

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2007-0083

CLOSURE WASTE DISCHARGE REQUIREMENTS
FOR
THE JAMESTOWN TRUSTS I & II, THROUGH ITS TRUSTEE
COUNTY OF TUOLUMNE
ROBERT CAMERON
GARY WILSON
CLOSURE OF THE JAMESTOWN MINE
TUOLUMNE COUNTY

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

1. The County of Tuolumne, Robert Cameron and Gary Wilson (jointly owners), and the Jamestown Trust I and Jamestown Trust II through their Trustee (operator), (hereafter jointly referred to as Discharger) currently operate and own various portions of the former Jamestown Mine Site. Robert Cameron generally owns the northern end of the Jamestown Mine site including a part of the Tailings Management Facility (TMF), Gary Wilson owns the Harvard Mine Pit, and the County of Tuolumne owns portions of the balance of the Jamestown Mine property. Jamestown Trust I and Trust II were established during litigation between the Regional Water Board and past and present owners and operators of the Jamestown Mine. The detailed descriptions of Jamestown Trusts I and II are in a Stipulated Judgment and settlement agreements, and are briefly described below in the Litigation Background section.
2. The former Jamestown Mine contains four waste management units: the Harvard Mine Pit, the Process Water Retention Pond (PWRP), the waste Rock Storage Area (RSA) and the TMF. There are two Waste Discharge Requirements (WDRs) regulating discharges at this facility. The overall site is currently regulated by Waste Discharge Requirements (WDRs) Order No. 97-082. WDRs Order No. R5-2006-0048 is specific to a discharge from the TMF to Harvard Pit to facilitate closure. This Order combines the two WDRs, requires closure of the TMF, regulates discharges to the PWRP and the Harvard Mine Pit, and regulates continued operation and monitoring of the facility.

LITIGATION BACKGROUND

3. On 18 December 1998, the Regional Water 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 Water

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.

4. The parties to the Litigation settled the matter in May and June 2006. These WDRs are partially based on the Settlement Documents agreed to and signed by the parties and the Court to settle the Litigation. "Settlement Documents" means the Stipulated Judgments and related documents by and among the Regional Water Board and the other parties to the Litigation.
5. A part of the Stipulated Judgment and settlement agreements established 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 has been 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 Water 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 Water 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.
6. 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 Water 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 Water 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.

7. 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

8. 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.
9. 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 TMF, the Rock Storage Area (RSA), the Process Water Retention Pond (PWRP) (a lined surface impoundment constructed to Class II standards) and several storm water retention ponds. The major features of the mine are shown on Attachment B, which is attached hereto and made a part of this Order by reference.
10. Groundwater monitoring has detected evidence that the mine facilities, principally the TMF and the RSA, are discharging mining wastes into groundwater.
11. The TMF is an approximately 120-acre lined tailings impoundment containing approximately 16.6 million tons of tailings. The TMF is classified as a Group B mine waste containment unit. The major structural features of the TMF include an earth/rockfill embankment (Tailings Dam) designed with a filter-drainage network to allow continuous removal of supernatant water and stormwater from the tailings surface. The floor of the impoundment has a clay liner with a leachate collection and recovery system (LCRS). Beneath the clay liner a system of spine drains intercept surfacing groundwater and maintain separation of groundwater from the impoundment liner.
12. Water collected in the tailings dam filter-drainage network, the LCRS and the spine drains discharges to the PWRP and is pumped to the Harvard Mine Pit. The tailings dam filter-drainage network is a system of drainage media and pipe to collect and drain away leachate from the tailings side of the dam. The LCRS is a system of drainage media and perforated pipe installed above the tailings pond liner to collect and drain away leachate percolating downward through the tailings. The spine drain

system is a system of perforated pipe to collect and drain away groundwater collected below the tailings pond liner. The TMF will not fully drain for several years after closure and the PWRP will be maintained as a collection pond. The PWRP shall be closed in the future under revised WDRs when the tailings are fully drained.

13. The Harvard Mine Pit is a 72-acre (maximum aerial extent), 520 feet deep (measured from the south lip) mine pit. The mine pit is slowly filling with storm water and inflowing groundwater that has been polluted by interactions with mine wall rock. WDRs Order No. R5-2006-0048 previously approved the use of Harvard Mine Pit as an engineered alternative Group B mine waste containment unit and approved the discharge of water from the TMF, the PWRP, and other impoundments to the Harvard Mine Pit. This order continues to allow these water transfers.
14. The Harvard Mine Pit 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 1320 feet mean sea level (msl), (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. 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.
15. Staff estimates that approximately 300 acre-feet of TMF water, mostly interstitial tailings water and groundwater, may be discharged to the Harvard Mine Pit during the next five years.
16. 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).
17. The closure actions in these WDRs are intended to be limited to the Phase I closure described in the Scope of Work. The Scope of Work is part of the Jamestown litigation settlement. Depending on the results of the Phase I investigations there may or may not be significant additional efforts to close other facilities and/or remediate pollution. If justified by the investigation results, revised WDRs may be issued in the future.

WASTE AND SITE CLASSIFICATION

18. Water quality¹ at this site may be summarized as follows:

Constituent	Supernatant Pond ²	TMF	Harvard Mine Pit	PWRP	Background Groundwater	Water Quality Limits ³
Total Dissolved Solids (TDS) (mg/l)	2580	2730	2030	2940	240	450
Sulfate (mg/l)	1430	1630	1450	1610	17	250
Sodium (mg/l)	190	250	100	220	9	69
Magnesium (mg/l)	240	230	190	250	23	none
Calcium (mg/l)	180	216	233	190	30	none
Arsenic (mg/l)	0.008	0.028	0.40	0.009	0.002	0.01

¹ The average of water quality data collected between first quarter 2005 and the fourth quarter 2006.

² The Supernatant Pond is the pond on top of the tailings surface.

³ Water quality limits used to implement applicable water quality objectives for the protection of beneficial uses of the groundwater.

19. '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.*

20. The Supernatant Pond is the ponded water on top of the TMF. Water in the Supernatant Pond, water draining from the TMF, and water in the Harvard Mine Pit contain pollutants that exceed water quality objectives and background concentrations that have caused or could cause degradation of waters of the state. 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

21. The native material underlying the TMF, the PWRP, and the 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.
22. Land uses within 1,000 feet of the Jamestown Mine are residential, agricultural, industrial and commercial.
23. 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.
24. 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.
25. There are approximately 47 municipal, domestic, industrial, or agricultural groundwater supply wells within one mile of the site.

SURFACE AND GROUND WATER CONDITIONS

26. 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.
27. 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).
28. 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.
29. The designated beneficial uses of the groundwater, as specified in the Basin Plan, are domestic and municipal, agricultural, and industrial supply.
30. 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.

31. 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.
32. If water levels in the Harvard Mine Pit are maintained below the elevation of Woods Creek (1330 feet 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.).

GROUNDWATER MONITORING AND DEGRADATION

33. 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, and -9A) demonstrate a pattern of increasing sulfate, chloride, nitrate, and TDS concentrations. The overall pattern in these downgradient monitor wells is of increasing impacts that began after the start of mine operations.
34. The facility has known releases to groundwater and is in evaluation monitoring. The existing evaluation monitoring system consists of three background wells and fifteen downgradient wells. As part of the ongoing Phase I investigation eight additional downgradient wells have been installed and the first sampling results should be reported in the Second Quarter 2007 Monitoring Report.
35. Groundwater downgradient of the TMF, the PWRP, and the RSA has been polluted as result of mining operations. The Harvard Mine Pit is a groundwater sink and nearby groundwater flows into the pit. The full extent of groundwater impacts is not fully understood at this time. An ongoing groundwater investigation is mandated by the Settlement Agreement as part of the Phase I Scope of Work. Staff anticipates that this investigation will result in changes to the evaluation monitoring program. Any necessary monitoring revisions will be incorporated in a subsequent WDR.

TMF CLOSURE CONSTRUCTION AND ENGINEERED ALTERNATIVE

36. The design and operation of the TMF produced a consolidated, well-drained tailings capable of supporting a cover.
37. The TMF shall be closed with a final cover consisting of (from bottom to top) a minimum two feet thick foundation layer composed of reworked and compacted tailings, a minimum one foot compacted clay low-permeability layer with a permeability less than 1×10^{-6} cm/sec, and minimum one foot vegetative soil layer.

38. The Discharger proposed to build the final cover with a minimum slope of one percent. Title 27 Section 21090(b)(1)(B) states in part: "The RWQCB can allow portions of the final cover to be built of less than three percent if the discharger proposes an effective system for diverting surface drainage from laterally-adjacent areas and preventing ponding in the allowed flatter portion."
39. At the TMF, all stormwater from the surrounding area is captured and diverted away from this unit by a perimeter stormwater collection and drainage ditch. The tailings have been drained for ten years and have developed into a relatively high-density mass with low liquid content. The facility contains no putrescible wastes and the tailings are not expected to undergo any significant settlement or subsidence. Therefore, no run-on stormwater from surrounding area is expected, and once the TMF is graded and the cover construction is completed, no subsidence is expected that would cause ponding. The one percent grade is justified due to these facts.
40. The crest of the tailings dam is several feet higher than the elevation of the tailings surface. To allow the tailings to drain and prevent ponding behind the dam crest, the dam will be lowered to match the tailings level and capped. Surface water runoff from the top deck will be drained to an engineered channel and discharged to the existing stormwater drainage system. The storm water drainage system is designed for flows from a 100-year, 24-hour storm event. After closure and with the proper maintenance, stormwater will not pond on the tailings.
41. Title 27 CCR Section 20080(b) allows the Regional Water Board to consider the approval of an engineered alternative to the prescriptive standard. In order to approve an engineered alternative in accordance with Title 27 CCR Sections 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 Title 27 CCR Section 20080(b), or would be impractical and would not promote attainment of applicable performance standards. The Discharger must also demonstrate that the proposed engineered alternative cover system is consistent with the performance goal addressed by the particular prescriptive standard, and provides protection against water quality impairment equivalent to the prescriptive standard in accordance with Title 27 CCR Section 20080(b)(2).
42. California Water Code, Section 13360(a)(1) allows the Regional Water 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.
43. The Discharger adequately demonstrated that construction of the prescriptive standard cover with three percent grade, 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. The Discharger has demonstrated that the proposed engineered alternative is consistent with the performance goals for closure of a Group B Mine Waste management unit.

44. Concurrently with closure of the TMF, one or more stormwater retention ponds may be closed. If the pond spoils are Group B Mining Wastes, the spoils may be incorporated in the TMF foundation layer.
45. Construction of the TMF cover shall proceed only after all applicable construction quality assurance plans have been approved.

PWRP OPERATIONS

46. The PWRP shall be maintained as a Group B mining waste containment unit to hold liquids from the Spine Drain system, the Tailings Dam filter-drain system, and the LCRS.
47. The PWRP shall be closed under separate WDRs when all free liquids have drained from the TMF and the PWRP is no longer needed to contain Group B mining waste.

HARVARD MINE PIT OPERATIONS

48. The Harvard Mine Pit shall be maintained as a Group B mining waste containment unit to hold excess liquids from the PWRP and to capture and contain contaminated groundwater.
49. Water levels in the Harvard Mine Pit shall not exceed 1320 feet msl.

CEQA AND OTHER CONSIDERATIONS

50. 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.
51. 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 tailings management system, (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.

52. The Regional Water Board has reviewed the EIR. This WDR Order provides protection to water quality equal to or more effective than the mitigation measures in the EIR relating to water quality. Compliance with this WDR Order will mitigate or avoid significant impacts on water quality listed in Finding 34 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 TMF and by dewatering and installing a final cover on the unit. Because the site no longer operates as a gold extraction facility, mill reagents and other toxic chemicals are no longer present on site.

53. 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.

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

55. The technical reports required by this Order and the attached "Monitoring and Reporting Program No. R5-2007-0083" are necessary to assure compliance with these waste discharge requirements. The Discharger owns and operates the facility that discharges the waste subject to this Order.

PROCEDURAL REQUIREMENTS

56. The Regional Water 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.

57. The Regional Water Board, in a public meeting, heard and considered all comments pertaining to these WDRs.

IT IS HEREBY ORDERED pursuant to Sections 13263 and 13267 of the California Water Code, Orders No. 97-082 and R5-2006-0048 are rescinded and that Jamestown Trust I and Jamestown Trust II through their 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', 'designated waste', 'Group A' and 'Group B' mining waste unless otherwise specified in these WDRs is prohibited. For the purposes of this Order, the terms 'hazardous waste', 'designated waste', 'Group A' and 'Group B' mining 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.

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.

Tailings Management Facility Closure

2. A third party independent of both the Discharger and the construction contractor shall oversee the performance of all of the construction quality assurance monitoring and testing.
3. The closure of the TMF shall be under the direct supervision of a California registered civil engineer or certified engineering geologist.
4. The Discharger shall submit for review and approval **prior to** construction, design plans and specifications for closure construction, that include the a Construction Quality Assurance Plan meeting the requirements of Title 27 CCR Section 20324.
5. The TMF cover shall be constructed in accordance with the following design (from bottom to top). The lower compacted foundation layer shall be composed of reworked tailings that are a minimum of two feet thick with a minimum relative compaction of 90%. Immediately above the foundation layer, and in direct and

uniform contact with it, shall be a minimum one foot thick compacted clay low-conductivity layer with a hydraulic conductivity less than 10^{-6} cm/sec. This low-conductivity layer shall be immediately overlain with a minimum one-foot thick layer of loosely compacted soil suitable for vegetation.

6. The TMF cover shall have final grades greater than or equal to one percent and a stormwater collection system that prevents erosion of the final cover.
7. The Discharger may propose changes to the cover system design prior to construction, provided that approved components are not eliminated, the engineering properties of the components are not substantially reduced, and the proposed cover system results in the protection of water quality equal to or greater than the design prescribed by Title 27 and this Order. The minor proposed changes may be made following staff approval, but substantive changes to the design require reevaluation as an engineered alternative and require approval by the Regional Water Board.
8. Construction shall proceed only after all applicable construction quality assurance plans have been approved.
9. Within 90 days after completion of construction of the cover, the final documentation required in Title 27 CCR Section 20324(d)(1)(C) shall be submitted for review and approval. The report shall be certified by a registered civil engineer or a certified engineering geologist. It shall contain sufficient information and test results to verify that construction was in accordance with the design plans and specifications, and with the prescriptive standards and performance goals of Title 27.

Protection From Storm Events For All Units

10. Waste management units shall be designed, constructed and operated to prevent inundation or washout due to flooding events with a 100-year return period.
11. The Discharger shall maintain a *Storm Water Pollution Prevention Plan and Monitoring Program and Reporting Requirements* in accordance with State Water Resources Control Board Order No. 97-03-DWQ, or retain all storm water on-site.
12. 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.

Group B Surface Impoundments

13. The Harvard Mine Pit and the PWRP shall continue to operate as Group B mining waste surface impoundments. Group B liquid mine waste from the tailings dam filter-drainage network, the Leachate Collection and Recovery System, the spine drain system, and if necessary stormwater ponds, may be discharged to the PWRP and Harvard Mine Pit.
14. In order to act as a groundwater sink and maintain containment, Harvard Mine Pit water levels shall be kept below 1320 feet msl.
15. The PWRP, 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.
16. Any direct-line discharge to a surface impoundment shall have fail-safe equipment or operating procedures to prevent overfilling.
17. The surface impoundments 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.

Post-closure Maintenance of the TMF

18. Prior to any major repairs, the Discharger shall submit design plans and specifications for any on-site construction or major repairs to landfill structures.
19. The Discharger shall perform periodic monitoring of site security systems, final soil cover, drainage system, vegetative cover, final grading, and groundwater monitoring system in compliance with Monitoring and Reporting Program No. R5-2007-0083.
20. The Discharger shall perform periodic monitoring inspections to identify and address cover problems, including at least:
 - a. Areas of the vegetative cover requiring replanting;
 - b. Eroded portions of the erosion-resistant layer requiring regrading, repair, or increased erosion resistance;
 - c. Eroded portions of the low-hydraulic conductivity layer needing repair or replacement;

- d. Areas lacking free drainage;
 - e. Areas damaged by equipment operation; and
 - f. Localized areas identified in the iso-settlement survey as having sustained repeated or severe differential settlement.
21. The Discharger shall repair forthwith any breach or other cover problem discovered by periodic monitoring inspections.
22. Annually, prior to 1 October, 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 and to prevent surface drainage from contacting or percolating through wastes.
23. The Discharger shall maintain the vegetative cover, including fertilization, elimination of species whose roots would be expected to damage the low conductivity layer (trees and deep rooted shrubs), and replanting.
24. Prior to conducting any periodic grading operations on the closed TMF, the Discharger shall note on a map of the TMF the approximate location and outline of any areas where differential settlement is visually obvious.
25. Construction of any major repairs shall proceed only after all applicable construction quality assurance plans have been approved.
26. Following the completion of any major repair construction, the final documentation required in §20324(d)(1)(C) of Title 27 shall be submitted. The report shall be certified by a registered civil engineer or a certified engineering geologist. It shall contain sufficient information and test results to verify that construction was in accordance with the design plans and specifications, and with the prescriptive standards and performance goals of Title 27.

C. FINANCIAL ASSURANCE

1. Jamestown Trust I was established to manage funds for the primary purposes of (a) implementing the Phase I work and other actions required by the Landowner Stipulated Judgment and (b) to provide financial assurance to the Regional Water Board that the Jamestown Mine site will be managed in an appropriate manner.
2. These WDRs are being issued to regulate closure of the TMF, and continued operation of the Harvard Mine Pit and the PWRP. Jamestown Trust I, consisting

of the funds of the trust, will provide the financial assurances for these activities. Available information demonstrates that the Stipulated Judgments, settlement agreements and financial assurances provide the Regional Water Board with assurance that the Phase I closure activities for the TMF can and will be completed. The Trustee on 1 March of each year, shall submit to the Regional Water Board an annual accounting of expenses incurred by the Trust I in the preceding calendar year. The Trustee also shall provide on March 1st of each year, an accounting to the Regional Water Board of the balance in Jamestown Trust I and a forecast of the anticipated date, if any, that the Jamestown Trust I is likely to be depleted.

3. Jamestown Trust II was created to hold, disperse and grow funds for the long-term remediation of the Jamestown Mine site, to the extent funding within that trust is available. The Trustee shall, **by 1 March of each year**, submit an accounting of the balance in Jamestown Trust II. Submittal of the annual accounting report required in the Jamestown Trust Agreement II Article V shall comply with this requirement.

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. R5-2007-0083, 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. R5-2007-0083 is a violation of these waste discharge requirements.
3. The Trust shall maintain legible records of the volume and type of waste discharged to the Harvard Mine Pit and the TMF, 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 Water Board and of the State Water Resources Control Board, copies of these records shall be sent to the Regional Water Board.
4. The Trust shall provide proof to the Regional Water 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 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.
5. The Trust shall complete the tasks outlined in these WDRs and the attached Monitoring and Reporting Program No. R5-2007-0083 in accordance with the following time schedule:
- a. **By 31 December 2007** complete closure construction at the TMF in accordance with these WDRs and the Closure Plan submitted on 27 February 2007.
 - b. **By 31 March 2008** submit to the Regional Water Board a complete Closure Report. The Closure Report shall include a Construction Quality Assurance (CQA) Report, an As-built Report and a TMF Closure Certification. The CQA Report shall contain testing data, variance logs (if any) and certify that the TMF closure conforms to project specifications and regulatory requirements. The As-built Report shall contain narrative descriptions of construction and any variances from the Closure Plan, a complete set of as-built diagrams showing final grades, layer thicknesses and details of drainage control structures, and final surveyed drawings of the cover surface. The Closure Report shall comply with all the requirements in Title 27 Section 20324.
 - c. **90 days after the completion of the Phase I Site Investigation**, update the *Harvard Mine Pit 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.
6. 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

CLOSURE WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2007-0083
THE JAMESTOWN TRUSTS I & II THROUGH ITS TRUSTEE
COUNTY OF TUOLUMNE, ROBERT CAMERON AND GARY WILSON
CLOSURE OF THE JAMESTOWN MINE
TUOLUMNE COUNTY

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Water Board.

7. The Regional Water Board will review this Order periodically and may revise requirements when necessary.

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 22 June 2007.

PAMELA C. CREEDON, Executive Officer

Attachments
RDA;06/22/2007

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2007-0083
FOR

JAMESTOWN TRUSTS I & II, THROUGH ITS TRUSTEE
COUNTY OF TUOLUMNE

ROBERT CAMERON

GARY WILSON

CLOSURE OF THE JAMESTOWN MINE
TUOLUMNE COUNTY

Compliance with this Monitoring and Reporting Program, and with the companion Standard Provisions and Reporting Requirements, is ordered by Waste Discharge Requirements (WDRs) Order No. R5-2007-0083. 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. R5-2007-0083. 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. Monitoring Report Submittal Dates

Report Type	Data Collection Frequency	Reporting Period	Report Date Due
Water Quality Protection Standard	Use all previously collected data.	Complete monitoring record	When Requested
Quarterly*	Monthly, 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
Annual Monitoring Summary	All previous data collected during the year	1 January – 31 December	31 January of the following year.
Facility Monitoring	Annually and after Major Storm Events	1 May – 30 September Repairs completed by 31 October	15 November

* Quarterly Reports shall include Waste Discharge Monitoring (Section D.1.), Surface Impoundment & TMF Drain System Monitoring (Section D.2.), and Groundwater Monitoring (Section D.3.)

C. WATER QUALITY PROTECTION STANDARD AND COMPLIANCE PERIOD

1. Water Quality Protection Standard Report

Jamestown Mine site contains several known and suspected releases to groundwater and Phase I of the Settlement Agreement specifies an investigation of known and possible releases. Water Quality Protection Standards have previously been established for the Jamestown Mine and a revised Water Quality Protection Standard Report is not required at this time. The Discharger shall prepare a revised Water Quality Protection Standard Report upon completion of the Phase I investigation.

For each waste management unit (Unit), the Water Quality Protection Standard shall consist of all constituents of concern, the concentration limit for each constituent of concern, the point of compliance, and all water quality monitoring points.

The Water Quality Protection Standard for naturally occurring waste constituents consists of the constituents of concern, the concentration limits, and the point of compliance and all monitoring points. The Water Quality Protection Standard, or any modification thereto, for each monitored medium shall be submitted in a report when requested.

The report shall:

- a. Identify **all distinct bodies of surface and ground water** that could be affected in the event of a release from a Unit or portion of a Unit. This list shall include at least the uppermost aquifer and any permanent or ephemeral zones of perched groundwater underlying the facility.
- b. Include a map showing the monitoring points and background monitoring points for the surface water monitoring program and groundwater monitoring program. The map shall include the point of compliance in accordance with §20405 of Title 27.
- c. Evaluate the perennial direction(s) of groundwater movement within the uppermost groundwater zone(s).

If subsequent sampling of the background monitoring point(s) indicates significant water quality changes due to either seasonal fluctuations or other reasons unrelated to waste management activities at the site, the Discharger or the Regional Water Board staff may request modification of the Water Quality Protection Standard.

2. Constituents of Concern and Monitoring Parameters

The constituents of concern include all the waste constituents, their reaction products, and hazardous constituents that are reasonably expected to be in or derived from waste

contained in the Unit. Monitoring parameters are those constituents of concern that provide a reliable indication of a release from a Unit. The monitoring parameters for all Units are those listed in Tables 1 through 3 for the specified monitored medium.

3. Concentration Limits

For a naturally occurring constituent of concern, the concentration limit (or tolerance limit) for each constituent of concern shall be determined as follows:

- a. By calculation in accordance with a statistical method pursuant to §20415 of Title 27;
or
- b. By an approved alternate statistical method in accordance with §20415 of Title 27.

Tolerance Limits have previously been established for those groundwater monitoring points with sufficient data. A table with the established Tolerance Limits is attached at the end of this MRP.

D. 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 an approved Sample Collection and Analysis Plan, which includes quality assurance/quality control standards.

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 use approved 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 water discharged from the Leachate Collection and Recovery System (LCRS), spine drains and tailings dam filter-drainage network to the Process Water Retention Pond (PWRP). The data shall be collected monthly and reported in gallons per month. For the Harvard Mine Pit the discharge to the pit should be analyzed per the parameters in Table 1. The remaining capacity parameter shall be the area in the pit between the water level and 1320 feet msl.

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. Harvard Pit, PWRP and TMF Drain System Water Quality Monitoring

On a quarterly basis, the discharger shall monitor water quality at the following: Harvard Mine Pit, PWRP, Leachate Collection and Recovery System (TMFLCRS), Groundwater Spine Drain (TMFGWSP), Embankment Drain (TMFFEMB), East Outlet Pipe Drain (TMFOPE), West Outlet Pipe Drain (TMFOPW), PWRP Leachate Collection and Recovery System (PWRPLCRS) and PWRP Groundwater Spine Drain (PWRPGRND). Samples from the PWRP and the Harvard Mine Pit shall be collected in a convenient location at least 50 feet from an influent structure. Results shall be reported in the normal Quarterly Monitoring Reports. Samples shall be analyzed for the following:

Table 2 - Harvard Pit, PWRP and TMF Drain System Water Quality Monitoring		
<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 Monitoring

The Discharger shall operate and maintain a groundwater evaluation monitoring system that complies with the applicable provisions of §20415 and §20425 of Title 27 in accordance with an Evaluation Monitoring Program. The Discharger shall collect, preserve, and transport groundwater samples in accordance with the approved Sample Collection and Analysis Plan. The provisions in this MRP are intended for long term monitoring and in no way change or limit the scope of work for the Phase I investigation.

The groundwater monitoring system shall consist of background wells RSMW-5A, TDMW-7 and -22; and monitor wells RSMW-6, -7, -8, -9A, TDMW-3, -4, -6, -9, -12, -14, -15, -16, -18, and -19. Several additional monitor wells have been installed as part of the Phase I groundwater investigation. After the initial monitoring data is submitted with the groundwater investigation this Monitoring and Reporting Program will be updated if appropriate.

The Discharger shall determine the groundwater flow rate and direction in the uppermost aquifer and in any zones of perched water and in any additional zone of saturation monitored pursuant to this Monitoring and Reporting Program. Quarterly water levels potentiometric surface maps shall be reported in the Quarterly Reports. Hydrographs of each well shall be submitted showing the elevation of groundwater with respect to the elevations of the top and bottom of the screened interval and the elevation of the pump intake. Hydrographs of each well shall be prepared quarterly and submitted in the Annual Monitoring Summary Report.

Groundwater samples shall be collected from the downgradient wells, background wells, and any additional monitoring wells added as part of the Phase I investigation. Samples shall be collected and reported quarterly. Samples will be analyzed 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

4. Facility Monitoring

a. Annual Facility Inspection

Annually, prior to the anticipated rainy season, but no later than **30 September**, the Discharger shall conduct an inspection of the facility. The inspection shall assess damage to the drainage control system, groundwater monitoring equipment (including wells, etc.), and shall include the Standard Observations contained in WDR Order No. R5-2007-0083, Discharge Specifications B.21.a. – f.. Any necessary construction, maintenance, or repairs shall be completed by **31 October**. By **15 November** of each year, the Discharger shall submit an annual report describing the results of the inspection and the repair measures implemented, including photographs of the problem and the repairs.

b. **Storm Events**

The Discharger shall inspect all precipitation, diversion, and drainage facilities for damage **within 7 days** following *major storm events*. A major storm event is any storm that causes or threatens to cause local flooding in the Jamestown - Sonora area. Necessary repairs shall be completed **within 30 days** of the inspection. The Discharger shall report any damage and subsequent repairs within 45 days of completion of the repairs, including photographs of the problem and the repairs.

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

Ordered by: _____
PAMELA CREEDON, Executive Officer

22 June 2007
Date

RDA:22 June 2007

INFORMATION SHEET

ORDER NO. R5-2007-0083
THE JAMESTOWN TRUSTS I & II, THROUGH ITS TRUSTEE
COUNTY OF TUOLUMNE, GARY WILSON, AND ROBERT CAMERON
CLOSURE OF THE JAMESTOWN MINE
TUOLUMNE COUNTY

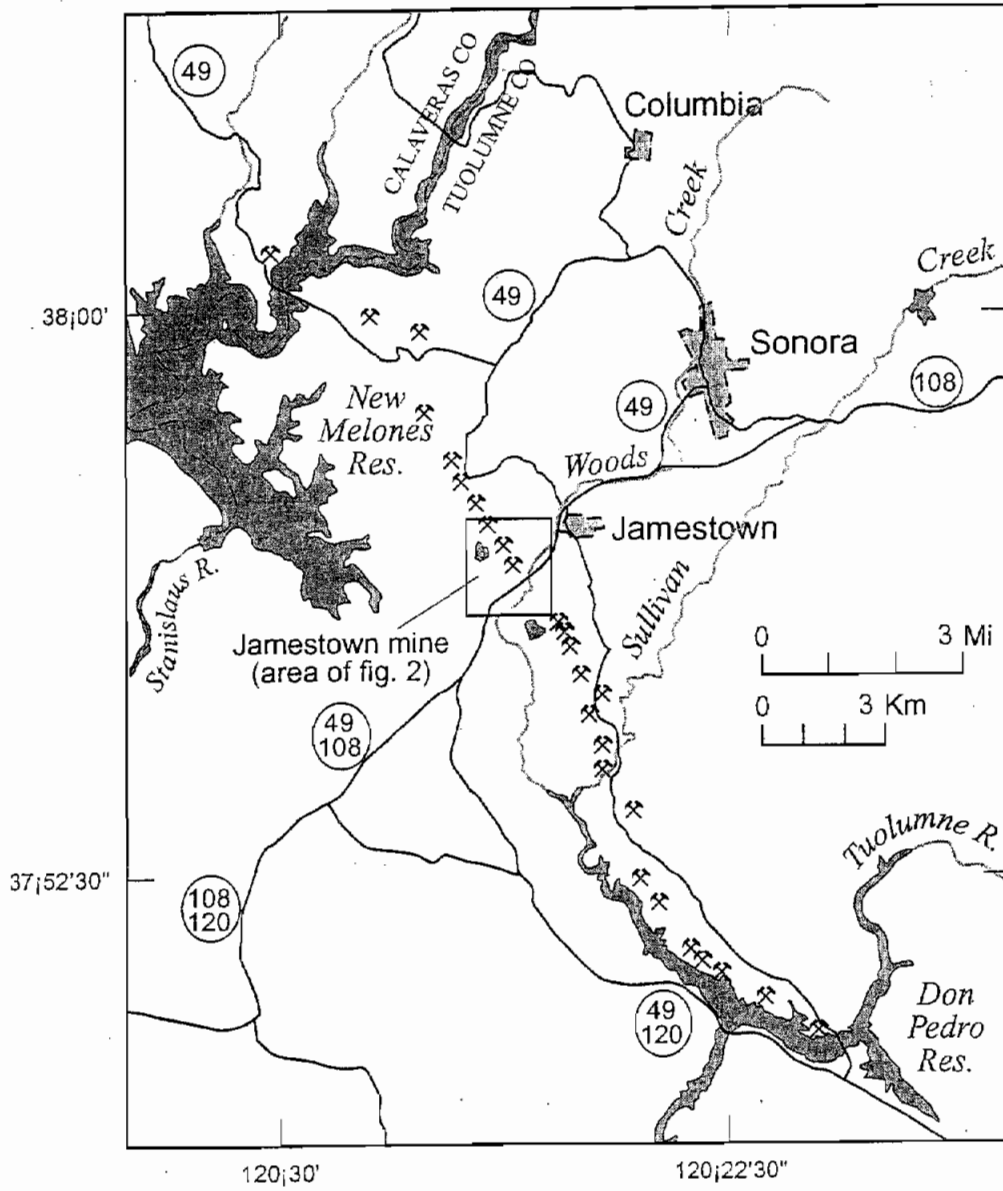
The Jamestown Mine is an inactive gold mine approximately one mile southwest of Jamestown in Tuolumne County. The Jamestown Mine last operated from 1986 to 1994. The County of Tuolumne, Robert Cameron and Gary Wilson (jointly owners) currently own the Jamestown Mine. Jamestown Trust I and Jamestown Trust II hold monies from a litigation settlement to fund closure, post-closure maintenance and remedial activities. The principal features of the mine are: the three mine pits (including Harvard Mine Pit), the Tailings Management Facility (TMF), the Rock Storage Area (RSA), the Process Water Retention Pond (PWRP) and several storm water retention ponds.

The TMF is an approximately 120-acre lined mine tailings impoundment. Polluted water from the TMF drains to the PWRP (a lined Class II impoundment). Water collected in the PWRP is pumped to the Harvard Mine Pit, an Engineered Alternative Group B mine waste management unit.

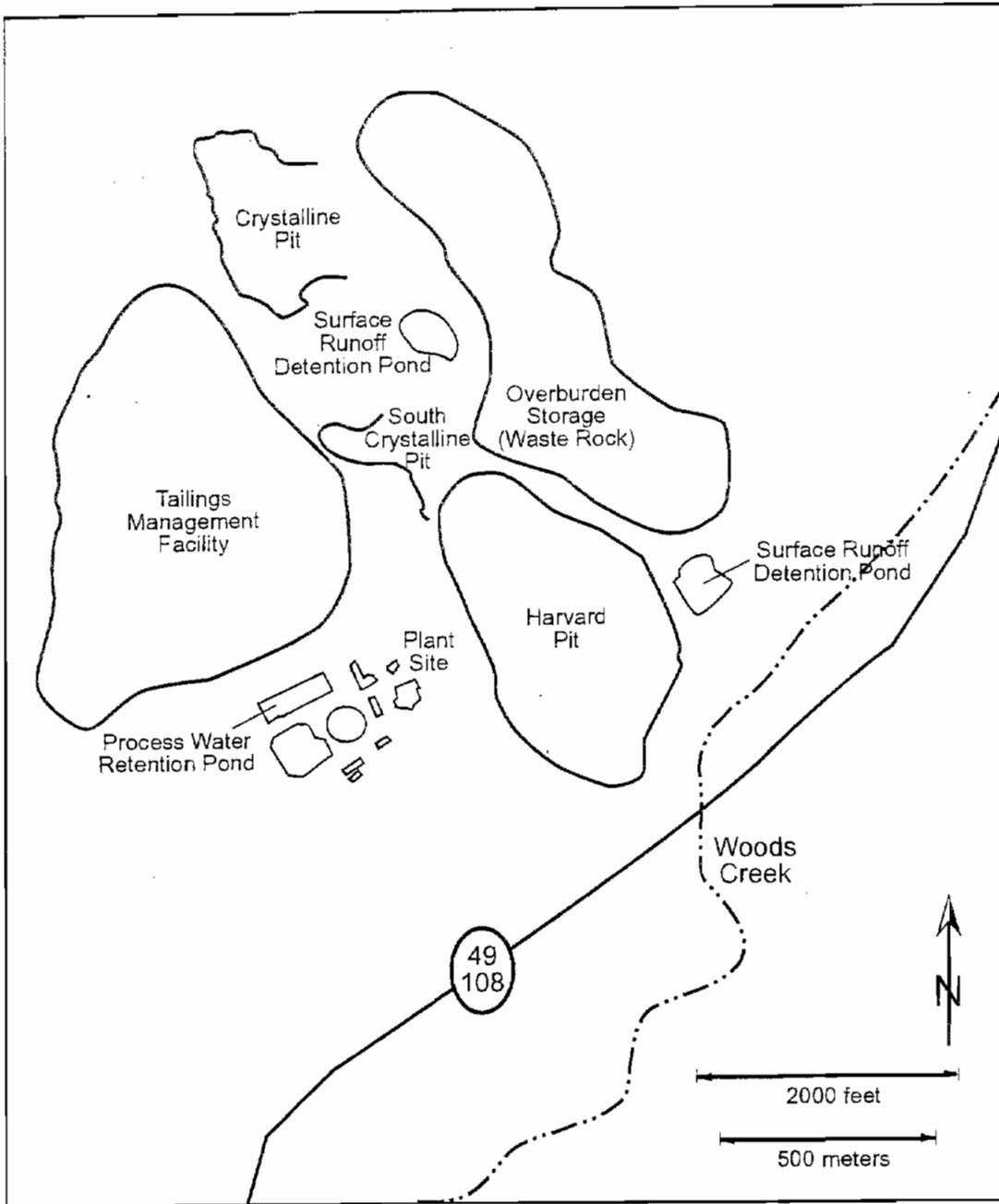
The Harvard Mine Pit is approximately 520 feet deep and has a 72-acre footprint. The pit was dewatered during active mining and is slowly refilling with poor quality water. Water in the Harvard Mine Pit is polluted by interaction with the shattered mineralized wall rock and with mineralized waste rock in the adjacent RSA. Water in the Harvard Mine Pit and water in the TMF are of similar poor quality.

These Waste Discharge Requirements (WDRs) regulate the closure and post-closure of the TMF; and operation of the PWRP and Harvard Mine Pit, two Group B mine waste containment units. These WDRs replace existing WDRs No. 98-082 and R5-2006-0048.

RDA: 23 April 2007



Attachment A
Location of Jamestown Mine site



Attachment B
Jamestown Mine site showing main features