

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2006-0048

WASTE DISCHARGE REQUIREMENTS
FOR
THE JAMESTOWN TRUST I, THROUGH ITS TRUSTEE
COUNTY OF TUOLUMNE
ROBERT CAMERON
GARY WILSON
DISCHARGE OF MINE WASTEWATER TO HARVARD MINE PIT
TUOLUMNE COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) finds that:

1. The County of Tuolumne, Robert Cameron and Gary Wilson (jointly owners), and the Jamestown Trust I through its Trustee (operator), (hereafter jointly referred to as Discharger) currently operate and own various portions of the Jamestown Mine Site. The County and Cameron each own a portion of the Tailings Management Facility (TMF) and Wilson owns the Harvard Mine Pit. The TMF and Harvard Mine Pit were previously parts of the Jamestown Gold Mine (Jamestown Mine).
2. The Jamestown Mine closure is regulated by Waste Discharge Requirements (WDRs) Order No. 97-082 which still governs mine closure and monitoring in conformance with Title 27 of California Code of Regulations, Division 2, Subdivision 1 (hereafter Title 27). The Discharger submitted a request for WDRs to discharge wastewater from the TMF to the Harvard Mine Pit. These WDRs are ancillary to WDRs Order No. 97-082.
3. These WDRs allow the discharge of degraded water from the TMF to Harvard Mine Pit. This discharge will facilitate in the closure of the TMF in compliance with Title 27.

LITIGATION BACKGROUND

4. On 18 December 1998, the Regional Board issued Cleanup and Abatement Order (CAO) No. 98-735 requiring the mine property owners to complete several tasks designed to investigate the extent of, and cleanup, pollution. The CAO also required closure of the TMF in compliance with Title 27. The property owners failed to comply with CAO No. 98-735 and on 17 September 1999, the Regional Board adopted Resolution No. 99-129 for referral to the Attorney General's Office for Civil Liability. On 12 December 2001 the Attorney General's Office filed a Complaint for Injunctive Relief (Complaint) in Tuolumne County Superior Court; and on 10 June 2004 the Attorney General's Office filed a First Amended Complaint (FAC) in Stanislaus County Superior Court. The Complaint and FAC (the Litigation) named the County of Tuolumne, Robert Cameron and Gary Wilson, among others, as Defendants.

5. The parties to the Litigation settled the matter in principle in 2005. These WDRs are partially based on the Settlement Documents to be signed by the parties and the Court in the Litigation. "Settlement Documents" means the Stipulated Judgments and related documents by and among the Regional Board and the other parties to the Litigation. These WDRs do not become effective unless or until the Settlement Documents are approved and signed by all parties to the Litigation and the Stipulated Judgment is filed with Superior Court of California, County of Stanislaus (Case No. 310102)."
6. The litigation is expected to be resolved through a settlement agreement which will, among other things, establish two trusts, one to implement near and medium term remediation (Jamestown Trust I) and another to implement longer-term response actions (Jamestown Trust II). The Jamestown Trust I will be funded with money solely from the private settling defendants, for the purposes of:
 - a. Holding, investing, and disbursing funds paid to the trust pursuant to the provisions of the Stipulated Judgment;
 - b. Providing financial assurances to the Regional Board for the appropriate management of environmental conditions at and emanating from the Site, including but not limited to Phase I as described below and in more detail in the Settlement Documents;
 - c. Providing protection to surface water, groundwater and other natural resources within the jurisdiction of the Regional Board that are impacted or threatened to be impacted by releases at or from the Site;
 - d. Implementing steps to address releases and threatened releases at and from the Site, consistent with the written concurrence of the Regional Water Board in its regulatory capacity; and
 - e. Otherwise carrying out the provisions of the trust agreement.
7. To facilitate the settlement and to implement the equitable remediation obligations of the non-governmental settling defendants, Shaw Environmental Liability Solutions, LLC ("SELS") voluntarily agreed to perform the Phase I work for Jamestown Trust I on the terms and conditions set forth in the Settlement Documents, to assume the responsibility and liabilities as set forth herein, and to consent to the jurisdiction of the Regional Board. Phase I work includes but is not limited to securing regulatory closure of the TMF, undertaking certain investigation activities, and site operation and maintenance for a ten-year period. SELS shall not be considered an owner or operator of a mine, or a discharger under these WDRs, but is responsible for implementing all of the obligations of the Discharger as it relates to Phase I work to the extent provided in the settlement documents. SELS consents to the jurisdiction of the Regional Board but only to the extent of its obligation pursuant to the settlement documents. SELS' obligations under these WDRs shall terminate on its

completion of Phase I work, subject to the reservations of rights of plaintiffs under the Settlement Documents.

8. To the extent of an inconsistency between the Settlement Documents and these WDRs, the Settlement Documents will control the rights and obligations of the parties to those documents.

FACILITY BACKGROUND

9. The Jamestown Mine is about one mile from Jamestown in Sections 9 and 16, T1N, R14E, MDB&M as shown on Attachment A, which is attached hereto and made a part of this Order by reference.
10. The Jamestown Mine is an inactive gold mine that operated most recently from 1986 to 1994. The mine facility consists of three mine pits (including the Harvard Mine Pit), the Tailings Management Facility (TMF), a Waste Rock Storage Area (RSA), the Process Water Retention Pond (a lined Class II surface impoundment) and several storm water retention ponds. Groundwater monitoring has detected evidence that the mine facilities (principally the TMF and the RSA) are discharging mining wastes into surface water and groundwater.
11. The TMF consists of an approximately 120-acre lined tailings impoundment. The Harvard Mine Pit consists of an approximately 72-acre (maximum aerial extent), 520 feet deep (measured from the south lip) mine pit. These features are shown on Attachment B, which is attached hereto and made a part of this Order by reference. Water that drains from the TMF is collected in the Process Water Retention Pond, and discharged back to the TMF where it collects and mixes with storm water in the TMF Supernatant Pond.
12. To close the TMF, water from the Supernatant Pond, TMF, and Process Water Retention Pond will be transferred to the Harvard Mine Pit. Currently, the Harvard Mine Pit is slowly filling with groundwater. The groundwater is polluted due to interaction with rock surfaces, exposed by mining, at various locations. Stormwater from retention ponds DP-5 and DP-6 may also be transferred to Harvard Mine Pit to facilitate closure of those ponds.
13. This WDR classifies the Harvard Mine Pit as a Group B mine waste containment unit. In order for the pit to act as a waste containment unit, it must be maintained as a groundwater sink and must not release waters to un-impacted downgradient groundwater. These WDRs require that water levels in the Harvard Mine Pit be maintained below a level that would discharge to downgradient waters. Mixing TMF water and other site water with Harvard Mine Pit water will not significantly degrade the already polluted water now collecting in the Harvard Mine Pit.
14. Approximately 180 acre-feet of TMF water (mostly from the Supernatant Pond) will be discharged to the Harvard Mine Pit in the first year. An additional approximately 300 acre-feet of TMF water, mostly interstitial tailings water and groundwater, may be discharged to the Harvard Mine Pit during the five-year remediation period.

15. These WDRs are intended to be limited to Phase I work. Modifications of this Order or additional WDRs may be issued for work beyond the scope of Phase I.

WASTE AND SITE CLASSIFICATION

16. Water quality at this site may be summarized as follows:

Constituent	Supernatant Pond	TMF	Harvard Mine Pit	Background Groundwater	Water Quality Limits ¹
Total Dissolved Solids (TDS) (mg/l)	2500	2600	2500	270	450
Sulfate (mg/l)	1500	1400	1200	26	250
Sodium (mg/l)	240	240	110	10	69
Magnesium (mg/l)	200	280	180	29	none
Calcium (mg/l)	180	260	200	38	none
Arsenic (mg/l)	0.021	0.025	0.87	0.002	0.01

¹ Water quality limits used to implement applicable water quality objectives for the protection of beneficial uses of the groundwater

17. 'Group B Mining Waste' is defined in Title 27, §22480, as either: (A) *mining wastes that consists of or contain hazardous wastes, that qualify for a variance under Chapter 11 of Division 4.5 of Title 22 of this code, provided that the RWQCB finds that such mining wastes pose a low risk to water quality; or (B) mining wastes that consist of or contain nonhazardous soluble pollutants of concentrations which exceed water quality objectives for, or could cause, degradation of waters of the state.*

18. Water in the Supernatant Pond, water draining from the tailings, and water in the Harvard Mine Pit contain concentrations that exceed water quality objectives and could cause degradation of waters of the state because they also exceed background concentrations. Therefore, these waters are classified as 'Group B Mine Waste' and as such must be discharged to a Group B Mine Waste impoundment as required by Title 27.

SITE DESCRIPTION

19. The native material underlying the TMF and Harvard Mine Pit is fractured bedrock with highly variable hydraulic conductivity. Aquifer tests indicate that average bedrock permeabilities range from 2×10^{-6} to 3×10^{-4} centimeters per second.

20. Land uses within 1,000 feet of the Jamestown Mine are residential, agricultural, industrial and commercial.

21. The Jamestown Mine receives an average of 32.7 inches of precipitation per year as measured at the Sonora Ranger Station, approximately four miles northeast of the site. The mean pan evaporation is 78 inches per year as measured at the New Melones Dam Station, approximately 5 miles from the site.
22. The 100-year, 24-hour precipitation event is estimated to be 6.5 inches, based on Miller, Frederick, and Tracey, 1973; "Precipitation – Frequency Atlas of the Western United States, v.IX-California", NOAA Atlas 2, U.S. Dept Commerce, National Weather Service.
23. There are approximately 47 municipal, domestic, industrial, or agricultural groundwater supply wells within one mile of the site.

SURFACE AND GROUND WATER CONDITIONS

24. The Water Quality Control Plan for the Sacramento River and San Joaquin River Basin, Fourth Edition (hereafter Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies for all waters of the Basin.
25. Surface drainage is to Woods Creek, a tributary to the Tuolumne River, which drains to the San Joaquin River. The site drainage is in the Sonora Hydrologic Area (536.31).
26. The designated beneficial uses of the Tuolumne River (source to New Melones Reservoir), as specified in the Basin Plan, are municipal and domestic supply, agricultural supply, power supply, contact and non-contact water recreation, warm and cold freshwater habitat, and wildlife habitat.
27. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal, agricultural, and industrial supply.
28. Groundwater west of the Rawhide West Fault flows toward the south. Groundwater east of the fault flows toward and is captured by Harvard Mine Pit.
29. Data from groundwater monitoring wells downgradient of the TMF and Waste Rock Storage Area (TDMW-03, -04, -12, -14, -15, -16, -18, -19, RSMW-8, -9A) demonstrate a pattern of increasing sulfate, chloride, nitrate, and TDS concentrations. The overall pattern in downgradient monitor wells is of increasing impacts which began after the start of mine operations.
30. Before active mining, first encountered groundwater was about 2.9 to 34 feet below the native ground surface. The site was dewatered for open pit mining, creating a deep drawdown cone centered on the Harvard Mine Pit. When active mine operations ceased, the operator turned the pumps off, and groundwater levels are slowly recovering.
31. If water levels in the Harvard Mine Pit are maintained below the elevation of Woods Creek (1330 feet mean sea level (msl)) then Harvard Mine Pit water will be contained on site.

These WDRs require that water levels in the Harvard Mine Pit will be maintained below 1320 feet msl. If necessary in the future, the Harvard Mine Pit will be maintained as a groundwater sink by artificial means (e.g. pumping, treating, etc.).

DESIGN OF WASTE MANAGEMENT UNIT

32. The Discharger proposes to use the Harvard Mine Pit as an engineered alternative for a Group B Mine Waste surface impoundment. The engineered alternative will contain polluted water by acting as a groundwater sink.
33. Section 20080(b) of Title 27 allows the Regional Board to consider the approval of an engineered alternative to the prescriptive standard. In order to approve an engineered alternative in accordance with §20080(c)(1) and (2), the Discharger must demonstrate that the prescriptive design is unreasonably and unnecessarily burdensome and will cost substantially more than an alternative which will meet the criteria contained in §20080(b), or would be impractical and would not promote attainment of applicable performance standards. The Discharger must demonstrate that the proposed engineered alternative(s) provides protection against water quality impairment equivalent to the prescriptive standard in accordance with §20080(b)(2) of Title 27. The Discharger must also demonstrate that any proposed engineered alternative is consistent with the performance goal in accordance with §20240, §20250, and §20310 of Title 27.
34. Section 13360(a)(1) of the California Water Code allows the Regional Board to specify the design, type of construction, and/or particular manner in which compliance must be met in waste discharge requirements or orders for the discharge of waste at solid waste disposal facilities.
35. The Discharger proposes to discharge wastewater from the TMF and other water retention ponds to the Harvard Mine Pit, a groundwater sink. Because the Harvard Mine Pit has a lower water level than surrounding groundwater, groundwater moves toward Harvard Mine Pit. Therefore, migration of wastes from the Harvard Mine Pit to adjacent natural geologic materials, groundwater, or surface water should not occur. These WDRs require that water levels in the pit will be maintained below 1320 msl. In the future and if necessary, funds from the Settlement may be used to control water levels either by natural or enhanced evaporation, or by removal, treatment, and discharge of excess water.
36. The Discharger adequately demonstrated that construction of the prescriptive standard liner for a Group B Mine Waste surface impoundment, as described in Title 27, would be unreasonable and unnecessarily burdensome when compared to the proposed engineered alternative and that the alternative affords equivalent protection against water quality impairment. So long as water levels in Harvard Mine Pit remain below groundwater levels, groundwater will flow toward the pit. Water levels in the pit are expected to reach equilibrium levels (maximum natural fill level) in the year 2045. At equilibrium level, water lost to evaporation will equal groundwater inflow. Hydrologic projections indicate that

equilibrium levels will be sufficiently lower than groundwater levels for the pit to remain a sink. The Discharger has demonstrated that the proposed engineered alternative is consistent with the performance goals of the containment structures for a Group B Mine Waste management unit.

37. Because the Harvard Mine Pit is permitted under these WDRs as an engineered alternative to the prescriptive standards for a Group B mining surface impoundment, it is recognized that it will not likely be closed as described in Title 27 Section 22510(k).

CEQA AND OTHER CONSIDERATIONS

38. The action to revise waste discharge requirements for this existing facility is exempt from the provisions of the California Environmental Quality Act (CEQA), Public Resource Code §21000, et seq., and the CEQA guidelines, in accordance with Title 14, CCR, §15301.
39. On 24 February 1986, the Tuolumne County Board of Supervisors certified the final supplemental EIR for the Sonora Mining Corporation, California Gold Project (Jamestown Mine), in accordance with CEQA, Public Resources Code Section 21000, et seq. The EIR discloses that the project may have the following impacts: (a) deterioration of groundwater from leakage of process water/tailings waste will be mitigated by the installation of the TMS, (b) contamination of Woods Creek from accidental spills of mill reagents or tailings disposal facility rupture, and (c) contamination of groundwater from accidental spills of toxic materials.
40. The Regional Board has reviewed the EIR. WDR Order No. 97-082 provides protection to water quality equal to or more effective than the mitigation measures in the EIR relating to water quality. Compliance with WDR Order No. 97-082 will mitigate or avoid significant impacts on water quality listed in Finding 38 as follows: (a) dewatering and covering the tailings will prevent further deterioration of groundwater quality under the tailings disposal site; and (b) the threat of contamination to Woods Creek or groundwater from rupture of the tailings disposal facility is mitigated by the design of the tailings management facility. Because the site no longer operates as a gold extraction facility, mill reagents and other toxic chemicals are no longer present on site.
41. This Order implements:
- a. The Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition; and
 - b. The prescriptive standards and performance goals of California Code of Regulations, effective 18 July 1997, and subsequent revisions.

PROCEDURAL REQUIREMENTS

42. The Regional Board notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge, and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
43. The Regional Board, in a public meeting, heard and considered all comments pertaining to these WDRs.

IT IS HEREBY ORDERED that Jamestown Trust I through its Trustee, the County of Tuolumne, Robert Cameron and Gary Wilson, their agents, successors, and assigns, in order to meet the provisions of Division 7 of the California Water Code and the regulations adopted thereunder, shall comply with the following:

A. PROHIBITIONS

1. The discharge of 'hazardous waste' related to the closure of the TMF and discharges into the Harvard Mine Pit at this facility is prohibited. For the purposes of this Order, the terms 'hazardous waste' and 'designated waste' are as defined in Division 2 of Title 27 of the CCR.
2. The discharge of solid waste or liquid waste to surface waters, surface water drainage courses, or groundwater is prohibited.
3. The discharge of wastes outside of a waste management unit or portions of a waste management unit specifically designed for their containment is prohibited.
4. The discharges described in this Order are prohibited until the Settlement Documents (described in Finding 5) are approved and signed by all parties to the Litigation, and the Stipulated Judgment is filed with the Superior Court of California, County of Stanislaus (Case No. 310102). Discharge may commence upon submittal of the filed Stipulated Judgment and written authorization by the Executive Officer.

B. DISCHARGE SPECIFICATIONS

General Specifications

1. Wastes shall only be discharged into, and shall be confined to, the waste management units (WMUs) specifically permitted for their containment.

Protection From Storm Events

2. Waste management units shall be designed, constructed and operated to prevent inundation or washout due to flooding events with a 100-year return period.
3. Precipitation and drainage control systems shall be designed, constructed and maintained to accommodate the anticipated volume of precipitation and peak flows from surface runoff under 100-year, 24-hour precipitation conditions.
4. Annually, prior to the anticipated rainy season, any necessary erosion control measures shall be implemented, and any necessary construction, maintenance, or repairs of precipitation and drainage control facilities shall be completed to prevent erosion or flooding of the site.

Class II Surface Impoundment

5. The surface impoundment shall consist of the Harvard Mine Pit, which will be managed to act as a groundwater sink.
6. In order to maintain containment, Harvard Mine Pit water levels shall be kept below 1320 feet msl.
7. The Harvard Mine Pit and related containment structures shall be maintained to prevent, to the greatest extent possible, inundation, erosion, slope failure, washout, and overtopping under 1,000-year, 24-hour precipitation conditions, and shall be designed to contain the 100-year wet season precipitation.
8. Any direct-line discharge to a surface impoundment shall have fail-safe equipment or operating procedures to prevent overfilling.
9. The surface impoundment shall be operated and maintained to prevent scouring and/or erosion of the containment features or impoundment walls at points of discharge to the impoundment and by wave action at the water line.

Group B Mine Tailings Facility Closure

10. The discharge described in these WDRs will be conducted to facilitate TMF closure. The closure of the TMF and other storm water containment structures shall be under the direct supervision of a California registered civil engineer or certified engineering geologist.

C. FINANCIAL ASSURANCE

1. These WDRs are being issued to enable the implementation of certain activities related to the closure of the TMF, namely, the discharge of water from the TMF underdrains and

Supernatant pond to the Harvard Mine Pit as necessary to close the TMF. The financial assurances for these activities will be provided by the Jamestown Trust I, consisting of the funds of the trust. Available information demonstrates that the combination of these agreements and financial assurances provide the Regional Board with assurance that the Phase I closure activities for the waste management unit can and will be completed. Starting in 2007, the Trustee shall, by **30 April of each year**, prepare and submit, plans with detailed cost estimates and a demonstration of assurances of financial responsibility for initiating and completing corrective action for all known or reasonably foreseeable releases from the waste management unit. The Trust shall provide the assurances of financial responsibility to the Regional Board as required by Title 27 CCR, Division 2, Subdivision 1, Chapter 6. The assurances of financial responsibility shall provide that funds for corrective action shall be available to the Regional Board upon the issuance of any order under California Water Code, Division 7, Chapter 5. The assurances of financial responsibility shall name the Regional Board as beneficiary and shall provide that funds for corrective action shall be available to the Regional Board upon the issuance of any order under California Water Code, Division 7, Chapter 5. The Trust shall adjust the cost annually to account for inflation and any changes in facility design, construction, or operation. The financial assurance fund for corrective action shall be established **prior to discharging waste to the Harvard Mine Pit.**

2. Jamestown Trust I shall, by **30 April of each year (beginning 30 April 2007)**, prepare and submit, plans with detailed cost estimates and a demonstration of assurances of financial responsibility to ensure closure and post-closure maintenance of each waste management unit in accordance with its approved closure and post-closure maintenance plans. The Trust shall provide the assurances of financial responsibility to the Regional Board as required by Title 27 CCR, Division 2, Subdivision 1, Chapter 6. The assurances of financial responsibility shall provide that funds for closure and post-closure shall be available to the Regional Board upon the issuance of any order under California Water Code, Division 7, Chapter 5. The Trust shall adjust the cost annually to account for inflation and any changes in facility design, construction, or operation.

D. PROVISIONS

1. The Trust shall comply with the Standard Provisions and Reporting Requirements, dated September 2003, which are hereby incorporated into this Order. The Standard Provisions and Reporting Requirements contain important provisions and requirements with which the Discharger must comply. A violation of any of the Standard Provisions and Reporting Requirements is a violation of these waste discharge requirements.
2. The Trust shall comply with Monitoring and Reporting Program No. R5-2006-0048, which is attached to and made part of this Order. This compliance includes, but is not limited to, maintenance of waste containment facilities and precipitation and drainage controls and monitoring surface waters throughout the active life of the waste management units and the post-closure maintenance period. A violation of Monitoring

and Reporting Program No. R5-2006-0048 is a violation of these waste discharge requirements.

3. **Prior to discharging waste to the Group B Mine Waste Surface Impoundment (Harvard Mine Pit) the Trust shall** establish Financial Assurance funds for corrective action, unit closure and post-closure maintenance as provided in Section C above.
4. The Trust shall maintain legible records of the volume and type of waste discharged to the surface impoundments and the manner and location of the discharge. Such records shall be maintained at the facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the Regional Board and of the State Water Resources Control Board, copies of these records shall be sent to the Regional Board.
5. The Trust shall provide proof to the Regional Board **within sixty days after completing final closure of the TMF** that the deed to the surface impoundment facility property, or some other instrument that is normally examined during title search, has been modified to include, in perpetuity, a notation to any potential purchaser of the property stating that:
 - a. the parcel has been used for disposal of liquid mine wastes;
 - b. land use options for the parcel are restricted in accordance with the post-closure land uses set forth in the post-closure plan and in WDRs for the surface impoundment; and
 - c. in the event that the Discharger defaults on carrying out either the post-closure maintenance plan or any corrective action needed to address a release, then the responsibility for carrying out such work falls to the property owner.
6. The Regional Board will review this Order periodically and may revise requirements when necessary.
7. The Trust shall complete the tasks outlined in these WDRs and the attached Monitoring and Reporting Program No. R5-2006-0048 in accordance with the following time schedule:
 - a. **60 Days after effective date of these WDRs** submit a Revised Closure and Post-closure Maintenance Plan for the TMF that complies with Title 27 Section 22510.
 - b. By **30 April 2007** submit demonstrations of financial assurances for initiating and completing corrective actions and for closure and post-closure maintenance in

accordance with C. Financial Assurance 1. and 2. above.

- c. **Prior to discharging waste to the Harvard Mine Pit** submit a *Water Level Maintenance Plan*. This plan shall describe how water level of the pit will be maintained below 1320 msl if the water level threatens to, or does, exceed this level.
 - d. **Upon completion of the Phase I Site Investigation**, update the *Water Level Maintenance Plan*. This update shall include a data evaluation from the Phase I Site Investigation and shall include any necessary changes to the Maintenance Plan.
 - e. **60 days after completion of closure construction**, submit a Construction Quality Assurance Report for closure of the TMF in compliance with Title 27 Section 20324.
8. In the event of any change in ownership of the waste management facility, the property owner shall notify the succeeding owner or operator in writing of the existence of this Order. A copy of that notification shall be sent to the Regional Board.

I, Pamela C. Creedon, Executive Officer, do hereby certify the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 5 May 2006.

PAMELA C. CREEDON, Executive Officer

Attachments
RDA; 4 April 2006

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2006-0048

FOR

JAMESTOWN MINE TRUST I, THROUGH ITS TRUSTEE

COUNTY OF TUOLUMNE

ROBERT CAMERON

GARY WILSON

DISCHARGE OF MINE WASTEWATER TO HARVARD MINE PIT

TUOLUMNE COUNTY

This Monitoring and Reporting Program is concerned only with monitoring requirements related to discharges to the Harvard Mine Pit to facilitate TMF closure. Groundwater and surface water monitoring requirements for the Jamestown Mine site continue to be regulated by Monitoring and Reporting Program No. 97-082. Compliance with this Monitoring and Reporting Program, and with the companion Standard Provisions and Reporting Requirements, is ordered by Waste Discharge Requirements Order No. R5-2006-0048. Failure to comply with this Program, or with the Standard Provisions and Reporting Requirements dated September 2003, constitutes noncompliance with the WDRs and with the Water Code, which can result in the imposition of civil monetary liability.

A. REPORTING

The Discharger shall report monitoring data and information required in this Monitoring and Reporting Program as a part of the normal facility monitoring report required under Monitoring and Reporting Program No. R5-2006-0048. Monitoring Reports shall conform to the reporting requirements outlined in the Standard Provisions and Reporting Requirements. Reports which do not comply with the required format will be **REJECTED** and the Discharger shall be deemed to be in noncompliance with the WDRs. In reporting the monitoring data required by this program, the Discharger shall arrange the data in tabular form so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or the lack thereof. Historical and current monitoring data shall be graphed at least once annually. Graphs for the same constituent shall be plotted at the same scale to facilitate visual comparison of monitoring data. A short discussion of the monitoring results, including notations of any water quality violations shall precede the tabular summaries. Data shall also be submitted annually in a digital format acceptable to the Executive Officer

Method detection limits and practical quantitation limits shall be reported. All peaks shall be reported, including those which cannot be quantified and/or specifically identified. Field and laboratory tests shall be reported in the quarterly monitoring reports. The results of any monitoring done more frequently than required at the locations specified herein shall be reported to the Board.

B. REQUIRED MONITORING REPORTS AND SUBMITTAL DATES

1. Quarterly/Semiannual Monitoring Reports

All Quarterly and Semiannual monitoring reports shall include all water quality data and observations collected during the reporting period and submitted per the **Reporting Due Dates** in Section B.3 of this Monitoring and Reporting Program. At a minimum the sampling and data collection in Tables 1 and 2 of this Monitoring and Reporting Program, Standard Provisions and Reporting Requirements (2003), and Waste Discharge Requirements shall be reported.

2. Annual Monitoring Summary Report

The Discharger shall submit an Annual Monitoring Summary Report to the Board covering the previous monitoring year. The annual report shall contain the information specified in Standard Provisions and Reporting Requirements (2003), Section VIII.B. of the *“Reports to be Filed with the Board.”* The annual report may be submitted with the final quarterly or semi-annual report for the year.

3. Submittal Dates

Quarterly or Semiannual Monitoring Reports

Reporting Type	Sampling Frequency and Data Reported	Reporting Period	Report Date Due
Quarterly	Daily, Weekly, Monthly and Quarterly	1 January – 31 March 1 April – 30 June 1 July – 30 September 1 October – 31 December	30 April 31 July 31 October 31 January
Semiannually	Daily, Weekly, Monthly, Quarterly and Semiannually	1 January – 30 June 1 July – 31 December	31 July 31 January

Quarterly or Semiannual Monitoring Reports shall be attached to their corresponding facility monitoring reports required under Monitoring and Reporting Program (MRP) No. 97-082.

Annual Monitoring Summary Report **31 January**

Facility Monitoring Report **15 November**

C. MONITORING

The Discharger shall comply with the monitoring program provisions of Title 27, in accordance with Monitoring Specifications in Standard Provisions and Reporting Requirements (2003). All monitoring shall be conducted in accordance with a Sample Collection and Analysis Plan, which includes quality assurance/quality control standards, that is acceptable to the Executive Officer.

Method detection limits and practical quantitation limits shall be reported. All peaks shall be reported, including those which cannot be quantified and/or specifically identified.

The Discharger may, with the approval of the Executive Officer, use alternative analytical test methods, including new USEPA approved methods, provided the methods have method detection limits equal to or lower than the analytical methods specified in this Monitoring and Reporting Program.

1. Waste Discharge Monitoring

The Discharger shall monitor the quantity of all wastes discharged and the remaining capacity and the water level in the Harvard Mine Pit on a monthly basis and report the results in quarterly Monitoring Reports:

Table 1 - Waste Discharge Monitoring		
<u>Parameters</u>	<u>Units</u>	<u>Frequency</u>
Quantity Discharged	gallons	Monthly
Remaining Capacity	acre-feet	Monthly
Water Level	Feet (msl)	Monthly

2. Surface Impoundment

On a quarterly basis, the discharger shall monitor (a) the quality of water from the TMF prior to its discharge and (b) the quality of water in Harvard Pit. Samples of water discharged from the TMF and in the Harvard Pit shall be collected in a convenient location at least 50 feet from an influent structure. Liquids shall be sampled for the following:

<u>Parameters</u>	<u>Units</u>	<u>Frequency</u>
<u>Field Parameter</u>		
Temperature	°C	Quarterly
Specific Conductance	µmhos/cm	Quarterly
pH	pH	Quarterly
<u>Monitoring Parameters</u>		
Total Dissolved Solids	mg/L	Quarterly
Calcium	mg/L	Quarterly
Magnesium	mg/L	Quarterly
Sodium	mg/L	Quarterly
Potassium	mg/L	Quarterly
Chloride	mg/L	Quarterly
Sulfate	mg/L	Quarterly
Bicarbonate	mg/L	Quarterly
Carbonate	mg/L	Quarterly
Nitrate	mg/L	Quarterly
Ammonia	mg/L	Quarterly
Arsenic	ug/L	Quarterly
Selenium	ug/L	Quarterly
Manganese	mg/L	Quarterly
Total Organic Carbon	mg/L	Quarterly

3. Groundwater

Groundwater monitoring is required for the Jamestown Mine site in Monitoring and Reporting Program No. 97-082.

4. Facility Monitoring

The Discharger shall inspect all precipitation, diversion, and drainage facilities related to the Harvard Mine Pit for damage **within 7 days** following *major storm events*. Necessary repairs shall

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COUNTY OF TUOLUMNE, ROBERT CAMERON AND GARY WILSON
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TUOLUMNE COUNTY

-5-

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.

The Discharger shall implement the above monitoring program on the effective date of this Order.

Ordered by: _____
PAMELA CREEDON, Executive Officer

5 May 2006

Date

INFORMATION SHEET

ORDER NO. R5-2006-0048
THE JAMESTOWN TRUST I, THROUGH ITS TRUSTEE
COUNTY OF TUOLUMNE, GARY WILSON, AND ROBERT CAMERON
DISCHARGE OF MINE WASTEWATER TO HARVARD MINE PIT
TUOLUMNE COUNTY

These Waste Discharge Requirements (WDRs) are interim requirements with limited scope. They do not replace existing WDRs 98-082 for the Jamestown Mine facility. These WDRs are limited to the transfer of water from the Tailings Management Facility to the Harvard Mine Pit and thus allow cleanup activities to start during the 2006 construction season. The Harvard Mine Pit and the Jamestown Mine Tailings Management Facility (TMF) are within the Jamestown Gold Mine approximately one mile southwest of Jamestown in Tuolumne County. The Jamestown Mine is an inactive gold mine that last operated from 1986 to 1994. The Jamestown Trust I through its trustee (operator), and County of Tuolumne, Robert Cameron and Gary Wilson (jointly owners) currently operate and own the Jamestown Mine.

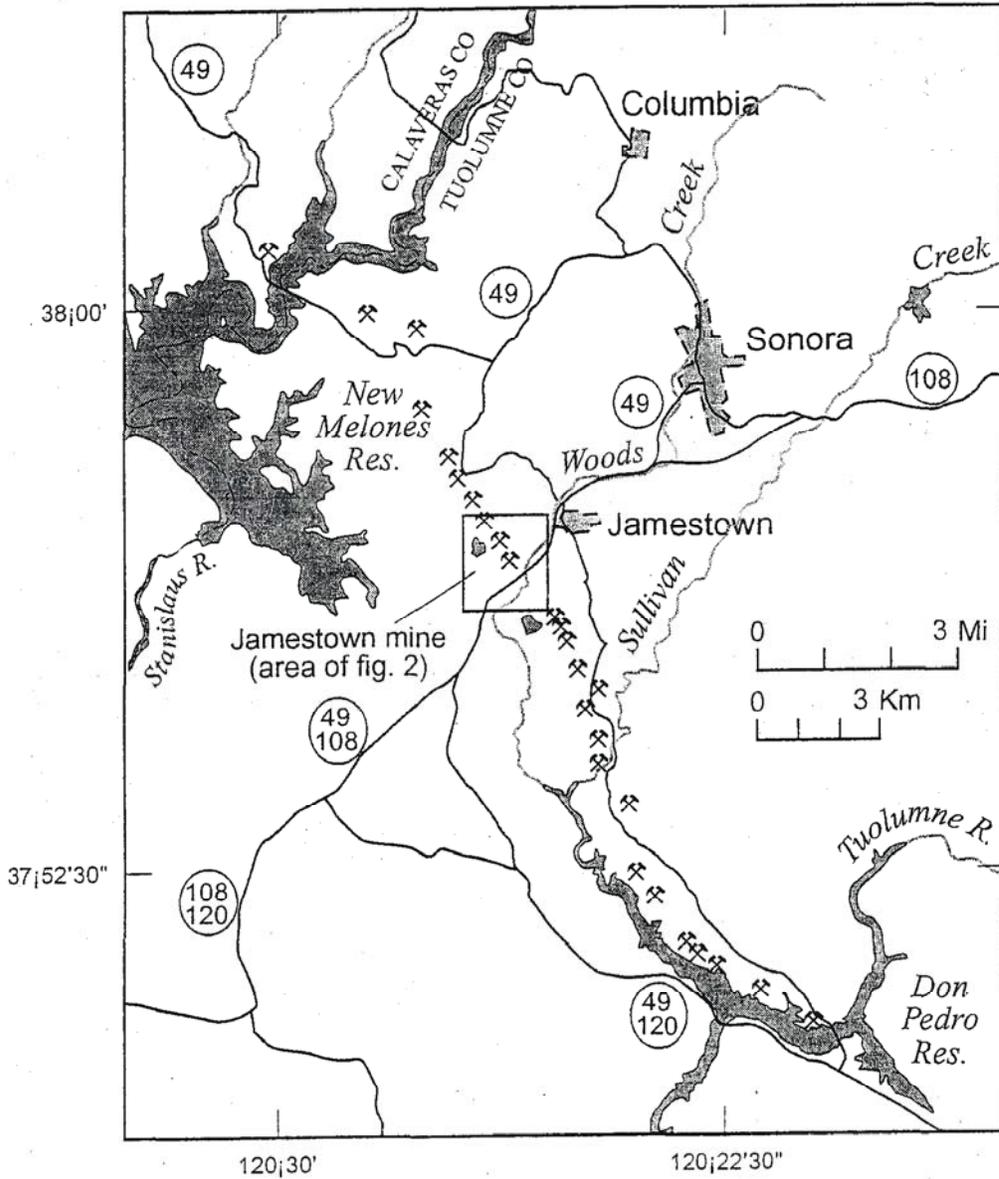
The TMF is an approximately 120-acre lined mine tailings impoundment. Polluted water from the TMF drains to the Process Water Retention Pond (a lined Group B mining waste surface impoundment), to the Supernatant Pond (an unlined evaporation pond on the TMF surface) and interstitially in the tailings. The current TMF water handling system does not dewater the TMF. To close the TMF, approximately 480-acre feet of water must be removed over a six-year period. The Discharger proposes to transfer TMF water to the Harvard Mine Pit.

The Harvard Mine Pit is an open mine pit excavated to extract gold. The Harvard Mine Pit is approximately 520 feet deep and has a 72-acre footprint. During active mining, groundwater was pumped to dewater the mine pit and surrounding area. When active mining ceased in 1994, the dewatering pumps were turned off and the pit started slowly refilling with poor quality water impacted through interaction with the shattered mineralized wall rock and with mineralized waste rock in the adjacent Rock Storage Area. Water in the Harvard Mine Pit and water in the TMF are of similar poor quality.

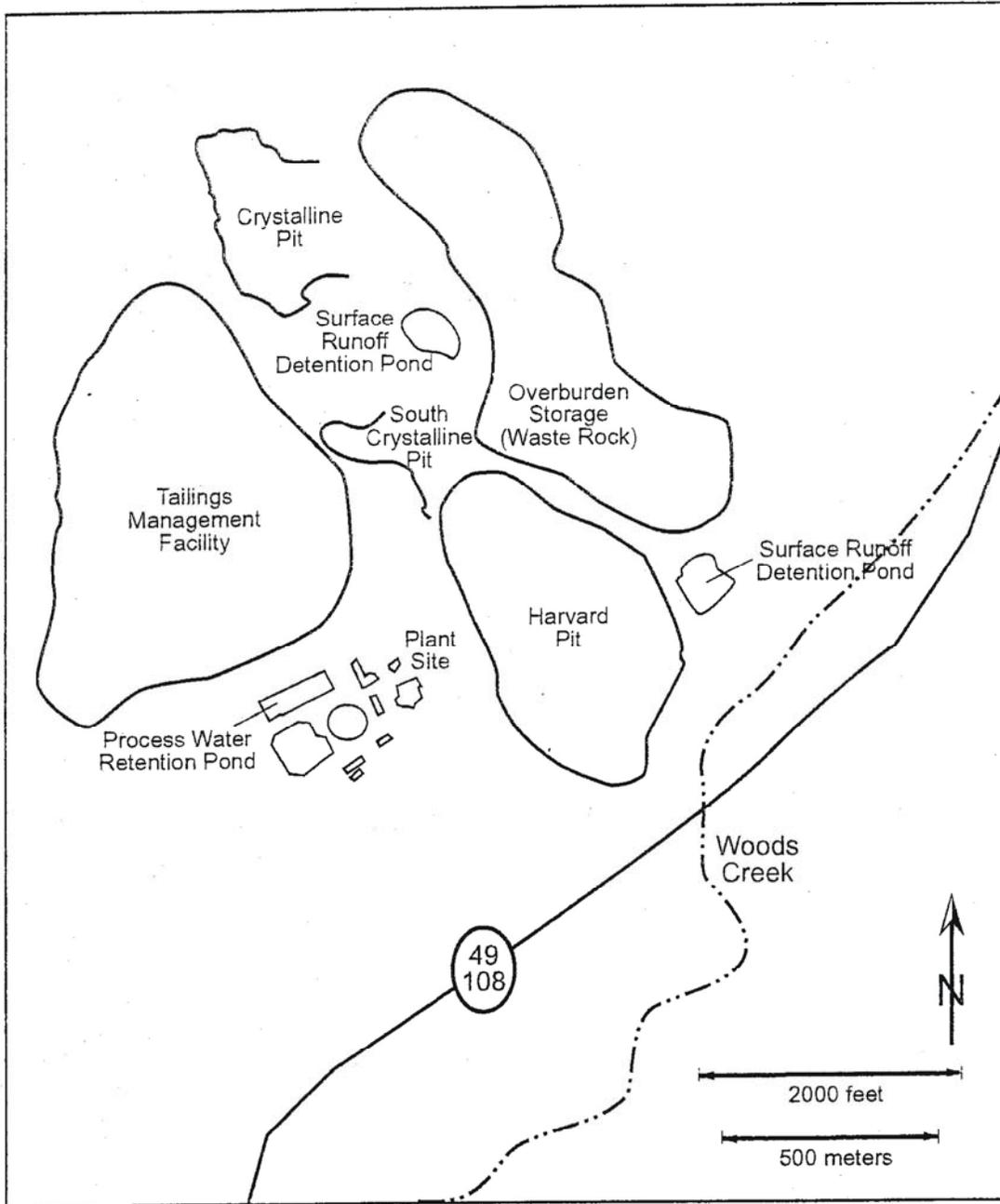
As long as water levels in Harvard Mine Pit remain below groundwater levels and below the level of nearby Woods Creek, water in the pit will be contained. Because it operates as a groundwater sink, the Harvard Mine Pit can be used to contain wastewater. Predictive modeling indicates that with no inputs other than inflowing groundwater and precipitation, water levels in the pit will equilibrate in the year 2045 at a level that will prevent discharge from the pit. Adding 480-acre feet of water from the TMF over the next six-years will decrease the time to reach equilibrium levels but should not change the equilibrium water level.

These WDRs classify the Harvard Mine Pit as a Group B mining waste containment unit, allow the discharge of TMF water to the Harvard Mine Pit, require quarterly monitoring of the discharge to the pit and water in the pit, and regulate future management of Harvard Mine Pit to prevent discharge. Discharging TMF water to Harvard Mine Pit is necessary to close the TMF.

RDA; 4 April 2006



Attachment A
Location of Jamestown Mine site



Attachment B
Jamestown Mine site showing main features

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STANDARD PROVISIONS AND REPORTING REQUIREMENTS
INDUSTRIAL FACILITIES
For Title 27 (27CCR §20005 et seq.)
September 2003

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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

STANDARD PROVISIONS AND REPORTING REQUIREMENTS
FOR
WASTE DISCHARGE REQUIREMENTS
FOR
DISCHARGES REGULATED BY TITLE 27
(27 CCR §20005 et seq.)
INDUSTRIAL FACILITIES

SEPTEMBER 2003

I. APPLICABILITY

- A. These Standard Provisions and Reporting Requirements are applicable to class II surface impoundments, waste piles, and land treatment units that are regulated pursuant to the provisions of Title 27 of the California Code of Regulations, §20005 et seq. (27 CCR or Title 27).
- B. “Order,” as used throughout this document, means the Waste Discharge Requirements to which these Standard Provisions and Reporting Requirements are incorporated.
- C. The requirements prescribed herein do not authorize the commission of any act causing injury to the property of another, and do not protect the Discharger from liabilities under federal, state, or local laws. This Order does not convey any property rights or exclusive privileges.
- D. The provisions of this Order are severable. If any provision of this Order is held invalid, the remainder of this Order shall not be affected.
- E. If there is any conflicting or contradictory language between the Waste Discharge Requirements (WDRs), the Monitoring and Reporting Program (MRP), or the Standard Provisions and Reporting Requirements (SPRR), then language in the WDRs shall govern over either the MRP or the SPRR, and language in the MRP shall govern over the SPRR.
- F. Unless otherwise stated, all terms are as defined in §13050 of the California Water Code (CWC) and in §20164 of Title 27.

II. TERMS AND CONDITIONS

- A. Failure to comply with any waste discharge requirement, monitoring and reporting requirement, or Standard Provisions and Reporting Requirement, or other order or prohibition issued, reissued, or amended by the Regional Board or the State Water Resources Control Board, or intentionally or negligently discharging waste, or causing or

permitting waste to be deposited where it is discharged into the waters of the state and creates a condition of pollution or nuisance, is a violation of these waste discharge requirements and the California Water Code, which can result in the imposition of civil monetary liability [CWC §13350(a)]

- B. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to [CWC §13381]:
 - 1. Violation of any term or condition contained in this Order;
 - 2. Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts;
 - 3. A change in any condition that results in either a temporary or permanent need to reduce or eliminate the authorized discharge; or
 - 4. A material change in the character, location, or volume of discharge.
- C. Before initiating a new discharge or making a material change in the character, location, or volume of an existing discharge, the Discharger shall file a new report of waste discharge, or other appropriate joint technical document, with the Regional Water Quality Control Board (hereafter Board) [CWC §13260(c) and §13264(a)]. A material change includes, but is not limited to, the following:
 - 1. An increase in area or depth to be used for solid waste disposal beyond that specified in waste discharge requirements;
 - 2. A significant change in disposal method, location, or volume (e.g., change from land disposal to land treatment); or
 - 3. A change in the type of waste being accepted for disposal.
- D. Representatives of the Board may inspect the facilities to ascertain compliance with the waste discharge requirements. The inspection shall be made with the consent of the owner or possessor of the facilities or, if the consent is refused, with a duly issued warrant. However, in the event of an emergency affecting the public health or safety, an inspection may be made without consent or the issuance of a warrant [CWC §13267(c)].
- E. The Board will review this Order periodically and will revise these waste discharge requirements when necessary [CWC §13263(e) and 27 CCR §21720(b)].
- F. Except for material determined to be confidential in accordance with California law and regulations, all reports prepared in accordance with terms of this Order shall be available for public inspection at the offices of the Board [CWC §13267(b)]. Data on waste discharges, water quality, geology, and hydrogeology shall not be considered confidential.

- G. A discharge of waste into the waters of the state is a privilege, not a right. No discharge of waste into waters of the state, whether or not the discharge is made pursuant to waste discharge requirements, shall create a vested right to continue the discharge [CWC §13263(g)].

III. GENERAL PROVISIONS

- A. The discharge shall neither cause nor contribute to the contamination, degradation, or **pollution of ground water** via the release of waste constituents in either liquid or gaseous phase.
- B. The discharge shall neither cause nor contribute to any **surface water pollution**, contamination, or nuisance, including, but not limited to:
1. floating, suspended, or deposited macroscopic particulate matter or foam;
 2. increases in bottom deposits or aquatic growth;
 3. an adverse change in temperature, turbidity, or apparent color beyond natural background levels;
 4. the creation or contribution of visible, floating, suspended, or deposited oil or other products of petroleum origin;
 5. the introduction or increase in concentration of toxic or other pollutants/contaminants resulting in unreasonable impairment of beneficial uses of waters of the State.
- C. The discharge shall not cause any increase in the concentration of waste constituents in soil-pore gas, soil-pore liquid, soil, or other geologic materials outside of the waste management unit (WMU) if such waste constituents could migrate to waters of the State—in either the liquid or the gaseous phase—and cause **a condition of contamination, pollution, degradation, or nuisance**.
- D. The discharge shall not cause the release of pollutants, or waste constituents in a manner which could cause a condition of contamination, pollution, degradation, or nuisance to occur, as indicated by the most appropriate statistical or non-statistical data analysis method and retest method listed in the Monitoring and Reporting Program.

- E. The discharger shall take **all reasonable steps to minimize any adverse impact** to the waters of the state resulting from noncompliance with this Order. (“Order,” as used throughout this document, means the Waste Discharge Requirements). Such steps shall include accelerated or additional monitoring as necessary to determine the nature, extent, and impact of the noncompliance.
- F. In the event of any change of ownership or responsibility for construction, operation, closure, or post-closure maintenance of the waste discharge facilities described in this Order, the Discharger shall notify the Board prior to the effective date of the change and shall include a statement by the new Discharger that construction, operation, closure, or post-closure maintenance will be in compliance with this Order and any revisions thereof [27 CCR §21710(c)(1)].
- G. The Discharger shall notify the Board of a material change in; the types, quantity, or concentrations of wastes discharged; site operations and features; or proposed closure procedures, including changes in cost estimates. This notification shall be given a reasonable time before the changes are made or become effective. No changes shall be made without Board approval following authorization for closure pursuant to the site Notification of Closure [27 CCR §21710(a)(4)].
- H. The Discharger shall maintain legible records of the volume and type of each waste discharged at each WMU or portion of a WMU, and the manner and location of discharge. Such records shall be maintained by the Discharger until the beginning of the post-closure maintenance period. These records shall be on forms approved by the State Water Resources Control Board or Regional Board and shall be maintained at the waste management facility until the beginning of the post-closure maintenance period. These records shall be available for review by representatives of the State Water Resources Control Board or Regional Board at any time during normal business hours. At the beginning of the post-closure maintenance period, copies of these records shall be sent to the Regional Board [27 CCR §21720(f)].
- I. The discharge of wastes which have the potential to reduce or impair the integrity of containment structures or which, if commingled with other wastes in the WMU, could produce violent reaction, heat or pressure, fire or explosion, toxic by-products, or reaction products, which, in turn:
1. require a higher level of containment than provided by the unit; or
 2. are ‘restricted wastes’; or
 3. impair the integrity of containment structures;
- is prohibited [27 CCR §20200(b)].

IV. FINANCIAL ASSURANCE PROVISIONS

- A. The Discharger shall obtain and maintain assurances of financial responsibility for initiating and completing corrective action for all known and reasonably foreseeable releases from the WMU [27 CCR §20380(b) and §22222].
- B. The Discharger shall establish an irrevocable fund for closure and post-closure maintenance to ensure closure and post-closure maintenance of each classified WMU in accordance with an approved closure and post-closure maintenance plan [27 CCR §20950(f) and §22207(a)].

V. DISCHARGE SPECIFICATIONS

- A. The Discharger is responsible for accurate characterization of wastes, including a determination of whether or not wastes will be compatible with containment features and other wastes at the WMU and whether or not the wastes are required to be managed as a hazardous waste [27 CCR §20200(c)] or designated waste [27 CCR §20210].
- B. All WMUs shall be designed, constructed, and operated to ensure that wastes will be a minimum of 5 feet above the highest anticipated elevation of underlying groundwater [27 CCR §20240(c)], including the capillary fringe.
- C. The Discharger shall submit operation plans describing those WMU operations which could affect water quality, including, but not limited to [27 CCR §21760(b)]:
 - 1. A description of proposed treatment, storage, and disposal methods;
 - 2. Contingency plans for the failure or breakdown of waste handling facilities or containment systems, including notice or any such failure, or any detection of waste or leachate in monitoring facilities, to the Board, local governments, and water users downgradient of the WMU(s); and
 - 3. A description of inspection and maintenance programs which will be undertaken regularly during disposal operations and the post-closure maintenance period.
- D. Leachate collected from a WMU shall be discharged to the WMU from which it came, or discharged to an appropriate WMU in accordance with Title 27 and in a manner consistent with the waste classification of the liquid [27 CCR §20200(d) and §20340(g)].

VI. FACILITY SPECIFICATIONS

- A. Surface and subsurface drainage from outside of a WMU shall be diverted from the WMU [27 CCR §20365(e)].
- B. The Discharger shall promptly notify the Board of any slope failure occurring at a WMU. Any failure which threatens the integrity of containment features or the WMU shall be promptly corrected in accordance with an approved method [27 CCR §21710(c)(2)].

VII. CONSTRUCTION SPECIFICATIONS

- A. All containment structures shall be designed by, and construction shall be supervised by, a California registered civil engineer or a certified engineering geologist, and shall be certified by that individual as meeting the prescriptive standards, or approved engineered alternative design, in accordance with this Order prior to waste discharge. WMUs shall receive a final inspection and approval of the construction by Board staff before use of the WMU commences [27 CCR §20310(e)].
- B. Any report, or any amendment or revision of a report, that proposes a design or design change that might affect a WMU's containment features or monitoring systems shall be approved by a registered civil engineer or a certified engineering geologist [27 CCR §21710(d)].
- C. Materials used in containment structures shall have appropriate chemical and physical properties to ensure that such structures do not fail to contain waste because of pressure gradients, physical contact with waste or leachate, chemical reactions with soil or rock, climatic conditions, the stress of installation, or because of the stress of daily operations [27 CCR §20320(a)].
- D. WMUs and their respective containment structures shall be designed and constructed to limit, to the greatest extent possible, ponding, infiltration, inundation, erosion, slope failure, washout, and overtopping [27 CCR §20365(a)].
- E. All WMUs shall be designed to withstand the maximum probable earthquake without damage to the foundation or to the structures that control leachate, or surface drainage, or erosion, or gas [27 CCR §20370(a)].
- F. New WMUs and expansions of existing Class II WMUs shall have a 200 foot setback from any known Holocene fault [27 CCR §20250(d)].
- G. Liners shall be designed and constructed to contain the fluid, including gas, waste, and leachate [27 CCR §20330(a)].

- H. Hydraulic conductivities shall be determined primarily by appropriate field test methods in accordance with accepted civil engineering practice. The results of laboratory tests with both water and leachate, and field tests with water, shall be compared to evaluate how the field permeabilities will be affected by leachate. It is acceptable for the Discharger to use appropriate compaction tests in conjunction with laboratory hydraulic conductivity tests to determine field permeabilities as long as a reasonable number of field hydraulic conductivity tests are also conducted [27 CCR §20320(c)].
- I. Hydraulic conductivities specified for containment structures other than the final cover shall be relative to the fluids (leachate) to be contained. Hydraulic conductivities for the final cover shall be relative to water [27 CCR §20320(b)].
- J. A test pad for each barrier layer and final cover shall be constructed in a manner duplicating the field construction. Test pad construction methods, with the designated equipment, shall be used to determine if the specified density/moisture-content/hydraulic conductivity relationships determined in the laboratory can be achieved in the field with the compaction equipment to be used and at the specified lift thickness [27 CCR §20324(g)(1)(A)].
- K. Performance requirements for geosynthetic membranes shall include, but are not limited to, a need to limit infiltration of water, to the greatest extent possible; a need to control any gas emissions; mechanical compatibility with stresses caused by equipment traffic, and for final covers the result of differential settlement over time and durability throughout the post-closure maintenance period [27 CCR §20324(i)(1)].
- L. Leachate collection and removal systems are required for Class II surface impoundments [27 CCR §20340(a)].
- M. All new WMUs or lateral expansions of existing WMUs that require a leachate collection and removal system shall have a blanket-type leachate collection and removal system that covers the bottom of the WMU and extends as far up the sides as possible. The leachate collection and removal system shall be of sufficient strength and thickness to prevent collapse under the pressures exerted by overlying wastes, waste cover materials, and by any equipment used at the WMU [27 CCR §20340(e)].
- N. The leachate collection and removal system shall be designed, constructed, maintained, and operated to collect and remove twice the maximum anticipated daily volume of leachate from the WMU [27 CCR §20340(b)].
- O. Leachate collection and removal systems shall be designed and operated to function without clogging through the scheduled closure of the WMU and during the post-closure maintenance period. The systems shall be tested at least annually to demonstrate proper operation. The results of the tests shall be

compared with earlier tests made under comparable conditions [27 CCR §20340(d)].

- P. Leachate Collection and Removal Systems shall be designed and constructed to ensure that there is no buildup of hydraulic head on the liner. The depth of fluid in the collection sump shall be kept at the minimum needed to ensure efficient pump operation [27 CCR §20340(c)]
- Q. All construction of liner systems and final cover systems shall be performed in accordance with a Construction Quality Assurance Plan certified by a registered civil engineer or a certified engineering geologist [27 CCR §20323] and approved by the Executive Officer.
- R. The Construction Quality Assurance (CQA) program shall be supervised by a registered civil engineer or a certified engineering geologist who shall be designated the CQA officer [27 CCR §20324(b)(2)].

VIII. REPORTING REQUIREMENTS

A. General Requirements

1. In the event the discharger does not comply or will be unable to comply with any prohibition or limitation of this Order for any reason, the discharger shall **notify the Board by telephone** at (916) 255-3000 as soon as it or its agents have knowledge of such noncompliance or potential for noncompliance, and shall confirm this notification in writing within two weeks. The written notification shall state the nature, time and cause of **noncompliance**, and shall describe the measures being taken to prevent recurrences and shall include a timetable for corrective actions.
2. The Discharger shall **immediately notify the Board** of any **evidence of a release**, or of any flooding, equipment failure, slope failure, or other **change in site conditions** which could impair the integrity of waste or leachate containment facilities or of precipitation and drainage control structures.
3. The discharger shall **mail a copy of each** monitoring **report** and any other reports required by this Order to:

California Regional Water Quality Control Board
Central Valley Region
11029 Sun Center Drive #200
Rancho Cordova, CA 95670 (or the current address if the office relocates)

4. The discharger shall **retain records of all monitoring information**, including all calibration and maintenance records, all original strip chart recordings of continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order. Records shall be maintained for a minimum of five years from the date of the sample, measurement, report, or application. This period may be extended during the course of any unresolved litigation regarding this discharge or when requested by the Board Executive Officer.

Such records shall show the following for each sample:

- a. Identity of sample and of the Monitoring Point or Background Monitoring Point from which it was taken, along with the identity of the individual who obtained the sample;
- b. Date, time, and manner of sampling;
- c. Date and time that analyses were started and completed, and the name of the personnel and laboratory performing each analysis;
- d. Complete procedure used, including method of preserving the sample, and the identity and volumes of reagents used;
- e. Calculation of results; and
- f. Results of analyses, and the MDL and PQL for each analysis.

Such records shall also include legible records of the volume and type of each waste discharged at each WMU and the manner and location of discharge. These waste discharge records shall be maintained at the facility until the beginning of the post-closure maintenance period, at which time copies of these records shall be sent to the Board.

5. **All reports and transmittal letters shall be signed** by persons identified below:
 - a. *For a corporation:* by a principal executive officer of at least the level of senior vice-president.
 - b. *For a partnership or sole proprietorship:* by a general partner or the proprietor.
 - c. *For a municipality, state, federal or other public agency:* by either a principal executive officer or ranking elected or appointed official.
 - d. A duly authorized representative of a person designated in a, b or c above if;
 - i. the authorization is made in writing by a person described in a, b, or c of this provision;
 - ii. the authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity, such as the position of plant manager, operator of a WMU, superintendent, or position of equivalent

- responsibility. (A duly authorized representative may thus be either a named individual or any individual occupying a named position); and
- iii. the written authorization is submitted to the Board.

Any person signing a document under this Section shall make the following certification:

“I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.”

6. In reporting the monitoring data, the Discharger shall arrange the **data in tabular form** so that the date, the constituents, the concentrations, and the units are readily discernible. The data shall be summarized in such a manner so as to illustrate clearly the compliance with waste discharge requirements or lack thereof.
7. Unless otherwise required in the Monitoring and Reporting Program, monthly **monitoring reports shall be submitted** to the Board by the 15th day of the month following the month in which the samples were taken or observations made, and quarterly, semiannual, and annual monitoring reports shall be submitted to the Board by the 15th day of the month following the calendar quarter in which the samples were taken or observations made.
8. The results of any monitoring done more frequently than required at the locations specified herein shall be reported to the Board.

B. Reports to be Filed with the Board

1. A transmittal **letter** explaining the essential points in each report shall accompany each report. Such a letter shall include a discussion of any violations found since the last such report was submitted, and shall describe actions taken or planned for correcting those violations. If the Discharger has previously submitted a detailed time schedule for correcting the violations, a reference to the correspondence transmitting such schedule will be satisfactory. If no violations have occurred since the last submittal, this shall be stated in the letter of transmittal.

2. Each monitoring report (e.g., Detection Monitoring Report, Constituents of Concern 5-Year Report) shall include a **compliance evaluation summary**. The summary shall contain at least:
 - a. For each monitored ground water body, a description and graphical presentation of the gradient and direction of **ground water flow** under/around the WMU, based upon water level elevations taken during the collection of the water quality data submitted in the report.
 - b. For each monitoring well addressed by the report, a description of the method and time of water level measurement, of the type of pump used for **purging** and the placement of the pump in the well, and of the method of purging (the pumping rate, the equipment and methods used to monitor field pH, temperature, and conductivity during purging, the calibration of the field equipment, results of the pH, temperature, conductivity, and turbidity testing, the well recovery time, and the method of disposing of the purge water).
 - c. For each Monitoring Point and Background Monitoring Point addressed by the report, a description of the type of pump—or other device—used and its placement for **sampling**, and a detailed description of the sampling procedure (number and description of the samples, field blanks, travel blanks, and duplicate samples taken, the type of containers and preservatives used, the date and time of sampling, the name and qualifications of the person actually taking the samples, and any other observations).
 - d. For each monitoring well addressed by the report, a description of how the well was **purged to remove** all portions of the water that was in the well bore while the sample was being taken.
 - e. A **map or aerial photograph** showing the locations of observation stations, Monitoring Points, and Background Monitoring Points.
 - f. **Laboratory** statements of results of all analyses evaluating compliance with requirements.
 - g. An evaluation of the effectiveness of the leachate monitoring and control facilities, and of the run-off/run-on control facilities.
 - h. A summary and certification of completion of all Standard Observations for the WMU, for the perimeter of the WMU, and for the receiving waters.

- i. The quantity and types of wastes discharged and the locations in the WMU where waste has been placed since submittal of the last such report.
3. The Discharger shall report by telephone concerning any **seepage from the disposal area** immediately after it is discovered. A written report shall be filed with the Board within seven days, containing at least the following information:
 - a. a map showing the location(s) of seepage;
 - b. an estimate of the flow rate;
 - c. a description of the nature of the discharge (e.g., all pertinent observations and analyses); and
 - d. corrective measures underway or proposed, and corresponding time schedule.See **RESPONSE TO A RELEASE** below.
4. The Discharger shall submit an **Annual Monitoring Summary Report** to the Board covering the reporting period previous monitoring year. This report shall contain:
 - a. For each Monitoring Point and Background Monitoring Point, submit in **graphical format** the laboratory analytical data for all samples taken within at least the previous five calendar years. Each such graph shall plot the concentration of one or more constituents for the period of record for a given Monitoring Point or Background Monitoring Point, at a scale appropriate to show trends or variations in water quality. The graphs shall plot each datum, rather than plotting mean values. For any given constituent or parameter, the scale for background plots shall be the same as that used to plot downgradient data. Graphical analysis of monitoring data may be used to provide significant evidence of a release.
 - b. Unless otherwise exempted by the Executive Officer, all monitoring analytical data obtained during the previous two six-month Reporting Periods, presented in tabular form as well as on 3.50" **computer diskettes**, either in MS-DOS/ASCII format or in another file format acceptable to Board staff. Data sets too large to fit on a single 2 MB diskette may be submitted on disk in a commonly available compressed format (e.g. PKZIP or NORTON BACKUP). The Board regards the submittal of data in hard copy and on diskette as "...the form necessary for..." statistical analysis (§20420(h)), in that this facilitates periodic review by the Board's statistical consultant.

- c. A **comprehensive discussion of the compliance record**, and the result of any corrective actions taken or planned which may be needed to bring the Discharger into full compliance with the waste discharge requirements.
- d. A **map** showing the area and elevations in which filling has been completed during the previous calendar year.
- e. A **written** summary of the monitoring results, indicating any changes made or observed since the previous annual report.
- f. An evaluation of the effectiveness of the leachate monitoring/control facilities.

IX. PROVISIONS FOR MONITORING

A. General

1. The discharger shall maintain a **written sampling and analysis plan** sufficient to assure compliance with the terms of this Order. Anyone performing sampling on behalf of the discharger shall be familiar with the sampling and analysis plan.
2. All monitoring instruments and devices used by the discharger to fulfill the prescribed monitoring program shall be properly maintained and regularly **calibrated** to ensure their continued accuracy.
3. The discharger shall construct or abandon all **monitoring wells** to meet or exceed the standards stated in the State Department of Water Resources Bulletin 74-81 and subsequent revisions, and shall comply with the reporting provisions for wells required by Water Code Sections 13750 through 13755.
4. All sample analyses shall be conducted at a **laboratory accredited** for such analyses by the State Department of Health Services. The **Quality Assurance-Quality Control Program** must conform to EPA guidelines (e.g., "Laboratory Documentation Requirements for Data Validation," January 1990, USEPA Region 9) or to procedures approved by the Board.
5. The director **of the laboratory** whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board.
6. Unless samples are from water supply wells or unless otherwise specified by Board staff, all ground water samples to be analyzed for **metals** shall be field-filtered. Filtration methods shall minimize the

entrainment of air into the sample (by using, for example, in-line pressure filtration).

B. Sampling and Analytical Methods

1. For any given monitored medium, the samples taken from all monitoring points and background monitoring points to satisfy the data analysis requirements for a given reporting period shall all be taken within a span not to exceed 30 days, unless the Executive Officer approves a longer time period, and shall be taken in a manner that ensures sample independence to the greatest extent feasible. Specific methods of collection and analysis must be identified. Sample collection, storage, and analysis shall be performed according to the most recent version of USEPA Methods, such as the latest editions, as applicable, of: (1) Methods for the Analysis of Organics in Water and Wastewater (USEPA 600 Series), (2) Test Methods for Evaluating Solid Waste (SW-846, latest edition), and (3) Methods for Chemical Analysis of Water and Wastes (USEPA 600/4-79-020), and in accordance with the approved Sample Collection and Analysis Plan.
2. If methods other than USEPA-approved methods or Standard Methods are used, the exact methodology shall be submitted for review and approval by the Executive Officer prior to use.
3. The **methods of analysis and the detection limits** used must be appropriate for the expected concentrations. For the monitoring of any constituent or parameter that is found in concentrations which produce more than 90% non-numerical determinations (i.e., "trace" or "ND") in data from background monitoring points for that medium, the analytical method having the lowest method detection limit (MDL) shall be selected from among those methods which would provide valid results in light of any matrix effects or interferences.
4. **"Trace" results** - results falling between the MDL and the practical quantitation limit (PQL) - shall be reported as such, and shall be accompanied by both the estimated MDL and PQL values for that analytical run.
5. **MDLs and PQLs** shall be derived by the laboratory for each analytical procedure, according to State of California laboratory accreditation procedures. These MDLs and PQLs shall reflect the detection and quantitation capabilities of the specific analytical procedure and equipment used by the lab, rather than simply being quoted from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs and PQLs are expected to closely agree with published USEPA MDLs and PQLs.

6. If the laboratory 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, along with estimates of the detection limit and quantitation limit actually achieved. **The MDL shall always be calculated such that it represents the lowest achievable concentration associated with a 99% reliability of a nonzero result.** The PQL shall always be calculated such that it represents the lowest constituent concentration at which a numerical value can be assigned with reasonable certainty that it represents the constituent's actual concentration in the sample. Normally, PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure.
7. Unknown chromatographic peaks shall be reported, along with an estimate of the concentration of the unknown analyte. When unknown peaks are encountered, second column or second method confirmation procedures shall be performed to attempt to identify and more accurately quantify the unknown analyte.
8. All **QA/QC data** shall be reported, along with the sample results to which they apply, including the method, equipment, analytical detection and quantitation limits, the percent recovery, an explanation for any recovery that falls outside the QC limits, the results of equipment and method blanks, the results of spiked and surrogate samples, the frequency of quality control analysis, and the name and qualifications of the person(s) performing the analyses. Sample results shall be reported unadjusted for blank results or spike recoveries. In cases where contaminants are detected in QA/QC samples (i.e., field, trip, or lab blanks), the accompanying sample results shall be appropriately flagged.
9. The statistical method shall account for data below the practical quantitation limit (PQL) with one or more statistical procedures that are protective of human health and the environment. Any PQL validated pursuant to §20415(e)(7) of Title 27 that is used in the statistical method shall be **the lowest concentration (or value) that can be reliably achieved** within limits of precision and accuracy specified in the WDRs for routine laboratory operating conditions that are available to the facility. The Discharger's technical report, pursuant to §20415(e)(7) of Title 27, shall consider the PQLs listed in Appendix IX to Chapter 14 of Division 4.5 of Title 22, California Code of Regulations, for guidance when specifying limits of precision and accuracy. For any given constituent monitored at a background or downgradient monitoring point, an indication that falls between the MDL and the PQL for that constituent (hereinafter called a "trace" detection) shall be identified and

used in appropriate statistical or nonstatistical tests. Nevertheless, for a statistical method that is compatible with the proportion of censored data (trace and ND indications) in the data set, the Discharger can use the laboratory's concentration estimates in the trace range (if available) for statistical analysis, in order to increase the statistical power by decreasing the number of "ties".

10. Background for water samples or soil-pore gas samples shall be represented by the data from all samples taken from applicable background monitoring points during that reporting period (at least one sample from each background monitoring point). The Discharger may propose an alternate statistical method [to the methods listed under 27 CCR §20415(e)(8)(A-D)] in accordance with §20415(e)(8)(E) of Title 27, for review and approval by the Executive Officer.
11. The Discharger may propose an alternate statistical method [to the methods listed under 27 CCR §20415(e)(8)(A-D)] in accordance with §20415(e)(8)(E) of Title 27, for review and approval by the Executive Officer. Upon receiving written approval from the Executive Officer, alternate statistical procedures may be used for determining the significance of analytical results for common laboratory contaminants (i.e., methylene chloride, acetone, diethylhexyl phthalate, and di-n-octyl phthalate). Nevertheless, analytical results involving detection of these analytes in any background or downgradient sample shall be reported and flagged for easy reference by Board staff.
12. The Discharger shall use the following non-statistical method for all analytes that are detected in less than 10% of the background samples. The non-statistical method shall be implemented as follows:
 - a. From the constituent of concern or monitoring parameter list, identify each analyte in the **current** sample that exceeds either its respective MDL or PQL. The Discharger shall conclude that the exceedance provides a preliminary indication of a release or a change in the nature or extent of the release, at that monitoring point, if *either*:
 - i. The data contains two or more analytes that are detected in less than 10% of background samples that equal or exceed their respective MDLs; or
 - ii. The data contains one or more analyte that equals or exceeds its PQL.

- b. **Discrete Retest** [Title 27 CCR Section 20415(e)(8)(E)]:
 - i. In the event that the Discharger concludes (pursuant to paragraph 12.a., above) that there is a preliminary indication of a release, then the Discharger shall immediately notify Regional Board staff by phone or e-mail and, within 30 days of such indication, shall collect two new (retest) samples from the monitoring point where the release is preliminarily indicated.
 - ii. For any given retest sample, the Discharger shall include, in the retest analysis, **only the laboratory analytical results for those analytes detected in the original sample**. As soon as the retest data are available, the Discharger shall conclude that there is measurably significant evidence of a release if two or more analytes equal or exceed their respective MDLs or if one or more analyte equals or exceeds its PQL and shall:
 - a. **Immediately** notify the Regional Board about any constituent or constituents verified to be present at the monitoring point, and follow up with written notification submitted by certified mail **within seven days** of validation; and
 - b. Comply with ¶14, below if any constituent or constituents were verified to be present.
 - iii. Any analyte that triggers a discrete retest per this method shall be added to the monitoring parameter list such that it is monitored during each regular monitoring event.
- 13. If the Executive Officer determines, after reviewing the submitted report in 12.b. above, that the detected constituent most likely originated from the WMU(s), the Discharger shall **immediately** implement the requirements of X. Response To A Release, C. Release Has Been Verified, contained in the Standard Provisions and Reporting Requirements (September 2003).
- 14. If the Discharger determines that there is measurably significant evidence of a release from the WMU at any monitoring point, the Discharger shall **immediately** implement the requirements of **X. Response To A Release, C. Release Has Been Verified**, contained in the Standard Provisions and Reporting Requirements.

X. RESPONSE TO A RELEASE

A. Monitoring Point Evidence of a Release

1. If the Discharger determines that there is “measurably significant” evidence of a release from the WMU (i.e. the initial statistical comparison or nonstatistical comparison indicates, for any constituent of concern or monitoring parameter, that a release is tentatively identified), the Discharger shall [27 CCR §20420(j)]:
 - a. **Notification** — **immediately notify Board staff verbally** of the finding and **provide** written notification by certified mail **within seven days** of such determination. The notification shall, for each affected monitoring point, identify the monitoring parameters and constituents of concern that have indicated “measurably significant” evidence of a release from the WMU [27 CCR §20420(j)(1)];
 - b. **Retest Optional** — can immediately initiate the verification (retest) procedure pre-approved by the Board [pursuant to §20415(e)(8)(E) of Title 27] to verify that there is “measurably significant” evidence of a release from the WMU for a parameter or constituent which has indicated a release at a monitoring point [27 CCR §20420(j)(2)]; and
 - c. **Next Step** — immediately following detection of a release [or after completing the retest pursuant to b) above and confirming the existence of a release], shall comply with the requirements of C. (Release Has Been Verified) below [27 CCR §20420(j)(3)].

B. Physical Evidence of a Release

If the Discharger determines that there is a significant **physical** evidence of a release, the Discharger shall notify the Board **by certified mail within 7 days** of such determination, and within 90 days shall submit an amended report of waste discharge to make any appropriate changes to the detection monitoring program [27 CCR §20420(1)(1) & (2)].

C. Release Has Been Verified

1. If the detection was made based upon sampling and analysis for monitoring parameters, **immediately** sample all monitoring points in the affected medium at that WMU and determine the concentration of all constituents of concern. Because this constituent of concern scan does not involve statistical testing, the Discharger need collect and analyze

only a single water sample from each monitoring point in the affected medium [27 CCR §20420(k)(1)].

2. The Discharger, **within 90 days** of determining “measurably significant” evidence of a release, shall submit an amended report of waste discharge to establish an evaluation monitoring program meeting the requirements of §20425 of Title 27 [27 CCR §20420(k)(5)].
3. The Discharger, **within 180 days** of determining “measurably significant” evidence of a release, shall submit to the Board an initial engineering feasibility study for a corrective action program necessary to meet the requirements of §20430 of Title 27. At a minimum, the engineering feasibility study shall contain a detailed description of the corrective action measures that could be taken to achieve background concentrations for all constituents of concern [27 CCR §20420(k)(6)].
4. If the Discharger determines that there is “measurably significant” evidence of a release from the WMU at any monitoring point, the Discharger may demonstrate that a source other than the WMU caused the evidence of a release or that the evidence is an artifact caused by an error in sampling, analysis, or statistical evaluation or by natural variation in groundwater, surface water, or the unsaturated zone. The Discharger may make a demonstration pursuant to §20420(k)(7) of Title 27 in addition to or in lieu of submitting both an amended report of waste discharge or an engineering feasibility study; however, the Discharger is not relieved of the requirements of §20420(k)(6) & (7) of Title 27 unless the demonstration successfully shows that a source other than the WMU caused the evidence of a release or that the evidence resulted from error in sampling, analysis, or statistical evaluation or from natural variation in groundwater, surface water, or the unsaturated zone. In making this demonstration, the Discharger shall notify the Board by certified mail of the intent to make the demonstration **within seven days** of determining “measurably significant” evidence of a release. The report shall be submitted to the Board **within 90 days** of determining “measurably significant” evidence of a release demonstrating that a source other than the WMU caused the evidence [27 CCR §20420(k)(7)].
5. The Discharger, **within 90 days** of establishing an Evaluation Monitoring Program, shall conduct an evaluation monitoring program used to assess the nature and extent of the release from the WMU and to design a corrective action program meeting the requirements of §20430 of Title 27. At a minimum, an evaluation monitoring program for a WMU shall include:

- a. An assessment of the nature and extent of the release from the WMU. This assessment shall include a determination of the special distribution and concentration of each constituent of concern throughout the zone affected by the release. The Discharger shall submit this assessment to the Board **within 90 days** of establishing an evaluation monitoring program [27 CCR §20425(b)].
- b. Update the initial engineering feasibility study for corrective action based on the data collected to delineate the release and from the ongoing monitoring program. The Discharger shall submit this updated engineering feasibility study to the Board **within 90 days** of establishing an evaluation monitoring program [27 CCR §20425(c)].
- c. Submit an amended report of waste discharge to establish a corrective action program meeting the requirements of §20430 of Title 27 based on the data collected to delineate the release and on the updated engineering feasibility study. The Discharger shall submit this report to the Board **within 90 days** of establishing an evaluation monitoring program [27 CCR §20425(d)].

D. Release Beyond Facility Boundary

1. Any time the discharger concludes that a release from the WMU has proceeded beyond the facility boundary, the discharger shall so notify all persons who either own or reside upon the land that directly overlies any part of the plume (Affected Persons).
2. Initial notification to Affected Persons shall be accomplished within 14 days of making this conclusion and shall include a description of the discharger's current knowledge of the nature and extent of the release.
3. Subsequent to initial notification, the discharger shall provide updates to all Affected Persons, including any persons newly affected by a change in the boundary of the release, within 14 days of concluding there has been any material change in the nature or extent of the release.
4. Each time the discharger sends a notification to Affected Persons, the discharger shall provide the Board, within seven days of sending such notification, with both a copy of the notification and a current mailing list of Affected Persons.

XI. STANDARD CONDITIONS

A. Supervision and Certification

1. All WMUs shall be **designed and constructed** under the direct supervision of a California registered civil engineer or a certified engineering geologist and shall be certified by that individual as meeting the prescriptive standards, or approved engineered alternative design, and performance goals of Title 27 prior to waste discharge.
2. Designs of WMUs shall include a **Construction Quality Assurance Plan**, which shall:
 - a. be submitted for review and approval by the Board prior to construction;
 - b. demonstrate that the WMU has been constructed according to the specifications and plans as approved by the Board; and
 - c. provide quality control on the materials and construction practices used to construct the WMU and prevent the use of inferior products and/or materials which do not meet the approved design plans or specifications.
3. **Closure** of each WMU shall be performed under the direct supervision of a California registered civil engineer or California certified engineering geologist.

B. Operations

1. The discharger shall maintain in **good working order** and operate as efficiently as possible any facility, control system, or monitoring device installed to achieve compliance with the waste discharge requirements.
2. For any **electrically** operated equipment at the site, the **failure** of which could cause loss of control or containment of waste materials, or violation of this Order, the discharger shall employ safeguards to prevent loss of control over wastes. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means.
3. The fact that it would have been necessary to halt or reduce the permitted activity in Order to maintain compliance with this Order shall not be regarded as a defense for the discharger's violations of the Order.
4. The discharge shall remain within the designated disposal area at all times.

5. By the effective date of waste discharge requirements, the discharger shall have a plan for preventing and controlling **accidental discharges**, and for minimizing the effect of such events. This plan shall:
 - a. Identify the possible sources of accidental loss or leakage of wastes from each waste storage, treatment, or disposal unit.
 - b. Evaluate the effectiveness of present WMUs and operational procedures, and identify needed changes or contingency plans.
 - c. Predict the effectiveness of the proposed changes in waste management facilities and procedures and provide an implementation schedule containing interim and final dates when changes will be implemented.

The Board, after review of the plan, may establish conditions that it deems necessary to control leakage and minimize its effects.

6. WMU **gases** shall be adequately vented, removed from WMU, or otherwise controlled to prevent the danger of explosion, adverse health effects, nuisance conditions, or the impairment of beneficial uses of water due to migration through the vadose (unsaturated) zone.
7. Any direct-line discharge to a surface impoundment shall have fail-safe equipment or operating procedures to prevent overfilling.
8. Surface impoundments shall be designed, constructed and maintained to prevent scouring and/or erosion of the liners and other containment features at points of discharge to the impoundments and by wave action at the waterline.
9. Leachate removed from a surface impoundment LCRS shall be discharged to the impoundment from which it originated.
10. Solids which accumulate in a surface impoundment shall be periodically removed to maintain minimum freeboard requirements and to maintain sufficient capacity for the surface impoundment leachate and for the discharge of wastes. Prior to removal of these solids, sufficient samples shall be taken for their characterization and classification pursuant to Article 2, Subchapter 2 of Title 27. The rationale for the sampling protocol used, the results of this sampling, and a rationale for classification of the solids shall be submitted to the Board for review. The solids may be discharged to the Class III landfill units only if the Board determines that they qualify for classification as “nonhazardous solid waste” or “inert waste.”
11. Water used for facility maintenance shall be limited to the minimum amount necessary for dust control.

C. **Siting**

1. WMUs shall be designed, constructed, and operated to prevent inundation or washout due to floods with a 100-year return period.

Class II surface impoundments and related containment structures shall be constructed and maintained to prevent, to the greatest extent possible, inundation, erosion, slope failure, washout, and overtopping under 1000-year, 24-hour precipitation conditions, and shall be designed to contain the 100-year wet season precipitation without using the required two feet of freeboard.

2. Surface drainage from tributary areas and internal site drainage from surface or subsurface sources shall not contact or percolate through wastes, and shall either be contained on-site or be discharged in accordance with applicable storm water regulations.

D. **Closure**

1. Closed WMUs shall be provided with at least two **permanent monuments**, installed by a licensed land surveyor or by a registered civil engineer authorized to perform land surveying, from which the location and elevation of all wastes, containment structures, and monitoring facilities can be determined throughout the post-closure maintenance period.
2. Areas with **slopes greater than ten percent**, surface drainage courses, and areas subject to erosion by wind or water shall be designed and constructed to prevent such erosion.

E. **Post-Closure**

1. The post-closure maintenance period shall continue until the Board determines that remaining wastes in all WMUs will not threaten water quality.
2. The owner of the waste management facility shall have the continuing responsibility to assure protection of usable waters from discharged wastes and from gases and leachate generated by discharged waste during the active life, closure, and post-closure maintenance period of the WMUs and during subsequent use of the property for other purposes.

XII. DEFINITIONS

Unless otherwise stated, all terms are as defined in Chapter 2, Division 7, of the California Water Code (Section 13050 et seq.), in Article 2, Chapter 2, Division 2, Title 27 of the California Code of Regulations (27 CCR §20005 et seq.), and in Section 258.2, and elsewhere in Part 258, Title 40 of the Code of Federal Regulations.

The following additional definitions apply to the Order:

- A. “**Affected Persons**” means all individuals who either own or occupy land outside the boundaries of the parcel upon which the WMU is located that has been or may be affected by the **release** of leachate or waste constituents (in gas or liquid phase) from a WMU.
- B. “**Background Monitoring Point**” means a device (e.g., well) or location (e.g., a specific point along a lakeshore), upgradient or sidegradient from the WMU, or as otherwise approved by the Executive Officer, where water quality samples are taken that are not affected by any release from the WMU and that are used as a basis of comparison against samples taken from downgradient Monitoring Points.
- C. “**Composite liner**” means a liner that consists of two or more components, which include a Synthetic Liner in direct and uniform contact with an underlying layer of prepared, low-permeability soil such that the net permeability of the resulting combination is significantly less than would be expected by reference to the permeability of the individual components layers.
- D. Unless otherwise specified, “**composite sample**” means a combination of individual samples either collected over a specified sampling period or collected over an area at one time (synoptically):
 - 1. at equal time intervals,
 - 2. at varying time intervals so that each sample represents an equal portion of the media to be sampled.

The duration of the sampling period shall be specified in the Monitoring and Reporting Program. The method of compositing shall be reported with the results. “**Constituents of Concern (COC)**” means those constituents which are likely to be in the waste in the WMU or which are likely to be derived from waste constituents in the event of a release.

- E. “**Daily maximum concentration**” means the highest measurement made on any single discrete sample or composite sample.
- F. “**Grab sample**” means a discrete sample collected in less than 15 minutes.

- G. **“Matrix effect”** means any change in the method detection limit or practical quantitation limit for a given analyte as a result of the presence of other constituents - either of natural origin or introduced **by** humans as a result of a release or spill - that are present in the sample of water or soil-pore gas being analyzed.
- H. **“Method detection limit (MDL)”** means the lowest constituent concentration associated with a 99% reliability of a “non-zero” analytical result. The MDL shall reflect the detection capabilities of the specific analytical procedure and equipment used by the laboratory. MDLs reported by the laboratory shall not simply be restated from USEPA analytical method manuals. In relatively interference-free water, laboratory-derived MDLs are expected to closely agree with published USEPA MDLs. If the lab suspects that, due to matrix or other effects, the detection limit for a particular analytical run differs significantly from the laboratory-derived MDL, the results should be flagged accordingly, along with an estimate of the detection limit achieved.
- I. **“Monitoring Parameters”** means the short list of constituents and parameters used for the majority of monitoring activity at a given WMU. Monitoring for the short list of Monitoring Parameters constitutes “indirect monitoring,” in that the results are used to indicate indirectly the success or failure of adequate containment for the longer list of Constituents of Concern.
- J. **“Monitored Media”** means those water-, solid-, or gas-bearing media that are monitored pursuant to the Monitoring and Reporting Program. The Monitored Media may include:
1. Ground water in the uppermost aquifer, in any other portion of the zone of saturation in which it would be reasonable to anticipate that waste constituents migrating from the WMU could be detected, and in any perched zones underlying the WMU,
 2. Any bodies of surface water that could be measurably affected by a release,
 3. Soil pore liquid beneath and/or adjacent to the WMU, and
 4. Soil pore gas beneath and/or adjacent to the WMU.
- K. **“Monitoring Point”** means a device (e.g., well) or location (e.g., a specific point along a lakeshore), downgradient from the WMU and that is assigned in this Order, at which samples are collected for the purpose of detecting a release by comparison with samples collected at Background Monitoring Points.
- L. **“Monthly average concentration”** means the arithmetic mean of measurements made during the month.

- M. **“Monthly average discharge”** means the total discharge by volume during a calendar month divided by the number of days in the month that the facility was discharging (e.g. gallons per day, cubic feet per day).

Where less than daily sampling is required by this Order, the monthly average shall be determined by the summation of all the measured discharges divided by the number of days during the month when the measurements were made.

- N. **“Order,”** as used throughout this document, means the Waste Discharge Requirements. The Monitoring and Reporting Program and Standard Provisions and Reporting Requirements are incorporated by reference into the Waste Discharge Requirements.

- O. **“Practical quantitation limit (PQL)”** means the lowest constituent concentration at which a numerical concentration can be assigned with reasonable certainty that its value represents the constituent’s actual concentration in the sample. Normally PQLs should be set equal to the concentration of the lowest standard used to calibrate the analytical procedure. 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 restated from U.S. EPA analytical method manuals. In relatively interference-free water, laboratory-derived PQLs are expected to closely agree with published U. S. EPA PQLs. If the lab suspects that, due to matrix or other effects, the quantitation limit for a particular analytical run differs significantly from the laboratory-derived PQL, the results should be flagged accordingly, along with an estimate of the quantitation limit achieved.

- P. **“Reporting Period”** means the time interval during which samples are collected and analyzed, and the results then reported to the Board, to comply with a specified monitoring and reporting frequency. The maximum reporting period for analysis of all Constituents of Concern is five years; for Monitoring Parameters it is six months (generally, Spring/Summer = April 1 to September 30, and Fall/Winter = October 1 to March 31). The Reporting Period for the Annual Summary Report extends from April 1 of the previous year to March 31 of the current year. The due date for the submittal of any given report will be 15 days after the end of its Reporting Period, unless otherwise stated.

- Q. **“Receiving Waters”** refers to any surface or ground water which actually or potentially receives waste constituents, leachate, or surface or ground waters which come in contact with waste materials or contaminated soils.

- R. **“Sample size”:**

1. For Monitoring Points, means the number of data points obtained from a given Monitoring Point during a given Reporting Period used for

carrying out the statistical or non-statistical analysis of a given analyte during a given Reporting Period; or

2. For Background Monitoring Points, means the number of new and existing data points collected under §20415(e)(11 and 12) from all applicable Background Monitoring Points in a given monitored medium—used to collectively represent the background concentration and variability of a given analyte in carrying out statistical or non-statistical analysis of that analyte during a given Reporting Period.

S. “Standard Observations” means:

1. For Receiving Waters:
 - a. Floating and suspended materials of waste origin: presence or absence, source, and size of affected area;
 - b. Discoloration and turbidity: description of color, source, and size of affected area;
 - c. Evidence of odors: presence or absence, characterization, source, and distance of travel from source;
 - d. Evidence of water uses: presence of water-associated wildlife;
 - e. Flow rate; and
 - f. Weather conditions: wind direction and estimated velocity, total precipitation during recent days and on the day of observation;
2. Along the perimeter of the WMU:
 - a. Evidence of liquid leaving or entering the WMU, estimated size of affected area, and flow rate (show affected area on map);
 - b. Evidence of odors: presence or absence, characterization, source, and distance of travel from source; and
 - c. Evidence of erosion and/or of daylighted refuse.
3. For the WMU:
 - a. Evidence of ponded water at any point on the waste management facility (show affected area on map);
 - b. Evidence of odors: presence or absence, characterization, source, and distance of travel from source;
 - c. Evidence of erosion and/or of daylighted refuse; and

T. “Standard Analysis and Measurements” means:

1. Turbidity, in NTU;
2. Water elevation to the nearest 1/100th foot above mean sea level; and

3. Sampling and statistical/non-statistical analysis of the Monitoring Parameters.
 - U. “**Synthetic Liner**” means a layer of flexible, man-made material that is installed in accordance with the standard of the industry over an area of land prior to the discharge of waste there.
 - V. “**VOC_{water}**” (Volatile Organics Monitoring Parameter for Water) means the composite monitoring parameter encompassing all VOCs that are detectable in less than ten percent of applicable background samples from a monitored water-bearing medium (e.g., the unsaturated zone, the uppermost aquifer, a zone of perched ground water, or a surface water body). This parameter is analyzed via the non-statistical analytical method described elsewhere in this Order to identify a release to waters of the state of VOCs whose presence in background water is detected too infrequently to allow statistical analysis.
 - W. “**VOC_{spg}**” (Volatile Organics Monitoring Parameter for Soil Pore Gas) means Monitoring Parameters addressing all volatile organic constituents detectable in a sample of soil pore gas.
 - X. “**Volatile organic constituents (VOCs)**” means the suite of organic constituents having a high vapor pressure. The term includes at least the 47 organic constituents listed in Appendix I to 40 CFR Part 258.