

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
LAHONTAN REGION

MONITORING AND REPORTING PROGRAM NO. R6T-2009-0020
WDID NO. 6A257504401

for

COUNTY OF MODOC AND THE U.S. DEPARTMENT OF THE INTERIOR,
BUREAU OF LAND MANAGEMENT
CEDARVILLE (EAST) LANDFILL

Modoc County

I. WATER QUALITY PROTECTION STANDARD

Water Quality Protection Standard is required by title 27 of the California Code of Regulations (27 CCR) to assure the earliest possible detection of a release from the Cedarville (East) Landfill to underlying soil and/or groundwater. The Water Quality Protection Standard shall consist of the list of constituents of concern, the concentration limits, the Point of Compliance and all Monitoring Points. This Water Quality Protection Standard shall apply during the post-closure maintenance period, and during any compliance period. The Cedarville (East) Landfill is currently in the post-closure period.

II. MONITORING

The Discharger currently is only monitoring the landfill cover. The Discharger must also monitor the vadose zone or the groundwater. If the Discharger installs a vadose zone monitoring system and if a release from the landfill is confirmed by vadose zone monitoring, then the Discharger must also monitor the groundwater.

A. Landfill Cover Monitoring and Maintenance

The Discharger installed a final cover over the closed Landfill as specified in the *Final Closure and Postclosure Maintenance Plan (FCPCMP)* dated August 1998. Inspection and Maintenance procedures are specified in the FCPCMP and include the following:

1. **Semiannually**, the Discharger must inspect the condition of the cover to ensure the integrity of the cover and evaluate the cover's capability to promote runoff and prevent ponding on the cover. The Discharger must provide reports on the inspections **annually**. The semiannual inspection must consist of the following:
 - a. The Discharger must inspect the cover for integrity and inspect the vegetation for appropriate coverage.

- b. The Discharger must also inspect the general integrity of the Landfill for signs of settlement, subsidence, and erosion.
- c. The Discharger must inspect the drainage system for the entire site including that which will divert water from the Landfill and prevent run-on.
- d. During sampling events, groundwater and/or vadose zone monitoring wells will be inspected for damage.
- e. Any adverse conditions found in the visual inspection must be documented and corrected. Documentation of the correction must be submitted with each annual report.

B. Vadose Zone

The Cedarville (East) Landfill presently has no vadose zone monitoring points. Attachment A shows the location of disposal site footprint to be monitored. The intent of monitoring the vadose zone is to determine at the earliest time possible whether a release is occurring that threatens groundwater quality. The monitoring may include electrical monitoring methods, gaseous diffusion monitoring methods and/or porous cup lysimeters monitoring methods.

1. Monitoring Points

The vadose zone monitoring shall be sufficiently near the waste to detect leachate generated from any point beneath the covered waste.

2. Semiannual Vadose Zone Monitoring Parameters

If the vadose zone monitoring method chosen includes recovery of sufficient liquids for measurement and analysis, then the following shall be analyzed for:

**Table No. 1.a
 Vadose Zone Monitoring Parameters**

Parameter	USEPA Method ⁽¹⁾	Units
depth to vadose zone monitoring point	field	feet below ground surface
electrical conductivity ⁽²⁾	field	micromhos/cm, +/- 3%
oxidation-reduction potential	field	+/- 10 millivolts
pH ⁽²⁾	field	pH units, +/- 0.1
Temperature ⁽²⁾	field	degree F or C
chloride	300.0	mg/L
dissolved oxygen ⁽²⁾	field	mg/L
nitrate as nitrogen	9200	mg/L
sulfate	300.0	mg/L
total dissolved solids	160.1	mg/L
turbidity ⁽²⁾	field	NTU

footnotes:

(1) An alternate method may be proposed and used if acceptable to the Executive Officer.

(2) With the exception of temperature and turbidity, concentrations must be tabulated and graphed in monitoring reports; however, development of statistical background levels is not required

The parameters listed in Table 1.a must be measured semiannually and reported in tabular form annually.

3. Five-Year Vadose Zone Monitoring Parameters

If the vadose zone monitoring method chosen includes recovery of sufficient liquids for measurement and analysis, then the following shall be analyzed: The field parameters, chloride, nitrate as nitrogen and total dissolved solids shall be given first priority.

**Table 1.b
 Monitoring Parameters**

Parameter	USEPA Method⁽¹⁾	Units
chloride	300.0	mg/L
dissolved oxygen ⁽²⁾	field	mg/L
electrical conductivity ⁽²⁾	field	mmhos/cm
nitrate as nitrogen	9200	mg/L
pH ⁽²⁾	field	pH units
sulfate	300.0	mg/L
temperature ⁽²⁾	field	F/C
total dissolved solids	160.1	mg/L
turbidity ⁽²⁾	field	NTU
antimony ⁽³⁾	7062	mg/L
arsenic ⁽³⁾	7060	mg/L
barium ⁽³⁾	6010B	mg/L
beryllium ⁽³⁾	6010B	mg/L
cadmium ⁽³⁾	6010B	mg/L
chromium ⁽³⁾	6010B	mg/L
cobalt ⁽³⁾	6010B	mg/L
copper ⁽³⁾	6010B	mg/L
lead ⁽³⁾	7421	mg/L
nickel ⁽³⁾	6010B	mg/L
selenium ⁽³⁾	7740	mg/L
silver ⁽³⁾	6010B	mg/L
thallium ⁽³⁾	7841	mg/L
vanadium ⁽³⁾	6010B	mg/L
zinc ⁽³⁾	6010B	mg/L
volatile organic compounds (VOCs) ⁽⁴⁾	8260B	mg/L

footnotes:

- (1) An alternate method may be proposed and used if acceptable to the Executive Officer.
- (2) With the exception of temperature and turbidity, concentrations must be tabulated and graphed in monitoring reports; however, development of statistical background levels is not required.
- (3) Inorganic constituents from Appendix I, 40 CFR Part 258 (Subtitle D).
- (4) The VOCs monitoring parameter includes all VOCs detectable using USEPA Method 8260B, including at least all 47 organic constituents listed in Appendix I to 40 CFR Part 258 and all unidentified peaks.

The parameters listed in Table 1.b. must be sampled and measured every five years and reported in tabular form with the annual report.

C. Groundwater

The Landfill presently has no groundwater monitoring wells. Attachment A shows the location of disposal site to be monitored. If groundwater monitoring wells are installed, then the following sections C.1 through C.5 must be complied with.

1. Point of Compliance and Monitoring Points

The Point of Compliance as defined in 27 CCR section 20405 is "a vertical surface located at the hydraulically down gradient limit of the waste management unit that extends through the uppermost aquifer underlying the unit." The location of the disposal site footprint is on Attachment A, which is made part of this Monitoring and Reporting Program.

2. Aquifer characteristics

The parameters listed in Table 2.a must be measured semiannually and reported in tabular form annually. The required information to be calculated from the measured parameters is listed below in Table 2.b. and must be measured semiannually and reported in tabular form annually. An area map must be included to show the groundwater flow direction and estimated groundwater gradient.

Table No. 2.a
Groundwater Field Measurements

Parameter	Units
depth to groundwater	feet below ground surface
electrical conductivity	micromhos/cm
pH	pH units
Temperature	degree F or C
Turbidity	NTUs

Table 2.b
Groundwater Calculations

Parameter	Units
static water level	feet above mean sea level
slope of groundwater gradient	feet per feet
direction of groundwater gradient	degrees from true north

3. Groundwater Purging

Groundwater samples must be collected after the wells have been purged in accordance with California Environmental Protection Agency guidance document, *Representative Sampling of Groundwater for Hazardous Substances*, revised February 2008 (see: http://www.dtsc.ca.gov/SiteCleanup/upload/SMP_Representative_Sampling_GroundWater.pdf). The required stability parameters and criteria from this guidance are summarized in Table 2.c.

Table 2.c
Stabilization Parameters and Criteria

Parameter	Criteria
temperature	± 3% of reading (minimum of ± 0.2 C)
pH	+/- 0.1
specific electrical conductance	+/- 3%
oxidation-reduction potential	+/- 10 millivolts
dissolved oxygen	+/- 0.3 milligrams per liter

4. Monitoring Parameters and Sampling Frequency

The Discharger shall analyze all samples from all Groundwater Monitoring Points as specified under Part II.C.1 of this Monitoring and Reporting program for the monitoring parameters listed in **Table 2.d**. These monitoring parameters meet the requirements of the State Water Board Resolution No. 93-62 and 40 Code of Federal Regulations (CFR) Part 258.54. Groundwater sampling for monitoring parameters will be collected every five years and reported within the annual report for that year.

**Table 2.d
 Monitoring Parameters**

Parameter	USEPA Method ⁽¹⁾	Units
chloride	300.0	mg/L
dissolved oxygen ⁽²⁾	field	mg/L
electrical conductivity ⁽²⁾	field	mmhos/cm
nitrate as nitrogen	9200	mg/L
pH	field	pH units
sulfate	300.0	mg/L
temperature ⁽²⁾	field	F/C
total dissolved solids	160.1	mg/L
turbidity ⁽²⁾	field	NTU
antimony ⁽³⁾	7062	mg/L
arsenic ⁽³⁾	7060	mg/L
barium ⁽³⁾	6010B	mg/L
beryllium ⁽³⁾	6010B	mg/L
cadmium ⁽³⁾	6010B	mg/L
chromium ⁽³⁾	6010B	mg/L
cobalt ⁽³⁾	6010B	mg/L
copper ⁽³⁾	6010B	mg/L
lead ⁽³⁾	7421	mg/L
nickel ⁽³⁾	6010B	mg/L
selenium ⁽³⁾	7740	mg/L
silver ⁽³⁾	6010B	mg/L
thallium ⁽³⁾	7841	mg/L
vanadium ⁽³⁾	6010B	mg/L
zinc ⁽³⁾	6010B	mg/L
volatile organic compounds (VOCs) ⁽⁴⁾	8260B	mg/L

footnotes:

- (1) An alternate method may be proposed and used if acceptable to the Executive Officer.
- (2) These are field parameters as defined by 27 CCR section 20415(e)(13). With the exception of temperature and turbidity, concentrations must be tabulated and graphed in monitoring reports; however, development of statistical background levels is not required.
- (3) Inorganic constituents from Appendix I, 40 CFR Part 258 (Subtitle D).
- (4) The VOCs monitoring parameter includes all VOCs detectable using USEPA Method 8260B, including at least all 47 organic constituents listed in Appendix I to 40 CFR Part 258 and all unidentified peaks.

5. Constituents of Concern Monitoring and Sampling Frequency

Constituents of Concern (COCs) are listed in Table 2.e. Monitoring for COCs shall encompass only those constituents that are not also serving as monitoring parameters (Table 2.d). Analysis for COCs shall be carried out **once every five years** at each of the site's groundwater monitoring points. This list is from Appendix II of 40 CFR Part 258, which lists pollutants required to be monitored at the Landfill on a minimum frequency of once every five years. The following constituents will be reported in the annual report. For reporting in the annual reports, if no samples are collected, then the year the last samples were collected and the year for the next required sampling will be identified in the report.

Table 2.e
Constituents of Concern

Constituents of Concern	USEPA Method ⁽¹⁾
chlorinated herbicides	8150
cyanide	9010
nonhalogenated volatiles	8015
organochlorine pesticides and PCBs ⁽²⁾	8080
organophosphorous pesticides	8041A
semi-VOCs	8270
sulfide	9030

Footnotes:

(1) An alternate method may be proposed and used if acceptable to the Executive Officer.

(2) PCBs are polychlorinated biphenyls.

III. DATA ANALYSES

All data analyses methods (statistical or non-statistical) shall meet the requirements of 27 CCR section 20415(e)(9).

A. General Non-statistical Methods

Evaluation of data will be conducted using non-statistical methods to determine if any new releases from the Landfill have occurred. Non-statistical analysis shall be as follows.

1. Physical Evidence

Physical evidence can include vegetation loss, unexplained volumetric changes in the Landfill, groundwater mounding, soil discoloration, or surface gas monitoring. Each annual report shall comment on the absence or presence of physical evidence of a release.

2. Time Series Plots

Each annual report must include time series plot for groundwater monitoring parameters. Time series plots are not required for parameters that have never been detected above their method detection limit (as specified by the applicable USEPA Method) or if there are less than four quarters of data. Evidence of a release may include trends of increasing concentrations of one or more constituents over time.

B. General Statistical Analysis Methods

For Detection Monitoring, the Discharger shall use statistical methods to analyze constituents of concern and monitoring parameters that exhibit concentrations that equal or exceed their respective method detection limit in at least ten percent of applicable historical samples. The Discharger may propose and use any statistical method that meets the requirements of 27 CCR section 20415(e)(7). The report titled "Statistical Analysis of Groundwater Monitoring Data at RCRA Facilities" (USEPA, 1989) or subsequent versions may also be used to select the statistical test to use for comparing detection monitoring well data to background monitoring data. All statistical methods and programs proposed by the Discharger are subject to Executive Officer approval.

IV. REPORTING REQUIREMENTS

A. Annual Reports To Be Filed With the Lahontan Regional Water Quality Control Board (Water Board)

All monitoring reports submitted to the Water Board shall be transmitted using the cover letter form in Attachment C. An electronic copy of the cover letter form can be downloaded at: http://www.waterboards.ca.gov/lahontan/water_issues/available_documents/index.shtml. The following periodic reports shall be submitted to the Water Board as specified below.

1. One annual report is required per year, as follows:

<u>Report due date</u>	<u>Reporting Period</u>
February 15	January 1- Dec 31

2. The report must contain the following information.
 - a. Results of sampling and laboratory analysis of vadose zone and/or groundwater sampling.
 - b. A map or aerial photograph showing the locations of monitoring points.
 - c. For each monitored groundwater body, a description and graphical presentation of the velocity and direction of groundwater flow under and around the Landfill, based upon water level elevations taken during the collection of the water quality data submitted in the report.
 - d. 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.
 - e. The report must contain a description of the conditions of the cover materials. Specifically, comments regarding any subsidence or soil cover washouts that have occurred and the capability of the cover to promote runoff and prevent ponding should be included. In the case where subsidence, washouts or other damage to the cover is noted, the report shall indicate the actions taken to repair cover material so that the event will not reoccur.
 - f. An Executive Summary must accompany each report. The summary 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.

B. Other Reports To Be Filed With The Board

1. Notice of Tentative Release

If the appropriate statistical or non-statistical data analysis indicates, for a given constituent of concern, that a release is tentatively identified, 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 (27 CCR section 20420(j)). 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.
- c. If the Discharger chooses to attempt to demonstrate that a source other than the Landfill is responsible for the release, the Discharger shall submit a supporting technical report within 90 days of detection of the release.

2. Evaluation Monitoring

The Discharger shall, within 90 days of verifying a release, submit a technical report pursuant to California Water Code section 13267(b) proposing an 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.

3. Engineering Feasibility Study Report

The Discharger shall, within 180 days of verification of a release or detection, submit an Engineering Feasibility Study that shall contain either corrective action measures that could be taken to achieve background concentration or demonstrate that the Landfill is not the cause of the detection.

4. Data Analysis Report

The Discharger shall, by **February 15 of every year**, submit a Data Analysis Report as specified in Section III (Data Analysis) of this Monitoring and Reporting Program.

C. General Provisions

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

D. Annual Report

On or before **February 15, 2010**, and on or before **February 15** every year thereafter, the Discharger shall submit an annual report to the Water Board for the period January to December. This report shall include the items described in the General Provisions for Monitoring and Reporting (Attachment B) and information that is required to be collected semiannually.

E. Financial Assurance

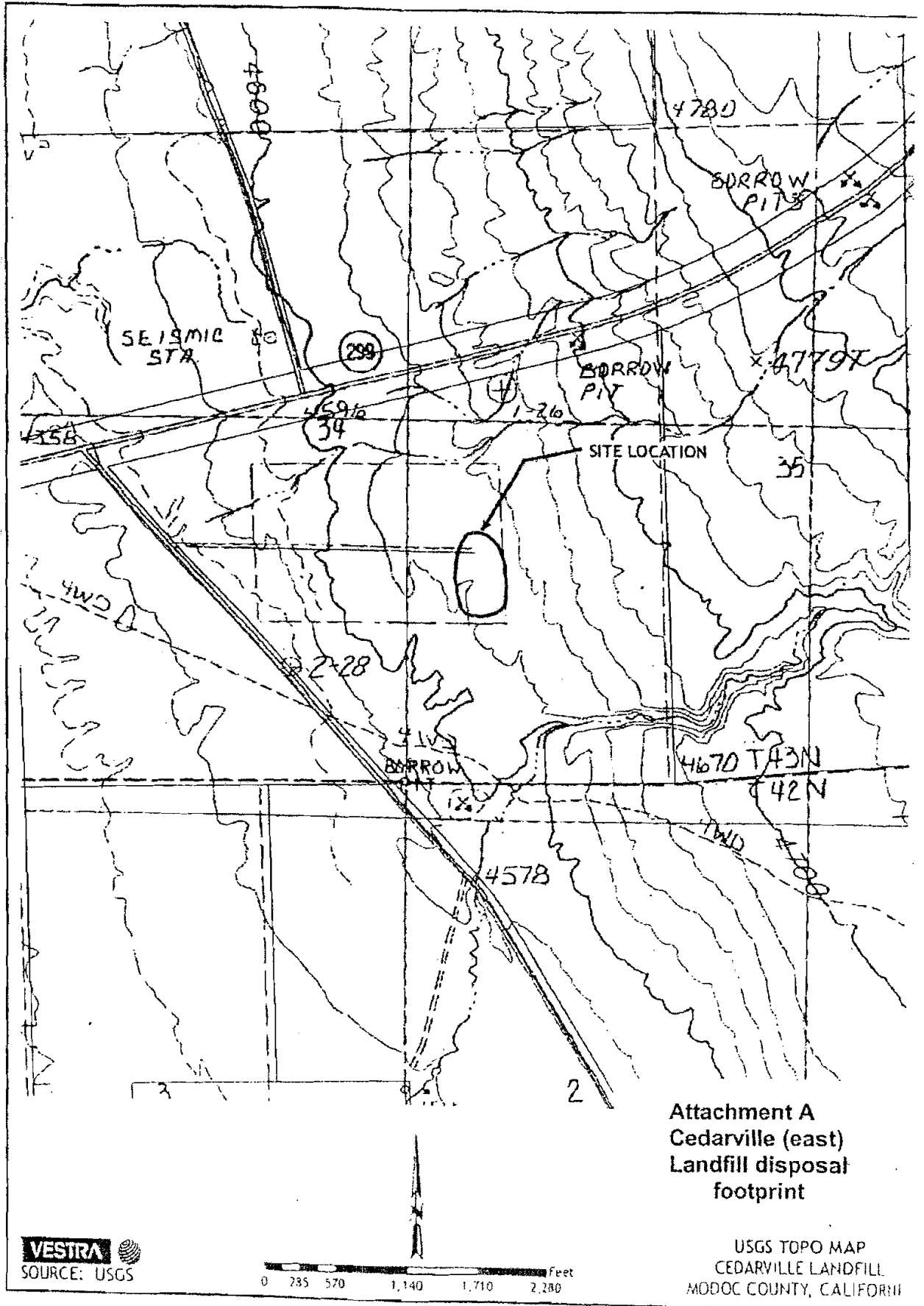
On or before **February 15, 2011**, and on or before **February 15** every year thereafter the Dischargers shall submit an annual financial assurance report to the Water Board. This report shall summarize the amount of money available in the fund. This report should also provide a demonstration that the amount of financial assurance is adequate, or the need to increase the amount of financial assurance based on inflation or other factors.

Ordered by: Harold J. Singer
HAROLD J. SINGER
EXECUTIVE OFFICER

Dated: May 13, 2009

- Attachment: A. Cedarville (East) Landfill disposal footprint
B. General Provisions for Monitoring and Reporting
C. Transmittal Cover Letter Form

ATTACHMENT A



**Attachment A
Cedarville (east)
Landfill disposal
footprint**

VESTRA 
SOURCE: USGS

0 285 570 1,140 1,710 2,280 Feet

USGS TOPO MAP
CEDARVILLE LANDFILL
MODOC COUNTY, CALIFORNIA

ATTACHMENT B

ATTACHMENT "B"
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 Executive Officer 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.
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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 6A257504401
- 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.

T:FORMS/M&R PROVISIONS

ATTACHMENT C

Attachment C

Date _____

California Regional Water Quality Control Board
Lahontan Region
2501 Lake Tahoe Boulevard
South Lake Tahoe, CA 96150

Facility Name: _____

Address: _____

Contact Person: _____

Job Title: _____

Phone: _____

Email: _____

WDR/NPDES Order Number: _____

WDID Number: _____

Type of Report (circle one):	Monthly	Quarterly	Semi-Annual	Annual	Other	
Month(s)	JAN	FEB	MAR	APR	MAY	JUN
(circle applicable month(s)*:	JUL	AUG	SEP	OCT	NOV	DEC

*annual Reports (circle the first month of the reporting period)

Year: _____

Violation(s)? (Please check one): _____ NO _____ YES*

*If YES is marked complete a-g (Attach Additional information as necessary)

a) Brief Description of Violation: _____

b) Section(s) of WDRs/NPDES

Permit Violated:

c) Reported Value(s) or Volume:

d) WDRs/NPDES Limit/Condition:

e) Date(s) and Duration of Violation(s):

f) Explanation of Cause(s):

g) Corrective Action(s) (Specify actions taken and a schedule for actions to be taken)

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision following a system designed to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my knowledge of the person(s) who manage the system, or those directly responsible for data gathering, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

If you have any questions or require additional information, please contact _____ at the number provided above.

Signature: _____

Name: _____

Title: _____