs reported by the laboratory shall not simply be re-stated from USEPA analytical method manuals. Laboratory derived PQLs are expected to closely agree with published USEPA estimated quantitation limits (EQLs).

C. Estimated MDL and PQL

The MDL and PQL shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. Both limits shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab. If the lab suspects that, due to a change in matrix or other effects, the true detection limit or quantitation limit for a particular analytical run differs significantly from the laboratory-derived MDL/PQL values, the results shall be flagged accordingly and an estimate of the detection limit and/or quantitation limit actually achieved shall be included.

D. Quality Assurance/Quality Control (QA/QC) Data

All QA/QC data shall be reported along with the sample result to which it applies. Sample results shall be reported unadjusted for blank results or spike recovery. The QA/QC data submittal shall include the following information:

1. Method, equipment, and analytical detection limits;
2. Recovery rates and an explanation for any recovery rate that is outside the USEPA specified recovery rate;
3. Results of equipment and method blanks;
4. Results of spiked or surrogate samples;
5. Frequency of quality control analysis;
6. Chain of custody logs; and
7. Name and qualifications of the person(s) performing the analysis.

E. Laboratory Records

Water quality records shall be maintained by the Discharger, and retained for a minimum period of 30 years. The period of retention shall be extended during the course of any unresolved litigation or when requested by the Executive Officer. Such records shall show the following for each sample:

1. Identity of sample and of the actual monitoring point designation from which it was taken, along with the identity of the individual who obtained the sample.
2. Date and time of sampling.
3. Date and time of analysis were started and completed, and the name of personnel performing each analysis.
4. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used.
5. Chromatographs and calculation of results.
6. A complete chain of custody logs.
7. Results of analysis, and the MDL and PQL for each analysis.

F. Release Indication and Re-Test Procedure

An exceeded concentration limit is an indication of release. In cases where the MDL is the concentration limit, at least two MDLs or a single PQL excursion at a single monitoring point indicates a release. If a release is indicated, the Re-Test Procedure shall immediately be carried out as follows:

1. In the event the Discharger concludes that a release has been tentatively indicated, the Discharger shall carry out the appropriate reporting requirements and, within 30 days of receipt of analytical results, collect two new sets of samples for the indicated Monitoring Parameter(s) at each indicating Monitoring Point.
2. Analyze each of the two suites of re-test analytical results using the same statistical method (or non-statistical comparison) that provided the tentative indication of a release. If the test results of either (or both) of the re-tested data suites confirm the original indication, the Discharger shall conclude that a release has been discovered and shall carry out the appropriate requirements.
3. Re-tests shall be carried out only for the Monitoring Point(s) for which a release is tentatively indicated, and only for the Monitoring Parameter(s) which triggered the indication. When a VOC analyte is re-tested the results of the entire VOC test method analyzed shall be reported.

IV. DATA EVALUATION METHODS

In order to determine if any new releases have occurred from the Landfill, evaluation of data will be conducted using statistical and non-statistical methods.

A. Performance Standards

All data analysis methods (statistical or nonstatistical) shall meet the requirements of Section 20415(e)(9), Title 27, CCR.

B. Retest Is Part Of The Method

In the event that an approved data analysis method provides a preliminary indication that a given MPar has exhibited a measurably significant increase at a given well, the Discharger shall conduct a verification procedure in the form of a discrete retest, in accordance with Section 20415(e)(8)(E) Title 27,CCR. The retest is part of the data analysis method; therefore, a measurably significant increase exists only if either or both of the retest samples validates the preliminary indication.

C. Limited Retest Scope

For any given ground water monitoring point, the Discharger shall perform the verification procedure only for those MPars that have shown a preliminary indication at that well during that reporting period.

D. Non-statistical analysis:

1. Physical Evidence

Physical evidence can include vegetation loss, soil discoloration, unexplained volumetric changes in the Landfill, or ground water mounding. Each semi-annual report shall comment on these physical elements.

2. Time Series Plots

Each semi-annual report shall include a time series plot for each constituent analyzed for and detected. Evidence of a release may include trends of increasing concentrations of one or more constituents over time.

V. REPORTING REQUIREMENTS

A. Scheduled Reports To Be Filed With The Water Board

The following periodic reports shall be submitted to the Water Board as specified below:

1. Semi-annual Monitoring Reports

EMP/CAP monitoring reports shall be submitted to the Water Board every six months. Reports shall be submitted to the Water Board by **45 days** following the end of the period (July – December, January – June) for which the monitoring was performed. The reports will include, but not limited to, the following:

- a. Tabulated water level and ground water chemistry data, including historic and current monitoring events;
- b. A map illustrating all of the monitoring points, ground water contours and flow direction;
- c. Results of sampling and laboratory analysis of ground water, soil pore liquids and/or soil gas;
- d. Field monitoring sheets and well sampling data sheets;
- e. A letter summarizing the essential points in each report shall accompany each report. The letter shall include a discussion of any requirement violations found since the last report was submitted, and shall describe actions taken or planned for correcting those violations; and
- f. 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 shall be stated in the letter of transmittal.

2. Annual Corrective Action Monitoring Reports

Annual Corrective Action Monitoring Reports shall be submitted to the Water Board. Annual Reports shall be submitted to the Water Board by **March 30** of each year for the previous 12 month period of January - December. The reports shall contain the following:

- a. The Annual Report should include an update concerning the adequacy of financial assurance. This financial assurance document shall summarize the amount of money available in the fund for Closure, Post-Closure and for each activity in the fund. The Discharger shall demonstrate in the annual report that the amount of financial assurance is adequate, or increase the amount of financial assurance.
- b. Time series data plots of the previous three years of analytical data.
- c. The Annual Report shall also include a detailed evaluation of the CAP and propose any modifications necessary to improve the CAP.

3. Five-Year COC Monitoring Program

Pursuant to Section 20420(g), Title 27, CCR, every five years the Discharger shall sample for COCs in accordance with Part II.C.1.d, with successive direct monitoring efforts being carried out alternately during January 1 through June 30 of one 5-year sampling event and July 1 through December 31 of the next 5-year sampling event, and every fifth year, thereafter. The first 5-Year COC sampling event shall take place during July-December 31 of 2010. The 5-Year COC Report shall be submitted no later than **45 days** following the period.

4. Five-Year Correction Action Program Evaluation Report

The Water Board requires that every five years (during the life of the CAP), an Evaluation Report of the CAP be provided to the Water Board for review and comment. The Five-Year CAP Evaluation Report will be submitted to the Water Board by **March 30th** of years 2011, 2016, 2021, ... This Evaluation Report can be combined with the Annual CAP. This Five-Year CAP Evaluation Report will include the following:

- a. Recommendations to continue, modify or discontinue the CAP, or recommend other remedial alternatives;
- b. Status information regarding CAP progress;
- c. Review of WQPS for the Landfill, and recommendations regarding any updates to the WQPS;
- d. Information on financial assurance regarding the CAP; and
- e. Information regarding any contingency remedies (triggers) that were identified during the last five years of operating the CAP.

B. Unscheduled Reports To Be Filed With The Water Board

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

1. Notice of Tentative Release

Should the statistical or non-statistical data analysis indicate, for a given constituent of concern, that a new release is tentatively identified, the Discharger shall:

- a. Immediately notify the Water Board verbally as to the monitoring point(s) and constituent(s) or parameter(s) involved.
- b. Provide written notification by certified mail within seven days of such determination (Section 20420, Title 27, CCR). The notification should

indicate the Discharger's intent to conduct verification sampling, initiate evaluation monitoring procedures, or demonstrate that a source other than the Landfill is responsible for the release. The notification should include a map showing the location(s) of release, an estimate of the flow rate (if available), a description of the nature of the discharge (e.g., all-pertinent observations and analyses), and corrective measures underway or proposed.

- c. If the Discharger chooses to attempt to demonstrate that a source other than the Landfill is responsible for the new release, the Discharger shall submit a supporting technical report within 90 days of detection of the new release.

2. Evaluation Monitoring

The Discharger shall, within 90 days of verifying a new release, submit a technical report pursuant to Section 13267(b) of the California Water Code proposing a revised 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 new release, the new release will be considered verified.

3. Engineering Feasibility Study Report

The Discharger shall, within 180 days of verifying a new release, submit a Preliminary Engineering Feasibility Study (Section 20420, Title 27, CCR) to preliminarily propose methods for corrective action.

4. Ground Water Monitoring Logs

Pursuant to Section 20415(e)(2), Title 27, CCR, all monitoring wells and all other borings (including but not limited to gas monitoring wells) drilled to satisfy the requirements of this Monitoring and Reporting Program shall be drilled by a licensed drilling contractor (or by a drilling crew under the direct supervision of the design engineer or engineering geologist), and shall be logged during drilling under the direct supervision of a person who is a California registered geologist or licensed civil engineer, who has expertise in stratigraphic well logging.

5. Significant Earthquake Event

After a significant earthquake event, the Discharger shall notify the Water Board within 48 hours, and within 45 days submit to the Water Board a detailed written post-earthquake report describing any physical damages to the containment features, ground water monitoring or landfill gas monitoring wells. The Discharger shall closely examine the Landfill cover,

vegetative cover, slope conditions, drainage control system, and surface grading for signs of cracking or depresses/settled areas, following a major earthquake. If cracking or depressed areas of the cover is identified, the Discharger shall repair the cover, depressed area, or damaged areas within 30 days from the earthquake date.

C. General Provisions

The Discharger shall comply with the "General Provisions for Monitoring and Reporting," dated September 1, 1994, which is attached (Attachment "B") to and made part of this Monitoring and Reporting Program.

D. Financial Assurance

Included with the Annual Report on or before **March 30** every year the Discharger shall submit an annual financial assurance report to the Water Board. This report shall summarize the amount of money available in the fund for Closure, Post Closure and Corrective Action Monitoring. This report should also provide a demonstration that the amount of financial assurance is adequate, or the need to increase the amount of financial assurance based on inflation or other factors. The report must reference the most recent plans that form the basis of cost estimates. A detailed evaluation of those costs must be made. A signed statement must be provided, under perjury, by an official of the company that the costs are adequate.

E. Summary of Reporting Frequency

<u>Report Designation</u>	<u>Period</u>	<u>Report Submittal Date</u>
First Semi-annual Monitoring Report	Jan 1 – June 30	August 15
Second Semi-annual Monitoring Report	July 1 – Dec 31	February 15
Annual Facility Inspection		November 15
Annual Corrective Action Report	Jan 1 – Dec 31	March 30
5-Year Corrective Action Program Report	Jan 1 – Dec 31	March 30 - 2011
Financial Assurance Report	Jan 1 – Dec 31	March 30

Ordered by: "Original Signed By"
HAROLD J. SINGER
EXECUTIVE OFFICER

Dated: **June 14, 2006**

Attachments: A. Monitoring Point Locations
B. General Provisions for Monitoring and Reporting

EXPLANATION:

- LH-1 (2143.24)
- LH-6
- LH-8
- LH-18
- LHG-1
- 2120
-

GROUNDWATER MONITORING WELL LOCATION
(GROUNDWATER ELEVATION IN FEET ABOVE
MEAN SEA LEVEL)

ABANDONED MONITORING WELL LOCATION

EXTRACTION WELL LOCATION

INJECTION WELL LOCATION

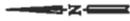
SOIL-PORE GAS MONITORING PROBE LOCATION

CONTOUR LINE SHOWING GROUNDWATER
POTENTIOMETRIC SURFACE ELEVATIONS
(CONTOUR INTERVAL = 5 FEET)

DIRECTION OF GROUNDWATER FLOW

REFERENCE:

SAN BERNARDINO COUNTY WASTE SYSTEM
DIVISION, CAD MAP AS OF NOVEMBER 1997.



GRAPHIC SCALE



1 inch = 400 ft.

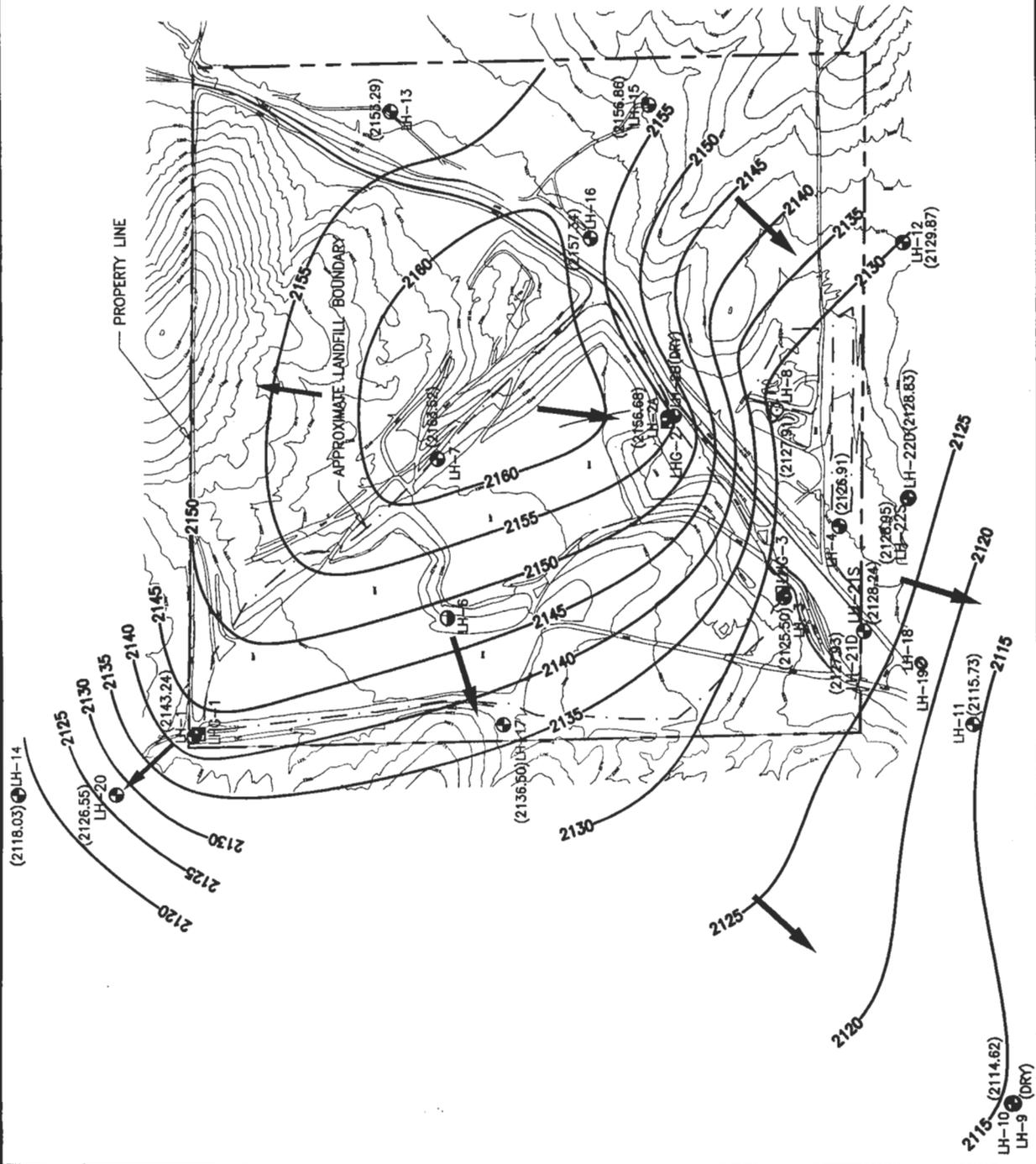
FIGURE 11-1

OCTOBER 2005 GROUNDWATER EQUIPOTENTIAL CONTOURS
WATER QUALITY MONITORING REPORT
FOURTH QUARTER (FALL)/ANNUAL 2005
LEWIS-HINKLEY SANITARY LANDFILL
COUNTY OF SAN BERNARDINO, CA



GeoLogic Associates
Geologists, Hydrogeologists, and Engineers

DRAWN BY: VL DATE: DECEMBER 2005 JOB NO.: 2005-140



ATTACHMENT A

MRP

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