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## BOARD OF SUPERVISORS MEETING December 18, 2018

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*County of Lassen*  
Department of Planning and Building Services

• Planning • Building Permits • Code Enforcement • Surveyor • Surface Mining

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December 10, 2018

Zoning & Building  
Inspection Requests  
Phone: 530 257-5263

TO: Board of Supervisors  
Agenda Date: December 18, 2018

FROM: Maurice L. Anderson, Director 

SUBJECT: Consider approval of partial release of financial assurances held by Lassen County for reclamation of the Hayden Hill Gold Mine, operated by Lassen Gold Mining, Inc. (LGMI).

ACTION REQUESTED:

1. Receive report; and
2. Adopt a resolution approving partial release of financial assurances.

RECOMMENDATION: That the Board:

Adopt a resolution approving partial release of the financial assurances held for reclamation of the Hayden Hill Gold Mine.

SUMMARY

Lassen Gold Mining, Inc. (LGMI), operator of the Hayden Hill Gold Mine, has requested partial release of the financial assurance held by Lassen County for the purpose of mine reclamation. On August 8, 2016, the Lassen County Department of Planning and Building Services received LGMI's request for a \$2,060,520 reduction to a letter of credit, currently in the amount of \$2,517,083 (after a partial release in 2006), and subsequently received a request for an additional \$134,365 reduction, in association with the Lookout Pit facility. Also received on August 8, 2016, was LGMI's request for full release of a separate letter of credit held for completion of the Habitat Mitigation and Management Plan (HMMP), in the amount of \$500,000. These requests were accompanied by reports from SRK Consulting, Inc. and a mine closure cost estimate in the amount of \$244,333.

The County hired an independent consultant, Tetra Tech, Inc., to evaluate the release requests. Tetra Tech determined that all HMMP requirements have been met, and recommend full release of the associated \$500,000 letter of credit. Tetra Tech also found that \$1,884,843 of the reclamation letter of credit, approximately 75% of the current remaining financial assurance, is eligible and appropriate for release. It is the opinion of Tetra Tech and this Department, that the remaining \$632,239 would be adequate to cover the reclamation work and post closure monitoring yet to be completed.

Required removal of the Hayden Hill power line, established for use by the mining operation, has not been completed; however, this power line, and responsibility for its removal, was acquired by the Lassen Municipal Utility District, who has provided sufficient financial assurance replacement. This financial assurance is in the form of a Budget Set Aside, approved by the LMUD Board of Directors on October 30, 2018, in the amount of \$916,798.49. The amount was reviewed and approved by Lassen County and agencies and this reclamation item was removed from consideration in the release request at hand.

The amount of financial assurance recommended for retention is significantly more than the estimated cost to complete reclamation of the site, submitted in 2016. In part, this is because potential water quality exceedances were reported to the Central Valley Regional Water Quality Control Board (CVRWQCB) in 2017. Per the 2001 Memorandum of Understanding (MOU) between the County, the Department of Conservation, the Bureau of Land Management, the Forest Service, and the CVRWQCB, fifteen percent of financial assurances must be retained for each facility, until it is shown that the facility has not contributed to an exceedance of the CVRWQCB permit parameters during the preceding two years. The CVRWQCB is investigating the reports, but has yet to determine whether a true exceedance has occurred.

The facilities identified by the CVRWQCB as possible contributors to the reported exceedances are as follows: Heap Leach Pad, 7-Bench Lined Pond, 7-Bench Clay Pond, Tailings Impoundment & Drainfield Construction, and 7-Bench Pipeline. The final fifteen percent of financial assurances for each of these facilities may be eligible for release if it is determined that an exceedance did not occur; however, until the CVRWQCB has made an official determination, release of this portion of financial assurances will not be considered. In the original 2016 reduction request, \$134,365 associated with reclamation of the Lookout Pit facility had been retained due to a previously reported exceedance. Because the Lookout Pit Facility has not contributed to an exceedance in the past two years, LGMI is requesting full release of the financial assurance for said facility.

#### REGULATORY AUTHORITY TO MODIFY FINANCIAL ASSURANCE

The Surface Mining and Reclamation Act (SMARA) prohibits conducting surface mining operations unless a permit, reclamation plan, and financial assurances are approved by the lead agency (PRC § 2770(a)). The approved reclamation plan sets forth the actions and treatments required to minimize environmental degradation and return mined lands to a useable condition suited to other land uses (PRC § 2733). A financial assurance is required of mine operators to guarantee reclamation in accordance with the approved reclamation plan (PRC § 2773.1(a); CCR § 3504(b)). The amount of financial assurances required shall be increased annually to reflect newly disturbed land and inflation, and shall be decreased to reflect reclamation accomplished in accordance with the approved reclamation plan (PRC § 2773.1(a)(3)). The total amount of financial assurances required by the lead agency shall not exceed the amount that is necessary to perform reclamation of disturbed lands (PRC § 2773.1(a)(5)).

## BACKGROUND

As detailed in the aforementioned MOU, the Hayden Hill Gold Mine operates under the shared regulatory authority of Lassen County (SMARA lead agency), the CVRWQCB, the Forest Service, the Bureau of Land Management, and the Department of Conservation. The joint State and Federal EIR/EIS for the project was certified in 1991, along with approval of the use permit, reclamation plan, and financial assurance.

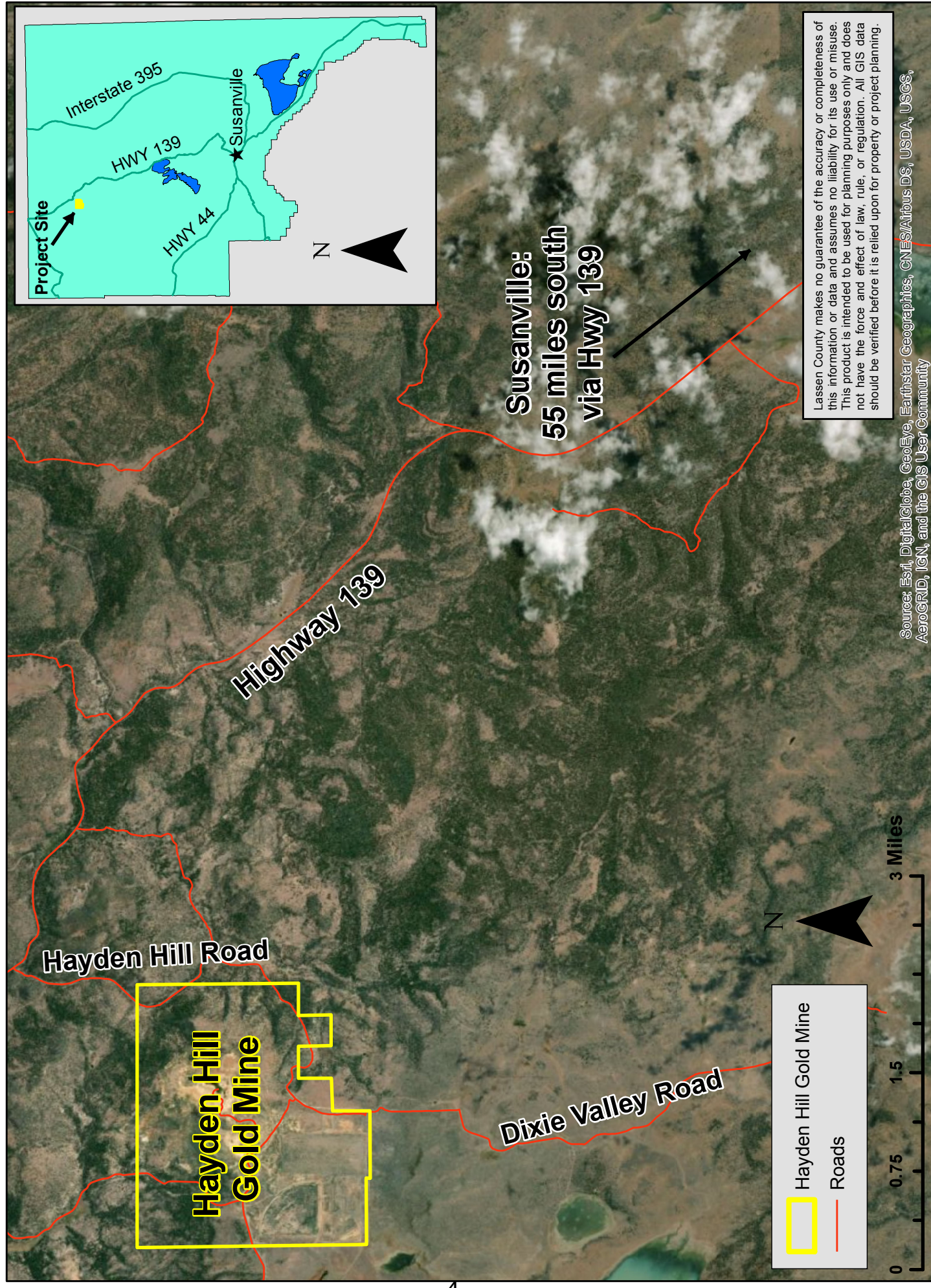
Mining began in 1991 and continued until 1997. Gold continued to be recovered until about 2000, through operation of the heap leach system, while concurrent reclamation took place. During the period from 1999 to 2002, the mine submitted a series of modified reclamation plans for approval by the regulatory agencies. The modified plans incorporated new information accumulated during mine operations and new technologies designed to improve the reclamation effort. Each of the five modified reclamation and closure plans were approved by the Lassen County Planning Commission and agencies. Also, a Memorandum of Understanding (MOU) was executed in 2001, establishing Lassen County as Bond Administrator and setting forth criteria for financial assurance release, based on the approved reclamation plans. From 1997 to present, LGMI has accomplished substantial site reclamation pursuant to those plans. On June 27, 2006, partial release of the original \$6,364,425 letter of credit was approved by the Board of Supervisors in the amount of \$3,847,342, leaving \$2,517,083. The mine operator, LGMI, is now requesting further release of these funds in accordance with the schedules established in the 2001 MOU and approved reclamation plans, as well as release of all funds held for completion of the HMMP.

MLA:njm  
Enclosure

S:\PLA\Admin\FILES\800 Planning\20 Mining Files\Master Correspondence OMR and Operators\91-18-0012 Hayden Hill\Bond Reduction Request 2016 & Correspondence\BoS 12.18.18

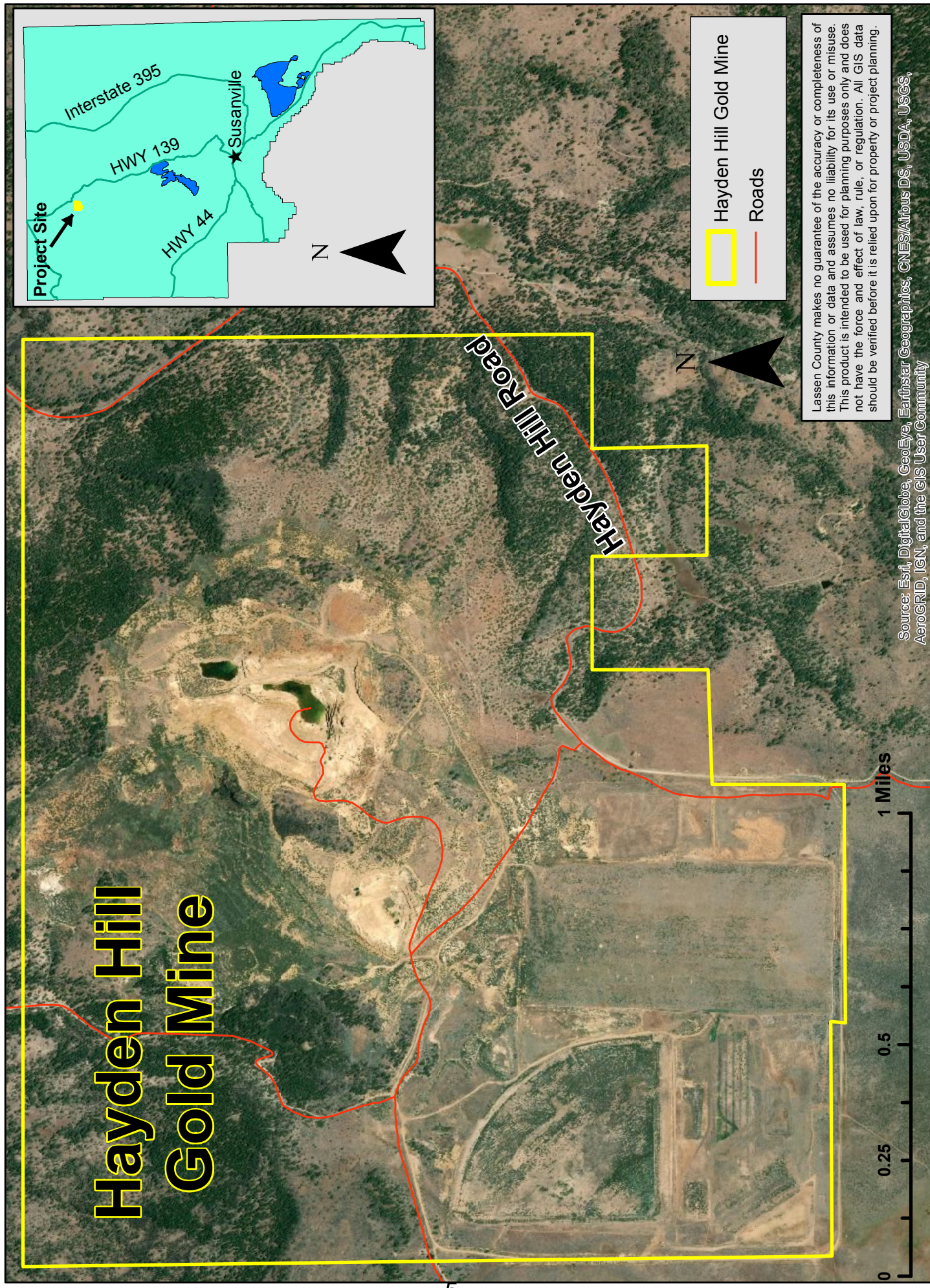


# Financial Assurance Reduction Request, Lassen Gold Mining Inc.

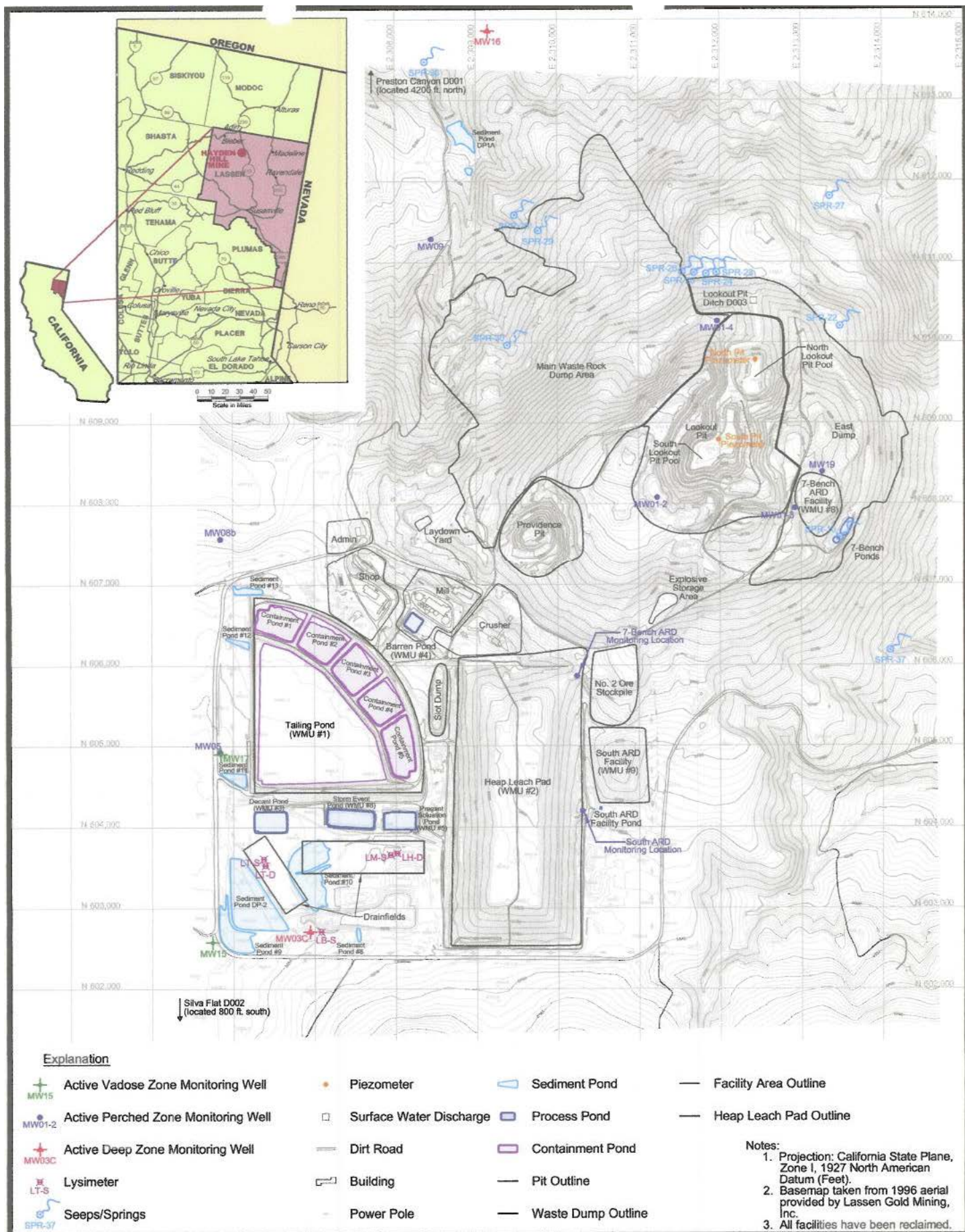




# Financial Assurance Reduction Request, Lassen Gold Mining Inc.







## RESOLUTION NO.

RESOLUTION OF THE BOARD OF SUPERVISORS OF THE COUNTY OF LASSEN APPROVING MODIFICATION OF THE HAYDEN HILL GOLD MINE RECLAMATION FINANCIAL ASSURANCE AND FULL RELEASE OF THE HABITAT MITIGATION AND MANAGEMENT PLAN FINANCIAL ASSURANCE BASED ON PARTIAL COMPLETION OF RECLAMATION.

WHEREAS, Lassen Gold Mining, Inc., has operated the Hayden Hill Gold Mine in Northern Lassen County since 1989 under County Use Permit #9-02-89 and the shared regulatory jurisdiction of Lassen County, Bureau of Land Management, U.S. Forest Service, Central Valley Regional Water Quality Control Board, and the Department of Conservation, Division of Mine Reclamation; and

WHEREAS, reclamation and closure plans were approved by Lassen County as lead agency under the provisions of the California Surface Mining and Reclamation Act (SMARA), and Lassen County Code Chapter 9.60, with concurrence from the Bureau of Land Management, U.S. Forest Service, Central Valley Regional Water Quality Control Board, and the Department of Conservation, Division of Mine Reclamation; and

WHEREAS, said reclamation and closure plans prescribe reclamation activities to be undertaken by the mine operator, reclamation standards to be met, as determined by the lead agency in cooperation with the other agencies with jurisdiction, and criteria for the release of the reclamation financial assurance, and are the basis for the approved reclamation cost estimate and financial assurance; and

WHEREAS, all agencies with jurisdiction entered into a Memorandum of Understanding (MOU) in 2001 establishing Lassen County as the Bond Administrator, and setting forth criteria for bond release based on the approved reclamation and closure plans; and

WHEREAS, the County holds an approved reclamation financial assurance in the form of an irrevocable letter of credit from the Bank of Nova Scotia, in the amount of \$2,517,083; and

WHEREAS, the County holds an approved financial assurance for completion of the Habitat Mitigation and Management Plan in the form of an irrevocable letter of credit from the Bank of Nova Scotia, in the amount of \$500,000; and

WHEREAS, Lassen Gold Mining, Inc., has submitted a request for partial release of the reclamation financial assurance based on partial completion of reclamation obligations at the site and full release of the Habitat Mitigation and Management Plan financial assurance; and

WHEREAS, in response to said request, Lassen County contracted with Tetra Tech, Inc., an independent consulting firm with expertise in the areas of mining, reclamation and cost estimating, to perform an objective analysis of the request in light of the approved reclamation and closure plans, the interagency MOU, and reclamation progress on site, on behalf of the County as lead agency; and

WHEREAS, the technical memorandum prepared by Tetra Tech confirms that on-site reclamation is progressing in conformance with the approved reclamation and closure plans and the MOU, and that a reduction of the reclamation financial assurance, in the amount of \$1,884,843, and full release of the Habitat Mitigation and Management Plan financial assurance, in the amount of \$500,000, is warranted based on reclamation completed; and

WHEREAS, the reduction of the reclamation financial assurance by \$1,884,843 is approximately seventy-five (75) percent of the total reclamation financial assurance held by the County, and would leave \$632,240, approximately twenty-five (25) percent of the financial assurance, in place to guarantee the remaining reclamation obligations; and

WHEREAS, a power line established for use by the Hayden Hill Gold Mine, and responsibility for its required removal, was acquired by the Lassen Municipal Utility District, who has provided sufficient financial assurance replacement. This financial assurance is in the form of a Budget Set Aside, approved by the LMUD Board of Directors on October 30, 2018, in the amount of \$916,798.49; and

WHEREAS, modification of financial assurances qualifies as a categorical exemption from the California Environmental Quality Act (CEQA) under section 15308 of the CEQA Guidelines, which discusses actions taken by regulatory agencies to assure the maintenance, restoration, enhancement, or protection of the environment where the regulatory process involves procedures for protection of the environment.

NOW, THEREFORE, THE BOARD OF SUPERVISORS OF LASSEN COUNTY DOES HEREBY RESOLVE:

1. The foregoing recitals are true and correct.
2. The Board of Supervisors Finds as follows:
  - a. The evidence indicates that reclamation activity at the mine site is progressing in conformance with the approved reclamation and closure plans, the Surface Mining and Reclamation Act and the Lassen County Code, and that a modification of the reclamation financial assurance is warranted; Said evidence including information from monitoring data and technical reports, site inspection reports, correspondence from agencies with jurisdiction, and testimony by agency and mine representatives was presented at a meeting held by the Board of Supervisors on December 18, 2018.

- b. Each agency with jurisdiction over mine operations and reclamation was notified of and given time to comment on the modification to the financial assurance as recommended in the preliminary Tetra Tech, Inc. Technical Memorandum dated January 3, 2017.
  - c. As indicated in the final Technical Memorandum, \$632,239 is adequate financial assurance and will be retained by the County of Lassen as lead agency, to cover the estimated cost of the remaining reclamation activity for which Lassen Gold Mining, Inc. is responsible in accordance with the approved reclamation and closure plans, the Surface Mining and Reclamation Act and the Lassen County Code.
- 3. The Board of Supervisors hereby approves modification of the reclamation financial assurance for the Hayden Hill Gold Mine in the form of a reduction to this financial assurance amount from \$2,517,083 to \$632,239, approves full release of the \$500,000 financial assurance held for completion of the Habitat Mitigation and Management Plan, and authorizes the Director of Planning and Building Services to sign all necessary forms.

Resolution NO. \_\_\_\_\_

The foregoing resolution was adopted at a regular meeting of the Board of Supervisors of the County of Lassen, State of California, held on the 18<sup>th</sup> day of December 2018, by the following vote:

AYES: \_\_\_\_\_

NOES: \_\_\_\_\_

ABSTAIN: \_\_\_\_\_

ABSENT: \_\_\_\_\_

\_\_\_\_\_  
Chairman of the Board of Supervisors  
County of Lassen, State of California

ATTEST:  
JULIE BUSTAMANTE  
Clerk of the Board

BY \_\_\_\_\_  
MICHELE YDERRAGA, Deputy Clerk of the Board

I, MICHELE YDERRAGA, Deputy Clerk of the Board of Supervisors, County of Lassen, do hereby certify that the foregoing resolution was adopted by the said Board of Supervisors at a regular meeting thereof held on the 18<sup>th</sup> day of December 2018.

\_\_\_\_\_  
Deputy Clerk of the County of Lassen Board of Supervisors



Gaylon Norwood  
Assistant Director of Planning and Building Services  
Lassen County Community Development Department  
707 Nevada Street, Suite 5  
Susanville, CA 96130

December 5, 2018

**Subject: Technical Assistance to Lassen County in Evaluating the Request for Partial Bond Release for the Hayden Hill Gold Mine**

Dear Mr. Norwood:

Tetra Tech is pleased to provide the attached technical memorandum in fulfillment of our contract to provide peer review of a recommendation for partial release of the reclamation bond at the Hayden Hill Gold Mine. Tetra Tech has incorporated suggested revisions provided by Lassen County on behalf of staff and LGMI.

Please contact me at (916) 853-4516 with comments or questions.

Sincerely,



Matthew D. Udell  
Project Manager

**TECHNICAL MEMORANDUM  
COMPARISON OF FINANCIAL ASSURANCE RELEASE REQUEST  
WITH AMOUNT ELIGIBLE BASED ON ESTABLISHED CRITERIA**

**2016 UPDATE (REVISED)**

**HAYDEN HILL MINE  
LASSEN COUNTY, CALIFORNIA**



*View to Tailings Impoundment*

**Prepared For  
LASSEN COUNTY, CALIFORNIA**

**December 5, 2018**

**Prepared By**



**TETRA TECH INC.  
2969 Prospect Park Drive, Suite 100  
Rancho Cordova, California, 95670**

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1	COMPARISON OF RECLAMATION FINANCIAL ASSURANCE RELEASE REQUEST WITH AMOUNT ELIGIBLE FOR RELEASE BASED ON ESTABLISHED CRITERIA
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## APPENDIX

A	PHOTOGRAPH DOCUMENTATION
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## **1.0 PROJECT BACKGROUND**

Lassen Gold Mining, Inc. (LGMI) has performed partial reclamation of the Hayden Hill Gold Mine and has requested partial release of the reclamation financial assurance (FA) (letters of credit), based on reclamation progress to date. An analysis of the reclamation status at the Hayden Hill Gold Mine was prepared by Stephen, Robertson and Kirsten (SRK) of Reno, Nevada (SRK 2016a). This analysis provided the basis for the additional request for partial release of the reclamation FA to LGMI. To facilitate expedited review and comparison to LGMI work completed since our 2006 peer review, we have added 2016 updates to the 2006 review and observations in Section 5 of this memorandum.

Lassen County has retained Tetra Tech to perform a peer review of the analysis of reclamation activity completed since our 2006 review. The peer review is intended to compare the work identified as completed to the standards and criteria provided in the Hayden Hill Gold Mine reclamation plan and reclamation plan modifications. The peer review will assist Lassen County in determining whether to notify the operator and the California Department of Conservation (DOC) that modification of the reclamation FA is appropriate. Modification of the reclamation FA as requested would result in a partial release of the reclamation FA in accordance with criteria proposed by SRK.

DOC criteria for FA release require that the lead agency, operator, and DOC agree that reclamation is complete. Completeness of reclamation is assessed in accordance with the criteria in the reclamation plan. Determining that the reclamation tasks are complete includes completion of any monitoring periods and meeting performance standards identified in the reclamation plan. The finding that the reclamation FA can be released or partially released is contingent on an inspection report indicating that "...there are aspects of the surface mining operation that require modification of the existing FA amount, or stating that the mined land has been reclaimed in accordance with the approved reclamation plan, and that there are no aspects of the reclaimed surface mining operation that are inconsistent with the meaning of reclamation as defined in Public Resources Code section 2733, and the SMARA of 1975, Chapter 9, commencing with section 2710..." (California Code of Regulations, Title 14 [CCR], Section 3805.5(1)). Thus, a modification of the FA is contingent in part on finding that criteria identified in the reclamation plan and reclamation plan modifications are met. The release of the FA is also contingent on the lead agency providing a statement that the mined land has been reclaimed in accordance with the approved reclamation plan, that there are no outstanding reclamation liabilities, and recommending to the DOC director that the FA be released (CCR Section 3805.5(3)).

Criteria for phased FA release are identified in the existing reclamation planning documents for the Hayden Hill Mine. Lassen County requires a peer review of the SRK analysis to confirm that those portions of reclamation activity for which FA release has been requested comply with the reclamation plan and meet the CCR Section 3805.5 criteria for partial release (modification) of the reclamation FA. Tetra Tech's task was to inspect the site and review documentation provided by Lassen County to provide an independent evaluation of the SRK FA release request.

## **2.0 TASKS COMPLETED BY TETRA TECH**

Tetra Tech has completed the following tasks:

1. Review of the reclamation plan, plan modifications, and supporting closure plans.
2. Review of the FA release request.
3. Inspection of the Hayden Hill Gold Mine.
4. Review of water quality monitoring reports for various facilities at the mine.
5. Review of revegetation monitoring report.
6. Review of habitat mitigation and monitoring related documents.

Tetra Tech received and reviewed the reclamation plan, plan modifications, closure plans, and monitoring reports for various portions of the facility in accordance with the Surface Mining and Reclamation Act (SMARA). Tetra Tech understands that the California Regional Water Quality Control Board is conducting oversight of the treatment and monitoring of leachate from the facility, chemical trends in groundwater, and surface water quality in accordance with waste management unit regulations. Tetra Tech's efforts are not intended to evaluate closure of waste management units at the Hayden Hill Mine.

Tetra Tech's document review focused on the reclamation portions of the reclamation and closure plan; with emphasis on those portions of the plan that LGMI considers to be completed and for which partial release of the FA has been requested.

## **3.0 RECLAMATION PLAN CRITERIA AND MEMORANDUM OF UNDERSTANDING REQUIREMENTS FOR FINANCIAL ASSURANCE RELEASE**

The FA release criteria applicable to each facility at the Hayden Hill Mine were originally described in the reclamation plan, reclamation plan modifications, and closure plans. A memorandum of understanding (MOU) between LGMI, Lassen County, California Department of Conservation, California Regional Water Quality Control Board—Central Valley Region (CVRWQCB), US Bureau of Land

Management, and US Forest Service combined the reclamation and closure FA s (MOU 2001) and identified FA release criteria that allowed phased release of the reclamation FA. The FA release criteria associated with the various facilities and units at the Hayden Hill Mine are described in the following sections. Reclamation or closure plans for the South ARD and 7-Bench units were not provided; however, MOU criteria are identified for release of the reclamation FA for these units.

### **3.1 April 1999 Reclamation Plan Modifications and South ARD Facility**

The release criteria in the Reclamation Plan Modifications (LGMI 1999a) are applicable to the Providence Pit, Providence Waste Rock Dump, Slot Waste Rock Dump, Lay Down Yard Waste Rock Dump, East Waste Rock Dump, Barren Solution Pond, South ARD Pond, Mine Processing Areas and Other Disturbances (Administrative Complex, Mill Complex, Crusher Complex, Shop Complex, Growth Media Stockpile, and Number 2 Stockpile), and Roadways (including the Access Roads). The release criteria are on page 42 of the Hayden Hill Mine Reclamation Plan Modifications (LGMI 1999a).

The release criteria are:

- **Phase 1 Release:** 60% release of the total estimated cost for reclamation of each facility as specified in Exhibit B of the MOU upon completion of the earthwork.
- **Phase 2 Release:** Additional 25% release of the total estimated cost for reclamation of each facility as specified in Exhibit B of the MOU following germination of the planted vegetation on each reclaimed facility. Expected to occur at the end of the first growing season following initial seeding.
- **Phase 3 Final Release:** Release of the remaining 15% release of the total estimated cost for reclamation of each facility as specified in Exhibit B of the MOU based on meeting the revegetation standards, expected to be at the end of three years of monitoring and the area meets the success criteria.
- **Final Release:** Also requires that the site or facility has not contributed to an exceedance of California Regional Water Quality Control Board permit parameters for surface water or groundwater during the preceding two years.

### **3.2 Lookout Pit Closure Plan**

The release criteria applicable to Lookout Pit are described in the Hayden Hill Mine Closure Plan for the Lookout Pit (LGMI 1999c). The release criteria are on pages 58 and 59 of the Hayden Hill Mine Closure Plan for the Lookout Pit (LGMI 1999c).

These release criteria are:

- **Phase 1 Release:** 60% release of the total estimated cost for reclamation of each facility as specified in Exhibit B of the MOU upon completion of the earthwork.
- **Phase 2 Release:** Additional 25% release of the total estimated cost for reclamation as specified in Exhibit B of the MOU following development of vegetation that achieves the appropriate success standard for the various parts of Lookout Pit.
- **Phase 3 Final Release:** Release of the remaining 15% of the total estimated cost for reclamation of each facility as specified in Exhibit B of the MOU at the end of monitoring (at least two years after any supplemental earthwork or revegetation).
- **Final Release:** Also requires that the site or facility has not contributed to an exceedance of California Regional Water Quality Control Board permit parameters for surface water or groundwater during the preceding two years.

### **3.3 Integrated Reclamation and Closure Plan for the 7-Bench Facility and Heap Leach Pad**

The FA release criteria applicable to the 7-Bench facility and the Heap Leach Pad are described in the Integrated Reclamation and Closure Plan for the 7-Bench Facility and Heap Leach Pad (LGMI 2002a). The 7-Bench Facility includes the 7-Bench Lined Pond, 7-Bench Clay Pond, and the 7-Bench Unit and Pipeline. The release criteria are on pages 91 and 92 of the Hayden Hill Mine Integrated Reclamation and Closure Plan for the 7-Bench Facility and the Heap Leach Pad (LGMI 2002a).

These release criteria are:

- **Phase 1 Release:** 60% release of the total estimated cost for reclamation of the facility upon completion of the earthwork.
- **Phase 2 Release:** Additional 25% release of the total estimated cost for reclamation following development of vegetation that achieves the appropriate success standard on each facility.
- **Phase 3 Final Release:** Release of the remaining 15% of the total estimated cost for reclamation of each facility at the end of monitoring (at least two years after any supplemental earthwork or revegetation).
- **Final Release:** Also requires that the site or facility has not contributed to an exceedance of California Regional Water Quality Control Board permit parameters for surface water or groundwater during the preceding two years.

### **3.4 Reclamation and Closure Plan for the Tailing Facility**

The FA release criteria applicable to the Tailings Facility are described in the Reclamation and Closure Plan for the Tailing Facility and (LGMI 2002b). The release criteria are on pages 71 and 72 of the Hayden Hill Mine Reclamation and Closure Plan for the Tailings Facility (LGMI 2002b).



These release criteria are:

- **Phase 1 Release:** 60% release of the total estimated cost for reclamation of the facility upon completion of the earthwork.
- **Phase 2 Release:** Additional 25% release of the total estimated cost for reclamation following development of vegetation that achieves the appropriate success standard on each facility.
- **Phase 3 Final Release:** Release of the remaining 15% of the total estimated cost for reclamation of each facility at the end of monitoring (at least two years after any supplemental earthwork or revegetation).
- **Final Release:** Also requires that the site or facility has not contributed to an exceedance of California Regional Water Quality Control Board permit parameters for surface water or groundwater during the preceding two years.

### 3.5 Hayden Hill Mine Main Waste Rock Dump Monitoring Plan

The FA release criteria applicable to the Main Waste Rock Dump are described in Correspondence from Lassen County to LGMI dated March 27, 2000. The criteria are applied to each of five slope-based corridors identified on the Main Waste Rock Dump. The FA release criteria are as follows:

- Release of 50% of the FA amount when earthwork is completed.
- Remaining FA release is to occur in equal annual increments during a five-year warranty period that begins with meeting thresholds identified in *Guidelines for Slope Stability Monitoring at the North Waste Rock Dump Reclamation Site, Hayden Hill Mine, Lassen County, California*. A minimum of three years of monitoring is anticipated to determine that a threshold has been achieved. The thresholds are:
  - The peak displacement rate measured prior to implementation of the mitigation has declined by 50%, or
  - Displacement rates have been declining and can be projected to fall to a displacement rate of 0.05 feet per day or less within the next five-year period, or
  - There is no significant evidence of acceleration or deceleration, and the mean displacement rate is less than 0.1 feet per day.
  - The FA amount shall not be reduced below 40% of the total FA amount until the revegetation standard has been achieved for the subject corridor.
  - All FA s will be released after five consecutive years with no critical thresholds being triggered. Critical thresholds are identified in the MOU as:
    - Displacement rates approaching 0.2 feet per day.
    - Total cumulative displacement exceeding 0.5% of the estimated failure plane length
    - Inverse velocity approaching 0 day/foot.

## **Cleanup Bond**

- To be held by the Central Valley Regional Water Quality Control Board for cleanup of releases from the waste management units.
- This bond is separate from the reclamation FA and will be released upon ‘demonstration of successful closure of the last waste management unit closed.’

## **Miscellaneous Restoration Projects**

- **Phase 1 Release:** 60% release of the total FA amount for the facility as specified in Exhibit B of the MOU following completion of the earthwork.
- **Phase 2 Release:** Additional 25% release of the total FA amount for the facility as specified in Exhibit B of the MOU following development of vegetation that achieves the appropriate success standard on each facility.
- **Phase 3 Final Release:** Release of the remaining 15% of the total FA amount for the facility as specified in Exhibit B of the MOU at the end of monitoring (at least two years after any supplemental earthwork or revegetation).

### **3.6 Memorandum of Understanding Hayden Hill Mine Reclamation and Closure Financial Assurance**

The FA release criteria for facilities at the Hayden Hill Mine are describe in the MOU (2001) as follows:

#### **Reclamation Plan Modifications and South ARD Facility**

- **Phase 1 Release:** 60% release of the total FA amount for the facility as specified in Exhibit B of the MOU following completion of the earthwork.
- **Phase 2 Release:** Additional 25% release of the total FA amount for the facility as specified in Exhibit B of the MOU following development of vegetation that achieves the appropriate success standard on each facility.
- **Phase 3 Final Release:** Release of the remaining 15% of the total FA amount for the facility as specified in Exhibit B of the MOU at the end of monitoring (at least two years after any supplemental earthwork or revegetation).
- **Final Release** also requires that the site or facility has not contributed to an exceedance of California Regional Water Quality Control Board permit parameters for surface water or groundwater during the preceding two years.

## **Main Waste Rock Dump**

- Release of 50% of the FA amount when earthwork is completed.

- Remaining FA release is to occur in equal annual increments during a five-year warranty period that begins with meeting thresholds identified in *Guidelines for Slope Stability Monitoring at the North Waste Rock Dump Reclamation Site, Hayden Hill Mine, Lassen County, California*. A minimum of three years of monitoring is anticipated to determine that a threshold has been achieved. The thresholds are:
  - The peak displacement rate measured prior to implementation of the mitigation has declined by 50%, or
  - Displacement rates have been declining and can be projected to fall to a displacement rate of 0.05 feet per day or less within the next five-year period, or
  - There is no significant evidence of acceleration or deceleration, and the mean displacement rate is less than 0.1 feet per day.
  - The FA amount shall not be reduced below 40% of the total FA amount until the revegetation standard has been achieved.
  - All FAs will be released after five consecutive years with no critical thresholds being triggered.
  - Critical thresholds are identified in the MOU as:
    - Displacement rates approaching 0.2 feet per day.
    - Total cumulative displacement exceeding 0.5% of the estimated failure plane length
    - Inverse velocity approaching 0 day/foot.

### Lookout Pit

- **Phase 1 Release:** 60% release of the total FA amount for the facility as specified in Exhibit B of the MOU following completion of the earthwork.
- **Phase 2 Release:** Additional 25% release of the total FA amount for the facility as specified in Exhibit B of the MOU following development of vegetation that achieves the appropriate success standard on each facility.
- **Phase 3 Final Release:** Release of the remaining 15% of the total FA amount for the facility as specified in Exhibit B of the MOU at the end of monitoring (at least two years after any supplemental earthwork or revegetation).
- **Final Release** also requires that the site or facility has not contributed to an exceedance of California Regional Water Quality Control Board permit parameters for surface water or groundwater during the preceding two years.

### Cleanup Bond

- To be held by the Central Valley Regional Water Quality Control Board for cleanup of releases from the waste management units.
- This bond is separate from the reclamation FA and will be released upon 'demonstration of successful closure of the last waste management unit closed.'

## Miscellaneous Restoration Projects

- **Phase 1 Release:** 60% release of the total FA amount for the facility as specified in Exhibit B of the MOU following completion of the earthwork.
- **Phase 2 Release:** Additional 25% release of the total FA amount for the facility as specified in Exhibit B of the MOU following development of vegetation that achieves the appropriate success standard on each facility.
- **Phase 3 Final Release:** Release of the remaining 15% of the total FA amount for the facility as specified in Exhibit B of the MOU at the end of monitoring (at least two years after any supplemental earthwork or revegetation).

### 4.0 REQUEST FOR PARTIAL FINANCIAL ASSURANCE REDUCTION

On August 2, 2016, SRK Consulting (SRK) provided a document entitled *Documentation for Bond Reduction Request for Hayden Hill Mine* (SRK 2016a). This document identified three categories of work (earthwork, construction, and revegetation) on which the FA reduction request was based. In addition, this document proposed that each of the four proposed categories be evaluated based on:

- Completion of the work.
- Visible or measurable evidence of stability, including likelihood of repairs or maintenance.
- Revegetation success.
- Compliance with CVRWQCB permit requirements, including compliance monitoring.

The criterion for visible or measurable evidence of stability does not appear in the line item summary for FA release but was defined as “the absence of evidence of erosion or physical failure of the earthworks and presence of vegetation, although not necessarily meeting revegetation standards.” (SRK 2016a, page 2 of 6). SRK assessed completion of the work with respect to earthwork and construction/demolition activity. The reclamation plan did not differentiate earthwork and construction activity (the reclamation plan considers construction as part of earthwork).

On August 2, 2016, SRK Consulting (SRK) provided a document entitled *Documentation for Release of Financial Assurance - Hayden Hill Habitat Mitigation and Management Plan Bond* (SRK 2016b). This document identified mitigation measures performed to fulfill HMMP requirements and support a request release of the FA associated with the HMMP.

The criteria proposed by SRK are not identical to the reclamation plan criteria or the criteria for FA release identified in the MOU. Comparison of the requested FA reduction and release in accordance with reclamation plan and MOU criteria is provided in Section 5 below.

## 5.0 COMPARISON OF REQUEST AND RECLAMATION PLAN/MOU CRITERIA

### 5.1 Comparison of Release Amounts

The criteria for release proposed by SRK (2016a) separate the construction phase of reclamation into earthwork and construction. The MOU criteria do not differentiate earthwork and construction. The proposed qualitative stability criterion (SRK 2016a) is not included in the reclamation planning documents or MOU; though the acceptance criteria for the Main Waste Rock Dump are based on quantitative slope stability measurements and monitoring.

Table 1, attached, compares the amount requested for release in the SRK FA reduction request with the amount allowable under the MOU criteria. The following discussion presents our agreement with SRK requests, our proposed reductions to SRK requests, and our proposed additions to SRK requests based on MOU criteria, review of available reports, and field observations. In addition, groundwater quality monitoring data through the first half of 2018 were reviewed and are discussed, where applicable, pertaining to CVRWQCB requirements for release of FA in the MOU. Surface water quality is no longer being monitored at or downstream of Hayden Hill mine.

#### **Agreement with the amount SRK requested for release include the following facilities:**

- **Providence Pit.** Under the MOU criteria, this facility qualified for 60% release of the full FA amount of \$6,974 or \$4,184 for completed earthwork in 2006. For 2016, this facility qualifies for 40% release of full FA amount or \$2,790 for initial seeding and establishment of vegetation and completion of Phase 3 monitoring period and attainment of revegetation criteria. No monitoring wells are in close proximity to Providence Pit. Therefore, application of CVRWQB requirements for final release of FA funds is not applicable for this facility. With this action, 100% of the full FA amount will have been released.

*Maintenance of pit high wall hazard signage is required due to weather fading. During an October 2, 2018 site visit, Lassen County observed that the signage had not been replaced. Financial assurance associated with the Lookout Pit includes replacement of signage.*

- **Basalt Quarry.** This facility was not evaluated for a FA reduction in 2006. For 2016, under the MOU criteria, this facility qualifies for a 100% release of the full FA amount of \$12,500, which agrees with the amount requested for release. Earthwork has been completed, initial seeding and establishment of vegetation completed, and the revegetation monitoring period completed, and revegetation criteria have been met. No monitoring wells are in close proximity to Basalt Quarry. Therefore, application of CVRWQB requirements for final release of FA funds is not applicable for this facility. With this action, 100% of the full FA amount will have been released.
- **Preg Pond.** Under the MOU criteria, this facility did not qualify for FA reduction in 2006. For 2016, under the MOU criteria this facility qualifies for 60% release of the full FA amount of \$116,545 or \$69,927, which agrees with the amount requested for release. Earthwork has been

completed. Phase 2 initial seeding and establishment of vegetation, and the Phase 3 monitoring period have not been completed and revegetation criteria have not been met. No monitoring wells are in close proximity to the Preg Pond; however, upgradient well MW-03C at the Sedimentation Ponds shows an increasing sulfate trend. With this action, 40% of the full FA amount or \$46,618 will remain for future reclamation activities.

- **Barren Solution Pond.** Under the MOU criteria, this facility qualified for 60% release of the full FA amount of \$25,973 or \$15,584 for completed earthwork in 2006. For 2016, this facility also qualifies for the remaining 40% release of full FA amount or \$10,389 for Phase 2 initial seeding and establishment of vegetation, and completion of Phase 3 monitoring period and attainment of revegetation criteria. No monitoring wells are in close proximity to the Barren Solution Pond. Therefore, application of CVRWQB requirements for final release of FA funds is not applicable for this facility. With this action, 100% of the full FA amount will have been released.
- **Storm Event Pond.** Under the MOU criteria, this facility did not qualify for FA reduction in 2006. For 2016, under the MOU criteria this facility qualifies for 60% release of the full FA amount of \$124,769 or \$74,861, which agrees with the amount requested for release. Earthwork has been completed. Phase 2 initial seeding and establishment of vegetation, and the Phase 3 monitoring period have not been completed and revegetation criteria have not been met. No monitoring wells are in close proximity to the Storm Event Pond; however, upgradient well MW-03C shows an increasing sulfate trend in October 2017. With this action, 40% of the full FA amount or \$49,908 will remain for future reclamation activities.
- **Decant Pond.** Under the MOU criteria, this facility did not qualify for FA reduction in 2006. For 2016, under the MOU criteria this facility qualifies for 60% release of the full FA amount of \$137,852 or \$82,711, which agrees with the amount requested for release. Earthwork has been completed. Phase 2 initial seeding and establishment of vegetation, and the Phase 3 monitoring period have not been completed and revegetation criteria have not been met. No monitoring wells are in close proximity to the Decant Pond; however, upgradient well MW-03C shows an increasing sulfate trend in October 2017. With this action, 40% of the full FA amount or \$55,141 will remain for future reclamation activities.
- **Sedimentation Ponds and Flumes.** This facility does not qualify for a FA reduction in 2016, as no earthwork and construction or revegetation efforts have been completed. SRK has not requested a FA reduction for this facility. Monitoring well MW-03C is located upgradient of and near the Sedimentation Ponds. Sulfate concentrations are on an increasing trend and exceed LGMI concentration limits in October 2017. No action, the full FA amount of \$18,537 will remain for future reclamation activities.
- **South ARD Pond.** Under the MOU criteria, this facility qualified for 60% release of the full FA amount of \$4,235, or \$2,541 for completed earthwork in 2006. SRK did not request additional FA reduction in 2016 due to lack of revegetation. No monitoring wells are near the South ARD Pond. No action, 40% of the full FA amount or \$1,694 will remain for future reclamation activities.
- **Main Dump.** Under the MOU criteria, this facility qualified for 80% release of the full FA amount of \$951,439 or \$761,151 for completed earthwork in 2006. The 2006 release was for completion of earthworks and revegetation as well as slide monitoring. Tetra Tech reviewed the Year End Landslide Monitoring Report – 2005, North Waste Rock Disposal Area (The Mine Group 2005), which indicated that the landslide has stabilized and met the stability thresholds specified in the MOU from 2001 through 2005. The findings of the report were reviewed and

stamped by a California Registered Professional Engineer. No additional landslide monitoring reports were provided by Lassen County.

For 2016, this facility qualifies for 20% release of full FA amount or \$190,288, which agrees with the amount requested for release. Phase 2 initial seeding and establishment of vegetation completed, and the Phase 3 revegetation monitoring period completed, and revegetation criteria have been met. Monitoring wells MW-09 and MW-16 are located downgradient of the Main Dump. Nitrate concentrations exceeded LGMI concentration limits in MW-16 in May 2017, but not in July 2017. However, CVRWQCB permit parameters do not apply to release of reclamation FA funds for this facility under the MOU. With this action, 100% of the full FA amount will have been released.

- **Providence Waste Rock Dump.** Under the MOU criteria, this facility qualified for 100% release of the full FA amount of \$176,416 for completed earthwork and revegetation in 2006. Earthwork has been completed, initial seeding and establishment of vegetation completed, and the revegetation monitoring period completed, and revegetation criteria have been met. No action, 100% of the full FA amount has already been released. No monitoring wells are near this facility.
- **East Waste Rock Dump.** Under the MOU criteria, this facility qualified for 100% release of the full FA amount of \$323,969 for completed earthwork and revegetation in 2006. Earthwork has been completed, initial seeding and establishment of vegetation completed, and the revegetation monitoring period completed, and revegetation criteria have been met. No action, 100% of the full FA amount has already been released. No monitoring wells are near this facility.
- **Laydown Yard Dump.** Under the MOU criteria, this facility qualified for 60% release of the full FA amount of \$11,216 or \$6,730 for completed earthwork in 2006. For 2016, this facility qualifies for 40% release of full FA amount or \$4,486 for initial and Phase 2 seeding and establishment of vegetation has been completed, and the revegetation monitoring period completed, and revegetation criteria have been met. Tetra Tech observed an apparent dominance of invasive species (richness) at time of November 2016 site visit; however, due to the visit occurring outside of the growing season, Tetra Tech is relying on 2015 revegetation assessment conducted by Eastside Environmental to support the FA reduction request. The 2016 FA reduction request was for the entire 100% of the FA amount for earthworks and completion of Phase 2 and 3 revegetation and monitoring, of which the entire 100% is eligible for release. No monitoring wells are near the Laydown Yard Dump. Therefore, application of CVRWQB requirements for final release of FA funds is not applicable for this facility. With this action, 100% of the full FA amount will have been released.
- **Haul Roads.** Under the MOU criteria, this facility did not qualify for FA reduction in 2006. For 2016, under the MOU criteria this facility qualifies for 60% release of the full FA amount of \$41,372 or \$24,823 for completed earthwork activities. This facility also qualifies for 40% release of full FA amount or \$16,549 for initial and Phase 2 seeding and establishment of vegetation has been completed, and the revegetation monitoring period completed, and revegetation criteria have been met. Tetra Tech observed an apparent lack of vegetative cover at time of November 2016 site visit; however, due to the visit occurring outside of the growing season, Tetra Tech is relying on 2015 revegetation assessment conducted by Eastside Environmental to support the FA reduction request. The 2016 FA reduction request was for the entire 100% of the full FA amount or \$41,372 for earthworks and completion of Phase 2 and 3 revegetation and monitoring, of which the entire 100% is eligible for release. Due to the linear nature of roads throughout the mine site, evaluation of monitoring well data and application of



CVRWQB requirements for final release of FA funds is not applicable for this facility. With this action, 100% of the full FA amount will have been released.

- **Utility Roads.** Under the MOU criteria, this facility did not qualify for FA reduction in 2006. For 2016, under the MOU criteria this facility qualifies for 60% release of the full FA amount of \$107,567 or \$64,540, which agrees with the amount requested for release. Earthwork has been completed. Phase 2 initial seeding and establishment of vegetation, and the Phase 3 monitoring period have not been completed and revegetation criteria have not been met. Due to the linear nature of roads throughout the mine site, evaluation of monitoring well data and application of CVRWQB requirements for final release of FA funds is not applicable for this facility. With this action, 40% of the full FA amount or \$43,027 will remain for future reclamation activities.
- **Access Roads.** Under the MOU criteria, this facility qualified for 60% release of the full FA amount of \$35,167, or \$21,100 for completed earthwork in 2006. For 2016, the Access Roads qualify for 40% release of the full FA amount or \$14,067 for initial and Phase 2 seeding and establishment of vegetation has been completed, and the revegetation monitoring period completed, and revegetation criteria have been met. Tetra Tech observed an apparent lack of vegetative cover at time of November 2016 site visit; however, due to the visit occurring outside of the growing season, Tetra Tech is relying on 2015 revegetation assessment conducted by Eastside Environmental to support the FA reduction request. Tetra Tech also recommends water bars on steep roads to protect established vegetation. The 2016 FA reduction request was for the entire 100% of the FA amount for earthworks and completion of Phase 2 and 3 revegetation and monitoring, of which the entire 100% is eligible for release. Due to the linear nature of roads throughout the mine site, evaluation of monitoring well data and application of CVRWQB requirements for final release of FA funds is not applicable for this facility. With this action, 100% of the full FA amount will have been released.
- **Administrative Complex.** Under the MOU criteria, this facility qualified for 60% release of the full FA amount of \$22,683 or \$13,610 for completed earthwork in 2006. For 2016, this facility qualifies for 40% release of the full FA amount or \$9,073 for initial and Phase 2 seeding and establishment of vegetation has been completed, and the revegetation monitoring period completed, and revegetation criteria have been met. Tetra Tech observed an apparent dominance of invasive species (richness) at time of November 2016 site visit; however, due to the visit occurring outside of the growing season, Tetra Tech is relying on 2015 revegetation assessment conducted by Eastside Environmental to support the FA reduction request. The 2016 FA reduction request was for the entire 100% of the FA amount for earthworks and completion of Phase 2 and 3 revegetation and monitoring, of which the entire 100% is eligible for release. No monitoring wells are near the Administrative Complex. Therefore, application of CVRWQB requirements for final release of FA funds is not applicable for this facility. With this action, 100% of the full FA amount will have been released.
- **Mill Complex.** Under the MOU criteria, this facility qualified for 60% release of the full FA amount of \$221,143 or \$132,686 for completed earthwork in 2006. For 2016, this facility qualifies for 40% release of the full FA amount or \$88,457 for initial and Phase 2 seeding and establishment of vegetation has been completed, and the revegetation monitoring period completed, and revegetation criteria have been met. Tetra Tech observed an apparent dominance of invasive species (richness) at time of November 2016 site visit; however, due to the visit occurring outside of the growing season, Tetra Tech is relying on 2015 revegetation assessment conducted by Eastside Environmental to support the FA reduction request. The 2016 FA reduction request was for the entire 100% of the FA amount for earthworks and completion of Phase 2 and 3 revegetation and monitoring, of which the entire 100% is eligible for release. No

monitoring wells are near the Mill Complex. Therefore, application of CVRWQB requirements for final release of FA funds is not applicable for this facility. With this action, 100% of the full FA amount will have been released.

- **Crusher Complex.** Under the MOU criteria, this facility qualified for 100% release of the full FA amount of \$144,668 for completed earthwork and revegetation in 2006. No action, 100% of the full FA amount has already been released. No monitoring wells are near this facility.
- **Shop Complexes.** Under the MOU criteria, this facility qualified for 60% release of the full FA amount of \$70,065 or \$42,039 for completed earthwork in 2006. For 2016, this facility also qualifies for the remaining 40% release of full FA amount or \$28,026 for Phase 2 initial seeding and establishment of vegetation, and completion of Phase 3 monitoring period and attainment of revegetation criteria. No monitoring wells are near the Shop Complexes. Therefore, application of CVRWQB requirements for final release of FA funds is not applicable for this facility. With this action, 100% of the full FA amount will have been released.
- **Growth Media Stockpiles.** Under the MOU criteria, this facility did not qualify for FA reduction in 2006. For 2016, under the MOU criteria this facility qualifies for 100% release of the full FA amount of \$74,244, which agrees with the amount requested for release. Earthwork has been completed, initial seeding and establishment of vegetation completed (Eastside Environmental 2015, 2016a), and the revegetation monitoring period completed, and revegetation criteria have been met. No monitoring wells are near the Growth Media Stockpiles. Therefore, application of CVRWQB requirements for final release of bond funds is not applicable for this facility. With this action, 100% of the full FA amount will have been released.
- **Laydown Yard.** Under the MOU criteria, this facility did not qualify for FA reduction in 2006. For 2016, this facility qualifies for 100% release of the full FA amount of \$964 for initial and Phase 2 seeding and establishment of vegetation has been completed, and the revegetation monitoring period completed, and revegetation criteria have been met. Tetra Tech observed an apparent dominance of invasive species (richness) at time of November 2016 site visit; however, due to the visit occurring outside of the growing season, Tetra Tech is relying on 2015 revegetation assessment conducted by Eastside Environmental to support the FA reduction request. The 2016 FA reduction request was for the entire 100% of the FA amount for earthworks and completion of Phase 2 and 3 revegetation and monitoring, of which the entire 100% is eligible for release. No monitoring wells are near the Laydown Yard. Therefore, application of CVRWQB requirements for final release of FA funds is not applicable for this facility. With this action, 100% of the full FA amount will have been released.
- **Well Closure.** This activity was not evaluated for a FA reduction in 2006. For 2016, under the MOU criteria, this facility qualifies for a 45% release (5 of 11 wells closed) of the full FA amount of \$139,059 or \$62,577, which agrees with the amount requested for release. With this action, 55% of the full FA amount or \$76,482 will remain for future reclamation activities.
- **Number 2 Stockpile.** Under the MOU criteria, this facility qualified for 60% release of the full FA amount of \$11,571, or \$6,943 or completed earthwork in 2006. For 2016, this facility also qualifies for the remaining 40% release of the full FA amount or \$4,628 for Phase 2 initial seeding and establishment of vegetation, and completion of Phase 3 monitoring period and attainment of revegetation criteria. No monitoring wells are near the Number 2 Stockpile. Therefore, application of CVRWQB requirements for final release of FA funds is not applicable for this facility. With this action, 100% of the full FA amount will have been released.

- **Revegetation Monitoring.** This activity was not evaluated for a FA reduction in 2006. For 2016, SRK has requested a 60% reduction of the full FA amount of \$45,956, or \$27,573 based upon completion of construction and earthworks at the overall facility. While the MOU does not clearly define release criteria for this activity, revegetation monitoring has been a long-term, ongoing process due to the sequential construction and revegetation activities. The FA reduction request is reasonable. With this action, 40% of the full FA amount or \$18,383 will remain for future reclamation activities.
- **South ARD Unit.** Under the MOU criteria, this facility qualified for 100% release of the full FA amount of \$429,077 for completed earthwork and revegetation in 2006. Earthwork has been completed, initial seeding and establishment of vegetation completed, and the revegetation monitoring period completed, and revegetation criteria have been met. No action, 100% of the full FA amount has already been released. No monitoring wells are near this facility.

**Reductions to the amount SRK requested for release are recommended for the following facilities:**

- **Lookout Pit:** Under the MOU criteria, this facility qualified for 60% release of the full FA amount of \$895,765 or \$537,549 for completed earthwork in 2006. The 2016 FA reduction request was for 40% of the full FA amount or \$358,306. Phase 2 initial seeding and establishment of vegetation and the Phase 3 revegetation monitoring period are complete, and revegetation criteria have been met. Tetra Tech observed an apparent lack of vegetative cover at time of November 2016 site visit; however, due to the visit occurring outside of the growing season, Tetra Tech is relying on 2015 revegetation assessment conducted by Eastside Environmental to support the FA reduction request. Both up and down gradient wells are no longer monitored and CVRWQCB is no longer requiring monitoring. Although revegetation and water quality requirements have been satisfied, maintenance of pit high wall hazard signage is required due to weather fading. During an October 2, 2018 site visit, Lassen County observed that the signage had not been replaced. LGMI estimates that this work can be completed for under \$15,000 and commits to sign installation in 2019. The revised amount available for release is \$343,306 or 38% of the full FA amount. With this action, 2% of the full FA amount or \$15,000 will remain for future reclamation activities.
- **Heap Leach Pad.** Under the MOU criteria, this facility qualified for 60% release of the full FA amount of \$908,199 or \$544,919 for completed earthwork in 2006. The 2016 FA reduction request was for 40% of the full FA amount or \$363,280. Phase 2 initial seeding and establishment of vegetation and the Phase 3 revegetation monitoring period are complete, and revegetation criteria have been met. However, CVRWQCB requirements have not been satisfied. CVRWQCB has associated this facility with MW-03C, MW-05, and MW-08B. Sulfate concentrations are on an increasing trend and exceed LGMI concentration limits in MW-03C and nitrate exceed LGMI concentration limits in wells MW-05 and MW-08B in May 2017, but not in July 2017. In accordance with the requirements for final release of FA funds, monitoring data demonstrate that this facility has contributed to an exceedance of CVRWQCB permit parameters for surface water or groundwater during the preceding two years. Therefore, only 85% of the full FA amount can be released. The revised amount available for release is \$227,050 or 25% of the full FA amount. With this action, 15% of the full FA amount or \$136,230 will remain for future reclamation activities
- **7-Bench Lined Pond.** Under the MOU criteria, this facility qualified for 60% release of the full FA amount of \$3,527 or \$2,116 for completed earthwork in 2006. The 2016 FA reduction request was for 40% of the full FA amount or \$1,411. Phase 2 initial seeding and establishment of vegetation and the Phase 3 revegetation monitoring period are complete, and revegetation

criteria have been met (Eastside Environmental 2015, 2016b). However, CVRWQCB requirements have not been satisfied. Monitoring well MW-19 is in close proximity to the 7-Bench Ponds. Calcium, sulfate, and TDS concentrations are on an increasing trend; calcium and sulfate exceed LGMI concentration limits in November 2017. In accordance with the requirements for final release of FA funds, monitoring data demonstrate that this facility has contributed to an exceedance of CVRWQCB permit parameters for surface water or groundwater during the preceding two years. Therefore, only 85% of the full FA amount can be released. The revised amount available for release is \$882 or 25% of the full FA amount. With this action, 15% of the full FA amount or \$529 will remain for future reclamation activities.

- **7-Bench Clay Pond.** Under the MOU criteria, this facility qualified for 60% release of the full FA amount of \$2,467 or \$1,480 for completed earthwork in 2006. The 2016 FA reduction request was for 40% of the full FA amount or \$987. Phase 2 initial seeding and establishment of vegetation and the Phase 3 revegetation monitoring period are complete, and revegetation criteria have been met (Eastside Environmental 2015, 2016b). However, CVRWQCB requirements have not been satisfied. Monitoring well MW-19 is in close proximity to the 7-Bench Ponds. Calcium, sulfate, and TDS concentrations are on an increasing trend; calcium and sulfate exceed LGMI concentration limits in November 2017. In accordance with the requirements for final release of FA funds, monitoring data demonstrate that this facility has contributed to an exceedance of CVRWQCB permit parameters for surface water or groundwater during the preceding two years. Therefore, only 85% of the full FA amount can be released. The revised amount available for release is \$617 or 25% of the full FA amount. With this action, 15% of the full FA amount or \$370 will remain for future reclamation activities.
- **Tailings Impoundment and Drainfield Construction.** Under the MOU criteria, this facility qualified for 60% release of the full FA amount of \$789,944 or \$473,966 for completed earthwork in 2006. The 2016 FA reduction request was for 40% of the full FA amount or \$315,978. Phase 2 initial seeding and establishment of vegetation and the Phase 3 revegetation monitoring period are complete, and revegetation criteria have been met. However, CVRWQCB requirements have not been satisfied. Monitoring well MW-03C is located upgradient of and near the Drainfields. Monitoring well MW-05 and MW-08b are located cross and downgradient of and near the Tailings Impoundment. Sulfate concentrations are on an increasing trend and exceed LGMI concentration limits in MW-03C and nitrate exceed LGMI concentration limits in wells MW-05 and MW-08B in May 2017, but not in July 2017. In accordance with the requirements for final release of FA funds, monitoring data demonstrate that these facilities have contributed to an exceedance of CVRWQCB permit parameters for surface water or groundwater during the preceding two years. Therefore, only 85% of the full FA amount can be released. The revised amount available for release is \$197,486 or 25% of the full FA amount. With this action, 15% of the full FA amount or \$118,492 will remain for future reclamation activities.
- **7-Bench Unit and Pipeline.** Under the MOU criteria, the 7-Bench Unit qualified for 100% release of full FA amount of \$165,041 for completed earthwork and revegetation in 2006; and 7-Bench Pipeline qualified for 60% release of the full FA amount of \$69,440 or \$41,663 for completed earthwork in 2006. For the 7-Bench Pipeline facility, the 2016 FA reduction request was for 40% of the full FA amount or \$27,777. Phase 2 initial seeding and establishment of vegetation and the Phase 3 revegetation monitoring period are complete, and revegetation criteria have been met. However, CVRWQCB requirements have not been satisfied. Monitoring well MW-19 is near the 7-Bench Unit and Pipeline. Calcium, sulfate, and TDS concentrations are on an increasing trend; calcium and sulfate exceed LGMI concentration limits in November 2017. In accordance with the requirements for final release of FA funds, monitoring data demonstrate that this facility has contributed to an exceedance of CVRWQCB permit parameters for surface

water or groundwater during the preceding two years. Therefore, only 85% of the full FA amount can be released. The revised amount available for release is \$17,360 or 25% of the full FA amount. With this action, 15% of the full FA amount or \$10,416 will remain for future reclamation activities.

- **Miscellaneous Disturbed Areas.** Under the MOU criteria, these facilities did not qualify for FA reduction in 2006. For 2016, these facilities qualify for 85% release of the full FA amount of \$225,246 or \$191,459 for construction, initial seeding, and establishment of vegetation. The 2016 FA reduction request was for 100% of the FA amount of \$225,246. Eastside Environmental (2015) did not include a separate breakout for 109 acres of “miscellaneous disturbed areas” making evaluation of revegetation thresholds difficult. This represents approximately 10% of total site acreage of 1,096 disturbed acres. Lassen County should retain 15% of the remaining FA until some form of vegetation monitoring is provided for the 109 acres of “miscellaneous disturbed areas” at the facility. Due to the small size and sporadic distribution of disturbed areas and given that CVRWCB has not identified these areas as a WMU, evaluation of monitoring well data and application of CVRWQB requirements for final release of FA funds, is not applicable. With this action, 15% of the full FA amount or \$33,787 will remain for future reclamation activities.

**Additions to the amount SRK requested for release are recommended for the following facilities:**

- **Sedimentation Ponds DP1, DP1a, DP2.** Under the MOU criteria, these facilities did not qualify for FA reduction in 2006. For 2016, under the MOU criteria these facilities qualify for 60% release of the full FA amount of \$39,619 or \$23,771 for completed earthwork. These facilities also qualify for 25% release of full FA amount \$39,619 or \$9,905 for initial seeding and establishment of vegetation. However, the vegetation has not met the MOU Phase 3 revegetation standard at Pond DP2; therefore, only a 15% retention is required (Eastside Environmental 2015, 2016a). Monitoring well MW-03C is located upgradient of and near the Sedimentation Ponds. Sulfate concentrations are on an increasing trend and exceed LGMI concentration limits in October 2017 and require a 15% retention. However, with this action, 15% of the full FA amount or \$5,943 will remain for future reclamation activities.
- **Slot Dump.** Under the MOU criteria, this facility did not qualify for FA reduction in 2006. For 2016, under the MOU criteria this facility qualifies for 60% release of the full FA amount of \$11,216 or \$6,730, which agrees with the amount requested for release. Earthwork has been completed. For 2016, this facility also qualifies for 25% release of full FA amount or \$2,804 for Phase 2 initial seeding and establishment of vegetation. The Phase 3 monitoring period has not been completed and revegetation criteria have not been met (Eastside Environmental 2015, 2016a). No monitoring wells are near the Slot Dump. With this action, 15% of the full FA amount or \$1,682 will remain for future reclamation activities.

The MOU criteria support an additional 2016 release of \$1,884,843 based on reclamation progress to date; as compared to the request for release of \$2,194,884 based on criteria proposed in the request for FA release (SRK 2016a). The \$310,041 difference is mostly due to reported exceedances of water quality concentration limits in 2017 and Eastside Environmental’s (2015) lack of separation of the miscellaneous disturbed areas, which represent approximately 10% of disturbed lands and Tetra Tech observations of

vegetative coverage. Approximately 9.93% of the full FA amount of \$6,364,426 or \$632,239 will remain for future reclamation activities.

## **5.2 Reclamation and Closure Financial Assurances**

The Hayden Hill Mine is undergoing reclamation under SMARA and waste management unit closure under the California Water Code. A 2001 memorandum of understanding (MOU) between LGMI, Lassen County, California Department of Conservation, California Regional Water Quality Control Board—Central Valley Region, US Bureau of Land Management, and US Forest Service combined reclamation and other closure related FAs under a single agreement (MOU 2001). California Regional Water Quality Control Board—Central Valley Region currently holds a \$285,200 letter of credit pertaining to waste management unit closure under the MOU. Lassen County also holds a letter of credit for \$500,000 pertaining to Habitat Mitigation and Management Plan (HMMP) requirements under the MOU. Both letters of credit are in addition to the reclamation FA held by Lassen County and California Department of Conservation. The reclamation FAs covered by the 2001 MOU, excluding the two letters of credit, amount to \$6,364,426 of which \$2,517,083 remains after the 2006 FA release.

The release of the reclamation FAs is not wholly contingent on meeting SMARA reclamation criteria alone. As described in Section 3.0 and 4.0 above, release of the reclamation FAs is also contingent upon finding that surface water and groundwater quality have not been degraded, that waste management units have been closed in accordance with state requirements, and the HMMP requirements have been addressed.

- Prior to release of the reclamation FAs, the on-going effort necessary to monitor surface water and groundwater quality, to treat waters, and to respond to a release of chemicals to surface and/or groundwater at the Hayden Hill Mine should be critically evaluated. The reclamation FAs should not be completely released until sufficient FA mechanisms are documented by LGMI and CVRWQCB pertaining to future water treatment, water quality monitoring, and well construction/closure. *CVRWQCB holds the \$285,200 letter of credit and maintains financial assurance mechanisms to account for inflation and to address any changes in site conditions.*
- Prior to release of the reclamation FAs, waste management unit closure and monitoring should be critically evaluated. The reclamation FAs should not be completely released until sufficient FA mechanisms are documented by LGMI and CVRWQCB pertaining to future monitoring of the waste management units and responses to changes in waste management unit site conditions.

*CVRWQB holds the \$285,200 letter of credit and maintains financial assurance mechanisms to account for inflation and to address any changes in site conditions.*

- Prior to release of the reclamation FAs, HMMP requirements must also be addressed. Tetra Tech has reviewed the August 2, 2016 LGMI request for full release of the \$500,000 letter of credit pertaining to attainment of all HMMP requirements. Tetra Tech has reviewed the HMMP requirements and LGMI-provided documentation and concur that the mule deer mitigation projects for USFS have been completed to satisfaction of USFS, transfer of ownership of Section 2, Township 36 North by Range 9 East to BLM has been completed, fencing of Section 2 (BLM transfer) and maintenance endowment has been completed, grazing restrictions have been implemented, deer forage species were included in reclamation seed mix and are growing based on vegetation surveys, construction of raptor nests have been completed at Lookout Pit, and downed trees which provided habitat were used to stabilize the Main Dump slope. Tetra Tech understands that LGMI no longer owns the power transmission line between Hayden Hill and Highway 139 and that Lassen Municipal Utility District is providing FA for removal of the transmission line. *Tetra Tech recommends release of the \$500,000 letter of credit pertaining to full attainment of all HMMP requirements.*

### **5.3 Remaining Financial Assurance**

The amount of the current combined reclamation and closure FA is \$2,517,083 (letter of credit through Scotiabank) after the 2006 FA release. The amount of the FA suitable for release in accordance with current reclamation plan and MOU criteria is \$1,884,843. If the FA is modified based solely on reclamation plan and MOU criteria, the remaining FA would be \$632,239 (difference between the remaining reclamation and closure FA amount and amount eligible for release in accordance with MOU criteria). This would constitute the FA required to implement remaining activities necessary to complete reclamation and closure of the Hayden Hill Mine.

The estimated cost to complete remaining reclamation activities in 2016-2017 was \$244,333 (from LGMI FA letter dated May 6, 2016). Annual post closure monitoring costs of \$38,725 (2016 example from LGMI FA letter) indicates that reclamation FA funds (2017 capital costs plus annual monitoring costs) would be exhausted two years after remaining reclamation activities are complete using LGMI FA reduction request and ten years after remaining reclamation activities are complete using Tetra Tech FA reduction recommendations. Tetra Tech reviewed the cost estimate information provided in the various



modifications to the reclamation plan and believes that cost estimates to complete the outstanding reclamation activities (primarily well closure, reseeding, and revegetation monitoring) are reasonable and sufficient. Thus, the remaining FA appears to be sufficient to address outstanding reclamation needs. However, assessment of the financial requirements for successful closure of waste management units at the Hayden Hill Mine is outside of Tetra Tech's scope of work.

## **6.0 SUMMARY OF SITE VISIT OBSERVATIONS**

On November 14 and 15, 2016, Mr. Udell and Ms. Cynthia Breene inspected the Hayden Hill Gold Mine. Mr. Udell and Ms. Breene were accompanied by Mr. Gaylon Norwood, Mr. Matthew May, and Ms. Nancy McAllister of Lassen County during the inspection visit. The site visit occurred prior to onset of winter snow to allow observation of vegetation. However, much of the annual vegetation had already died back. Lassen County representatives provided access to all areas of the site and readily answered questions regarding site features and reclamation status. A representative of LGMI unlocked gates but was not on site to provide a site tour.

During the site inspection, Mr. Udell and Ms. Breene observed site features such as roads, berms, pits, pit high walls, mine waste units; verified completion of construction activities post 2006; observed the cover, density, and richness of revegetated surfaces; and photographed site features. A photograph log included as Attachment 1 to this memorandum.

Mr. Udell confirmed construction activities were completed at the following facilities: Basalt Quarry, Preg Pond, Sedimentation Ponds; Storm Event Pond; Decant Pond; Slot Dump; Growth Media Stockpiles; Bioreactor, Laydown Yard, and Haul/Utility Roads. Demolition of infrastructure and a portion of monitoring wells was also observed.

Mr. Udell observed that the high wall signage was faded and difficult to read and was concerned about an adequate physical barrier in proximity to the pit high walls. Signage should be replaced. A physical hazard exists for humans and cattle associated with the pit high walls. While the reclamation plan does not include fencing of the Lookout and Providence Pits, liability exists for the current and future landowner(s). Water bars to control erosion are recommended on the steep access roads into the Lookout Pit and from the Heap Leach Pad area up to Lookout Pit. Otherwise, very little evidence for erosion was observed on reclaimed slopes at the Hayden Hill Mine.

Mr. Udell observed the bioreactor area and noted a strong hydrogen sulfide gas odor, which collected in the low-lying drainage between the bioreactor and the Heap Leach Pad. Hydrogen sulfide gas in a low-lying area displaces air, replaces oxygen during breathing, and can suffocate a person or animal. Evaluation of hydrogen sulfide gas concentrations is recommended and if warranted, fencing is recommended to reduce liability for current and future landowners. In addition, long-term operation and maintenance of the bioreactor, necessary to meet CVRWQCB discharge requirements, does not appear to be accounted for in the reclamation FA and is assumed to be covered by the CVRWQCB Closure Bond.

Ms. Breene observed revegetation success based on factors set forth in Eastside Environmental (2015); cover, richness, and density to the extent practicable based on late fall condition of vegetative growth. In general, Ms. Breene agreed with findings of Eastside Environmental with the following exceptions:

- Laydown Yard and Dump richness is not evident, dominated by invasive species at time of visit.
- Admin Complex richness is not evident, dominated by invasive species at time of visit.
- Mill Complex richness is not evident on the flat where the main building is located, dominated by invasive species at time of visit.
- Haul and Access Roads coverage is sparse and was not evident beyond drilled seeding at time of visit.
- Miscellaneous Disturbed Areas could not be readily identified except for ready line and parking areas, where coverage and species richness are not evident.

However, Ms. Breene defers to findings of 2015 revegetation assessment conducted by Eastside Environmental to support the FA reduction request.

On October 2, 2018, Lassen County conducted a site visit to evaluate current site conditions. Ms. McAllister observed that the faded signage at Lookout and Providence Pits had not been replaced.

Apart from the need for high wall area signage replacement, noted differences in revegetation success, and reported exceedances of water quality concentration limits in 2017, the FA release request appears to accurately reflect the status of reclamation at the Hayden Hill Mine. The mined land appears to be undergoing reclamation in accordance with the approved reclamation planning documents.

## **7.0 REFERENCES CITED**

- Eastside Environmental. 2015. Hayden Hill Mine Revegetation Assessment for Closure Properties - 2015. Prepared for: Lassen Gold Mining, Inc. November 2015.
- Eastside Environmental. 2016a. Hayden Hill Mine Revegetation Assessment for Addendum Properties - 2016. Prepared for: Lassen Gold Mining, Inc. July 2016.
- Eastside Environmental. 2016b. Hayden Hill Mine Revegetation Assessment, Addendum for 7 Bench Ponds 2014-2015. Prepared for: Lassen Gold Mining, Inc. August 2016.
- Lassen County. 2000. Letter from Robert K. Sorvang to Delbert Parr regarding Reclamation Plan No. 2000-4(B), Hayden Hill Main Waste Rock Dump, Reclamation Plan Modifications, Lassen Gold Mining Inc. March.
- Lassen Gold Mining, Inc. (LGMI). 1999a Hayden Hill Mine Reclamation Plan Modifications. April.
- LGMI. 1999b. Hayden Hill Mine Main Waste Rock Dump Reclamation Plan Modifications. Technical assistance provided by The MINES Group, Inc. May.
- LGMI. 1999c. Hayden Hill Mine Closure Plan for the Lookout Pit. July.
- LGMI. 2002a. Hayden Hill Mine Integrated Reclamation and Closure Plan for the 7-Bench Facility and the Heap Leach Pad. March.
- LGMI. 2002b. Hayden Hill Mine Reclamation and Closure Plan for the Tailing Facility. May.
- Memorandum of Understanding Hayden Hill Mine Reclamation and Closure Bond. 2001. November 11.
- SRK Consulting. 2016a. Documentation for Bond Reduction Request for Hayden Hill Mine. August 2.
- SRK Consulting. 2016b. Documentation for Release of Financial Assurance - Hayden Hill Habitat Mitigation and Management Plan Bond. August 2.
- Tetra Tech EM Inc. 2006. Technical Memorandum Comparison of Bond Release Request with Amount Eligible Based on Established Criteria, Hayden Hill Mine, Lassen County, California. Prepared for: Lassen County, California. February 10.
- The MINES Group, Inc. 2005. Year End Landslide Monitoring Report - 2005, North Waste Rock Disposal Area, Hayden Hill Mine. Prepared for Lassen Gold Mining, Inc. December 31, 2005.

**Table 1: Comparison of Reclamation Financial Assurance Release Request with Amount Eligible for Release Based on Established Criteria**

Facility	Reclamation Plan	Initial Financial Assurance (\$)	2006 Release (% of Original FA)	2006 Release Reduction (\$)	Current FA (pre request) Remaining (\$)	2016 Proposed Reduction (% of Original FA)	2016 Recommended Reduction (% of Original FA)	2016 Reduction Proposed (\$)	2016 Recommended Reduction (\$)	Remaining FA After Proposed (% of Original FA)	Remaining FA After Rec Reduction (% of Original FA)	Remaining FA After Proposed Reduction (\$)	Remaining FA After Rec Reduction (\$)	2015/2016 Reveg Pass	Observed Reveg Pass
<b>OPEN PITS</b>															
Lookout Pit	Lookout Pit, 2000	\$895,765	60%	\$537,459	\$358,306	40%	38%	\$358,306	\$343,306	0%	2%	-	\$15,000	Y	Y
Providence Pit	Reclamation Plan Modifications, 1999	\$6,974	60%	\$4,184	\$2,790	40%	40%	\$2,790	\$2,790	0%	0%	-	-	Y	Y
Basalt Quarry	Reclamation Plan for the Basalt Aggregate Quarry, 1994	\$12,500	0%	\$0	\$12,500	100%	100%	\$12,500	\$12,500	0%	0%	-	-	Y	Y
<b>HEAP LEACH PAD</b>															
Heap Leach Pad	7-Bench/Heap Leach Pad, 2002	\$908,199	60%	\$544,919	\$363,280	40%	25%	\$363,281	\$227,050	0%	15%	-	\$136,230	Y	Y
<b>PONDS</b>															
Preg Pond	7-Bench/ Heap Leach Pad, 2002	\$116,545	0%	\$0	\$116,545	60%	60%	\$69,927	\$69,927	40%	40%	\$46,618	\$46,618	N	N
Barren Pond	Reclamation Plan Modifications, 1999	\$25,973	60%	\$15,584	\$10,389	40%	40%	\$10,389	\$10,389	0%	0%	-	-	Y	Y
Sed. DP1,DP1a & DP2	Reclamation Plan Modifications, 1999	\$39,619	0%	\$0	\$39,619	80%	85%	\$31,695	\$33,676	20%	15%	\$7,924	\$5,943	DP1 & DP1a only	
Storm Event Pond	Reclamation Plan Modifications, 1999	\$124,769	0%	\$0	\$124,769	60%	60%	\$74,861	\$74,861	40%	40%	\$49,908	\$49,908	N	N
Decant Pond	Tailings Facility, 2002	\$137,852	0%	\$0	\$137,852	60%	60%	\$82,711	\$82,711	40%	40%	\$55,141	\$55,141	N	N
Sed Ponds/Flumes (7 Total)	Reclamation Plan Modifications, 1999	\$18,537	0%	\$0	\$18,537	0%	0%	-	-	100%	100%	\$18,537	\$18,537	N	N
7-Bench Lined Pond	7-Bench/Heap Leach Pad, 2002	\$3,527	60%	\$2,116	\$1,411	40%	25%	\$1,411	\$882	0%	15%	-	\$529	Y	Y
7-Bench Clay Pond	7-Bench/Heap Leach Pad, 2002	\$2,467	60%	\$1,480	\$987	40%	25%	\$987	\$617	0%	15%	-	\$370	Y	Y
South ARD Pond	Reclamation Plan Modifications, 1999	\$4,235	60%	\$2,541	\$1,694	0%	0%	-	-	40%	40%	\$1,694	\$1,694	N	N
<b>TAILINGS IMPOUNDMENT</b>															
Tailings Impoundment & Drainfield Construction	Tailings Facility, 2002	\$789,944	60%	\$473,966	\$315,978	40%	25%	\$315,978	\$197,486	0%	15%	-	\$118,492	Y*	Y*
<b>WASTE ROCK DUMPS</b>															
Main Dump	Main Waste Rock Dump, 2000	\$951,439	80%	\$761,151	\$190,288	20%	20%	\$190,288	\$190,288	0%	0%	-	-	Y	Y
Providence Dump	Reclamation Plan Modifications, 1999	\$176,416	100%	\$176,416	-	-	-	-	-	0%	0%	-	-	-	-
East Dump	Reclamation Plan Modifications, 1999	\$323,969	100%	\$323,969	-	-	-	-	-	0%	0%	-	-	-	-
Slot Dump	Reclamation Plan Modifications, 1999	\$11,216	0%	\$0	\$11,216	60%	85%	\$6,730	\$9,534	40%	15%	\$4,486	\$1,682	N	N
Laydown Yard Dump	Reclamation Plan Modifications, 1999	\$11,216	60%	\$6,730	\$4,486	40%	40%	\$4,486	\$4,486	0%	0%	-	-	Y	Y
<b>ROADS</b>															
Haul Roads	Reclamation Plan Modifications, 1999	\$41,372	0%	\$0	\$41,372	100%	100%	\$41,372	\$41,372	0%	0%	-	-	Y	Y
Utility Roads	Reclamation Plan Modifications, 1999	\$107,567	0%	\$0	\$107,567	60%	60%	\$64,540	\$64,540	40%	40%	\$43,027	\$43,027	N/A	N/A
Access Roads	Reclamation Plan Modifications, 1999	\$35,167	60%	\$21,100	\$14,067	40%	40%	\$14,067	\$14,067	0%	0%	-	-	Y	Y
<b>MISCELLANEOUS</b>															
Admin Complex	Reclamation Plan Modifications, 1999	\$22,683	60%	\$13,610	\$9,073	40%	40%	\$9,073	\$9,073	0%	0%	-	-	Y	Y
Mill Complex	Reclamation Plan Modifications, 1999	\$221,143	60%	\$132,686	\$88,457	40%	40%	\$88,457	\$88,457	0%	0%	-	-	Y	Y
Crusher Complex	Reclamation Plan Modifications, 1999	\$144,668	100%	\$144,668	-	-	-	-	-	0%	0%	-	-	-	-
Shop Complexes	Reclamation Plan Modifications, 1999	\$70,065	60%	\$42,039	\$28,026	40%	40%	\$28,026	\$28,026	0%	0%	-	-	Y	Y
Growth Media Stockpiles	Reclamation Plan Modifications, 1999	\$74,244	0%	\$0	\$74,244	100%	100%	\$74,244	\$74,244	0%	0%	-	-	Y	Y
Laydown Yard	Reclamation Plan Modifications, 1999	\$964	0%	\$0	\$964	100%	100%	\$964	\$964	0%	0%	-	-	Y	Y
Miscellaneous Disturbed Areas	Reclamation Plan Modifications, 1999	\$225,246	0%	\$0	\$225,246	100%	85%	\$225,246	\$191,459	0%	15%	-	\$33,787	Y	N
Well Closure	Reclamation Plan Modifications, 1999	\$139,059	0%	\$0	\$139,059	45%	45%	\$62,577	\$62,577	55%	55%	\$76,482	\$76,482	N/A	N/A
Number 2 Stockpile	Reclamation Plan Modifications, 1999	\$11,571	60%	\$6,943	\$4,628	40%	40%	\$4,628	\$4,628	0%	0%	-	-	Y	Y
Revegetation Monitoring	Reclamation Plan Modifications, 1999	\$45,956	0%	\$0	\$45,956	60%	60%	\$27,573	\$27,573	40%	40%	\$18,383	\$18,383	N/A	N/A
<b>ARD FACILITIES</b>															
7-Bench Unit	7-Bench/Heap Leach Pad, 2002	\$165,041	100%	\$165,041	-	-	-	-	-	0%	0%	-	-	-	-
7-Bench Pipeline	7-Bench/Heap Leach Pad, 2002	\$69,440	60%	\$41,663	\$27,777	40%	25%	\$27,777	\$17,360	0%	15%	-	\$10,416	Y	Y
South ARD Unit	Reclamation Plan Modifications, 1999	\$429,077	100%	\$429,077	-	-	-	-	-	0%	0%	-	-	-	-
<b>TOTALS (Reclamation)</b>		<b>\$6,364,426</b>		<b>\$3,847,343</b>	<b>\$2,517,083</b>			<b>\$2,194,884</b>	<b>\$1,884,843</b>			<b>\$322,200</b>	<b>\$632,239</b>		

Limited by CVRWQCB Final Release Criteria

\$XXXXXX - Reduction in Value

\$XXXXXX - Increase in Value

## **APPENDIX A**

### **PHOTOGRAPHIC DOCUMENTATION (22 PAGES)**

Photographic Documentation  
Hayden Hill Mine  
Lassen County, CA



**Photo: 1**

**Description:**

View of North  
Lookout Pit Pool  
Revegetation. No  
Water.

**Orientation:**

Facing South



**Photo: 2**

**Description:**

View of North  
Lookout Pit Haul  
Road.

**Orientation:**

Facing South





Photographic Documentation  
Hayden Hill Mine  
Lassen County, CA



**Photo: 3**

**Description:**

View of North  
Lookout Pit Outfall.  
No Water.

**Orientation:**

Facing North



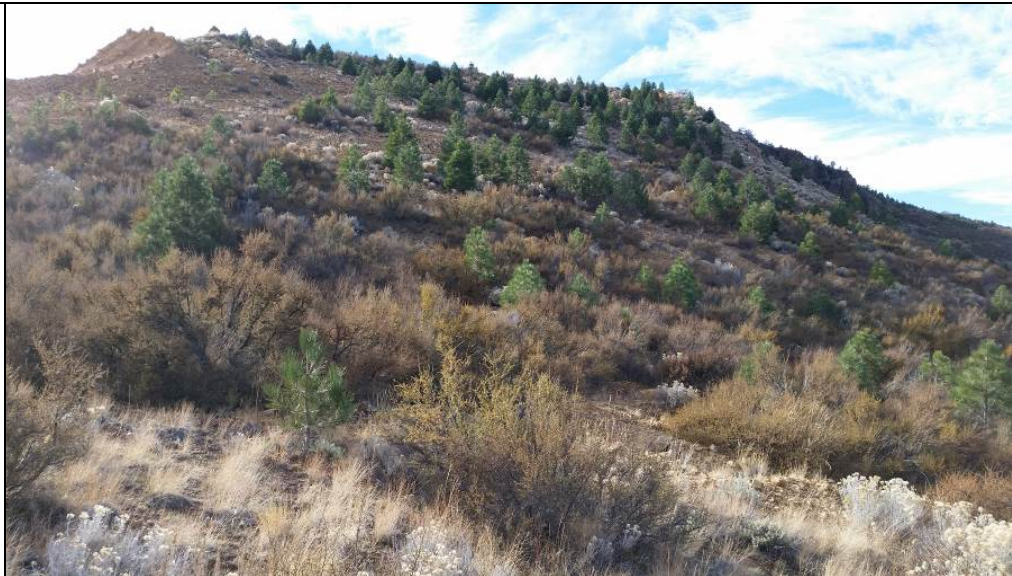
**Photo: 4**

**Description:**

View of Upper  
Rotational Slide on  
North (Main) Dump  
Revegetation

**Orientation:**

Facing Southwest



Photographic Documentation  
Hayden Hill Mine  
Lassen County, CA



**Photo: 5**

**Description:**

View of Rotational  
Slide on North  
(Main) Dump  
Revegetation

**Orientation:**

Facing West



**Photo: 6**

**Description:**

View of Lower  
Rotational Slide on  
North (Main) Dump  
Revegetation

**Orientation:**

Facing Northwest





Photographic Documentation  
Hayden Hill Mine  
Lassen County, CA



**Photo: 7**

**Description:**

View of Seven  
Bench Ponds  
Revegetation

**Orientation:**

Facing East



**Photo: 8**

**Description:**

View of Seven  
Bench Ponds  
Revegetation

**Orientation:**

Facing East



Photographic Documentation  
Hayden Hill Mine  
Lassen County, CA



**Photo: 9**

**Description:**

View of South End  
of Lookout Pit.  
Rock Barrier in  
Foreground.  
Limited Vegetation  
on Cuts.

**Orientation:**

Facing North



**Photo: 10**

**Description:**

View of Warning  
Signage at South  
End of Lookout Pit.  
Limited Vegetation  
on Cut

**Orientation:**

Facing Northwest





Photographic Documentation  
Hayden Hill Mine  
Lassen County, CA



**Photo: 11**

**Description:**

View of Native  
Vegetation South of  
Lookout Pit,  
Opposite Photo 10.

**Orientation:**

Facing Southeast



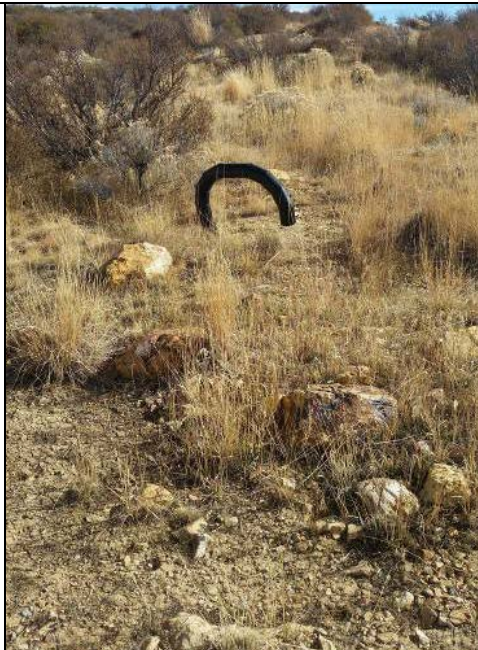
**Photo: 12**

**Description:**

View of Vent Pipe  
and Revegetation  
Along 7-Bench  
Pipeline, Near No.2  
Ore Pile.

**Orientation:**

Facing East



Photographic Documentation  
Hayden Hill Mine  
Lassen County, CA



**Photo: 13**

**Description:**

View of Heap Leach  
Pad Revegetation.

**Orientation:**

Facing South



**Photo: 14**

**Description:**

View of South ARD  
Revegetation. No. 2  
Ore Stockpile to  
Left.

**Orientation:**

Facing South





Photographic Documentation  
Hayden Hill Mine  
Lassen County, CA



**Photo: 15**

**Description:**

View of Providence  
Pit Haul Road  
Revegetation Effort

**Orientation:**

Facing East



**Photo: 16**

**Description:**

View of Providence  
Pit Haul Road  
Revegetation Effort

**Orientation:**

Facing North



Photographic Documentation  
Hayden Hill Mine  
Lassen County, CA



**Photo: 17**

**Description:**

View of Native  
Vegetation Above  
Providence Pit

**Orientation:**

Facing North



**Photo: 18**

**Description:**

View of West Side  
of Heap Leach Pad  
and Bioreactor  
Beyond Rock  
Barrier.

**Orientation:**

Facing Southeast





Photographic Documentation  
Hayden Hill Mine  
Lassen County, CA



**Photo: 19**

**Description:**

Overview of Tailings  
Pond Revegetation,  
Center to Rear of  
Photo

**Orientation:**

Facing Southwest



**Photo: 20**

**Description:**

View of Barren Pond  
Revegetation

**Orientation:**

Facing North



Photographic Documentation  
Hayden Hill Mine  
Lassen County, CA



**Photo: 21**

**Description:**

View of Barren Pond  
Revegetation

**Orientation:**

Facing Northwest



**Photo: 22**

**Description:**

View of Crusher Area  
Revegetation

**Orientation:**

Facing Northeast





Photographic Documentation  
Hayden Hill Mine  
Lassen County, CA



**Photo: 23**

**Description:**

View of Mill Area  
Revegetation.

**Orientation:**

Facing North



**Photo: 24**

**Description:**

View of Mill Area  
Revegetation

**Orientation:**

Facing Northeast



Photographic Documentation  
Hayden Hill Mine  
Lassen County, CA



**Photo: 25**

**Description:**

View of Mill Building Flat Revegetation. Note Invasive Species Dominance.

**Orientation:**

Facing Northwest



**Photo: 26**

**Description:**

View of Revegetation on Top of Slot Dump.

**Orientation:**

Facing North





Photographic Documentation  
Hayden Hill Mine  
Lassen County, CA



**Photo: 27**

**Description:**

View of Slot Dump  
Slope Revegetation.

**Orientation:**

Facing Northeast



**Photo: 28**

**Description:**

View of Preg  
Solution Pond  
Revegetation. Note  
Dominance of  
Invasive Species.

**Orientation:**

Facing East



Photographic Documentation  
Hayden Hill Mine  
Lassen County, CA



**Photo: 29**

**Description:**

View of Preg  
Solution Pond  
Revegetation. Note  
Dominance of  
Invasive Species.

**Orientation:**

Facing Southeast



**Photo: 30**

**Description:**

View of Storm Event  
Pond Revegetation.  
Note Dominance of  
Invasive Species.

**Orientation:**

Facing South





Photographic Documentation  
Hayden Hill Mine  
Lassen County, CA



**Photo: 31**

**Description:**

View of Decant Pond Revegetation. Note Dominance of Invasive Species.

**Orientation:**

Facing Southeast



**Photo: 32**

**Description:**

View of Decant Pond Drainage Toward Sediment Ponds.

**Orientation:**

Facing Southwest



Photographic Documentation  
Hayden Hill Mine  
Lassen County, CA



**Photo: 33**

**Description:**

View of Tailings  
Impoundment  
Revegetation.

**Orientation:**

Facing Southwest



**Photo: 34**

**Description:**

View of Tailings  
Impoundment  
Revegetation.

**Orientation:**

Facing Southeast





Photographic Documentation  
Hayden Hill Mine  
Lassen County, CA



**Photo: 35**

**Description:**

View of Tailings  
Impoundment  
Revegetation.

**Orientation:**

Facing West



**Photo: 36**

**Description:**

View of Tailings  
Impoundment  
Revegetation.

**Orientation:**

Facing Southeast



Photographic Documentation  
Hayden Hill Mine  
Lassen County, CA



**Photo: 37**

**Description:**

View of Shop Area  
Revegetation.

**Orientation:**

Facing North



**Photo: 38**

**Description:**

View of Shop Area  
Revegetation.

**Orientation:**

Facing Northeast





Photographic Documentation  
Hayden Hill Mine  
Lassen County, CA



**Photo: 39**

**Description:**

View of Sediment  
Pond DP2  
Embankment.  
Sediment Pond #9 in  
Foreground.

**Orientation:**

Facing Northeast



**Photo: 40**

**Description:**

View of Sediment  
Pond DP2  
Embankment.  
Sediment Pond #9 in  
Foreground.

**Orientation:**

Facing East



Photographic Documentation  
Hayden Hill Mine  
Lassen County, CA



**Photo: 41**

**Description:**

View of Sediment  
Pond DP2  
Revegetation.

**Orientation:**

Facing Northeast



**Photo: 42**

**Description:**

View of Sediment  
Pond DP2  
Revegetation.

**Orientation:**

Facing East



Photographic Documentation  
Hayden Hill Mine  
Lassen County, CA



**Photo: 43**

**Description:**

View of Sediment  
Pond DP2  
Revegetation.

**Orientation:**

Facing Southeast





August 2, 2016

Mr. Maurice Anderson, Director  
County of Lassen  
Department of Planning and Building Services  
707 Nevada Street, Suite 5  
Susanville, California 96130-3912

**Re: Hayden Hill Mine 2016 Bond Reduction Request**

Dear Mr. Anderson:

Pursuant to the Surface Mining and Reclamation Act of 1975 (SMARA) §3805.5- Modification or Release of Financial Assurance, Lassen Gold Mining, Inc. (LGMI) is hereby requesting a reduction of \$2,060,520 of its reclamation financial surety currently held by Lassen County in the form of a Letter of Credit (S004/43695/03) for reclamation and closure of the Hayden Hill Mine. In addition, LGMI is requesting the release of the \$500,000 surety designated for implementation of the *Habitat Mitigation and Management Plan for the Hayden Hill Project* (HMMP) held by the County under Letter of Credit Number S003/43695/03.

SRK Consulting (U.S.), Inc. (SRK), at the request and under the direction of LGMI, conducted an inspection of the Hayden Hill Mine in June 2016 and prepared the enclosed documentation. Their findings, supported by the revegetation assessments prepared by Eastside Environmental of Chico, California (attached), serve as justification for the requested bond releases.

LGMI would like to thank you in advance for your assistance in facilitating a prompt bond reduction for the Hayden Hill Mine. Should you have any questions regarding this request, please do not hesitate to contact me at (775) 742-0357 or via e-mail at [Kevin.Roach@Kinross.com](mailto:Kevin.Roach@Kinross.com).

Sincerely,

**Lassen Gold Mining, Inc.**



Kevin J. Roach  
Director, Reclamation Operations

Enclosures

Cc: Dennis Sylvia, Bureau of Land Management - Alturas  
Chris Christofferson, Modoc National Forest - Adin  
George Low, California Regional Water Quality Control Board - Redding  
Mike Luksic, Office of Mine Reclamation - Sacramento

**RECEIVED**

**AUG 08 2016**

*Lassen County Department of  
Planning and Building Services*



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August 2, 2016  
SRK Project No. 73400.470

Lassen Gold Mining, Inc.  
5075 S. Syracuse Street, 8<sup>th</sup> Floor  
Denver, CO 80237

Attn.: Mr. Kevin Roach – Director, Reclamation Operations

**RE: DOCUMENTATION FOR RELEASE OF FINANCIAL ASSURANCE – HAYDEN HILL HABITAT  
MITIGATION AND MANAGEMENT PLAN BOND**

Dear Mr. Roach:

SRK Consulting (U.S.), Inc. has prepared the following information related to the *Habitat Mitigation and Management Plan for the Hayden Hill Project (HMMP)* (Sharp, 1991), on behalf of Lassen Gold Mining, Inc. (LGMI), as demonstration of successful performance of mitigation measures in order to request release of the financial assurance associated with the HMMP. Initial assessments of the implementation and success of the HMMP was provided by Woodward (1997a; 1997b) demonstrating compliance by LGMI with the conditions of the 1991 plan. However, the longer-term habitat mitigation requirements for both sage grouse and mule deer were not fully realized or demonstrated at that time. As a result, LGMI, in cooperation with the California Department of Fish and Game (CDFG) and Lassen County, agreed to perform certain additional specific activities to fulfill those requirements. These additional activities were outlined in LGMI's letter to the County of Lassen, Department of Community Development, dated January 29, 1999, and LGMI's letter to CDFG, dated September 15, 1999, which stated that LGMI would perform the following tasks, all of which have been completed:

- *Continue the Surety bond that is in place until all measures agreed to have been implemented.*

**Status:** As agreed.

- *Complete a collection agreement with the U.S. Department of Agriculture, Forest Service, Modoc National Forest (USFS), in the amount of \$109,000 for the mule deer mitigation projects listed in Mr. Koch's letter of August 14, 1998.*

**Status:** Completed as per USFS letters from Stanley Sylva, Forest Supervisor, dated May 26, 2005 and April 1, 2008.

- *Transfer ownership of Section 2, T36N, R9E to an entity acceptable to Lassen County and CDFG.*

**Status:** Completed. LGMI donated a total of 756 acres to the U.S. Department of the Interior, Bureau of Land Management (BLM) by way of Grant Deed dated July 10, 2009. This donation included all of

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Africa  
Asia  
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South America



Section 2 referenced above, as well as approximately 40 acres in adjacent Section 11, and approximately 80 additional acres in nearby Section 6, T36N, R10E. These donated sagebrush grasslands are being managed by the BLM as protected habitat that is critical to sage-grouse and mule deer, and include over 18 acres of constructed wetlands that mitigate the impacts of mining. Transfer of the land to the BLM will ensure long-term management and protection of the wetland preserve. (BLM Press Release No. CA-N-09-71 dated July 22, 2009).

- *Prior to the transfer, Section 2 will be fenced and a \$10,000 endowment will be established for the long-term maintenance of the site.*

**Status:** Completed. LGMI installed a perimeter fence around approximately 600 acres of the Section 2 protected habitat and wetland preserve and established an endowment of \$35,000 with the BLM to fund long-term maintenance of the fence.

- *Restrict grazing on Anderson Ranch to the period from October 1 to October 31, with no more than 70 cow/calf units until mine reclamation in the Anderson Ranch watershed is completed and the reclamation bond is released.*

**Status:** Completed/ongoing. Anderson Ranch grazing has been restricted as agreed. Reclamation within the watershed has been completed and the release of the reclamation bond for these areas is being concurrently sought under a separate request. As such, grazing restrictions will continue at least until such time as the bonds are released.

- *Include deer forage species in the revegetation work to be completed as part of the final reclamation of the mine site.*

**Status:** Completed. Deer forage species, including bitterbrush and other herbaceous forbs, were included in the reclamation seed mix and those species are thriving.

- *All power lines and poles will be removed from the site unless Lassen County, under their authority in issuing the Use Permit, determines the lines and poles are to remain.*

**Status:** LGMI no longer owns, or is responsible for maintenance and/or removal of the 69KV power transmission line from the intersection of California Highways A2 and 139 to the Hayden Hill site. As per the Purchase and Sale Agreement dated December 17, 2007, Lassen Municipal Utility District (LMUD) purchased this power line from LGMI and assumed all associated liabilities and reclamation obligations. This agreement was executed under threat of condemnation by LMUD. Since LGMI no longer owns the power line, this requirement is moot, and should be stricken from the Plan obligations.

- *Potential nest sites for raptors in the final pit walls will be constructed, providing that the final configuration of the pit is conducive to such measures, and that the work can be completed without compromising the safety of employees.*

**Status:** Completed. Two potential raptor nesting sites were created in the Lookout Pit, one on the south final pit wall and one on the west final pit wall.

- *The placement of downed logs or trees on the final graded slopes of the Main Waste Rock Dump to promote habitat diversity.*

**Status:** Completed. Subsequent to completion of regrading, approximately 200 juniper trees were cut and hauled to the Main Waste Rock Dump and placed in piles of three to five trees across the reclaimed surface of the dump.



With successful completion of the HMMP mitigation efforts (as originally outlined by Woodward, 1997a; 1997b), and completion of the CDFG and Lassen County additional requirements (1999), SRK can justifiably recommend release of the associated financial assurance, currently totaling \$500,000. Specifically, this would entail the release of the associated Letter of Credit Number S003/43695/03 issued in connection with the *Habitat Mitigation and Management Plan* for the Hayden Hill Project.

Thank you for your consideration. If you have any questions regarding this recommendation, please do not hesitate to contact me or Mark Willow at 775.828.6800.

Sincerely,

**SRK Consulting (U.S.), Inc.**



Jeffrey V. Parshley, R.G. (CA#5568)  
Corporate Consultant

**References:**

Lassen Gold Mining, Inc. (LGMI). 1999a. Letter to Mr. Robert K. Sorvaag, Director County of Lassen, Department of Community Development regarding wildlife mitigation plan. January 29, 1999.

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Attn.: Mr. Kevin Roach – Director, Reclamation Operations

**RE: DOCUMENTATION FOR BOND REDUCTION REQUEST FOR HAYDEN HILL MINE**

Dear Mr. Roach:

SRK Consulting (U.S.), Inc. (SRK) has prepared the attached documentation as justification for a supplemental reclamation bond reduction request on behalf of Lassen Gold Mining, Inc. (LGMI) and in accordance with the *Surface Mining and Reclamation Act of 1975 (SMARA) §3805.5 – Modification or Release of Financial Assurance*. SRK reviewed and evaluated the success of reclamation and closure activities at the Hayden Hill Mine in order to prepare this request for submittal to the County of Lassen, Department of Planning and Building Services (the agency responsible for implementation of SMARA at the site). The County is current holding \$2,517,083 in bonding for reclamation and closure of the Hayden Hill Mine in the form of a Letter of Credit (S004/43695/03). This amount excludes a \$285,200 'Clean Up Bond' and \$500,000 for implementation of the *Habitat Mitigation and Management Plan* for Hayden Hill. The following request for financial assurance release is for the reclamation and closure bond only. Release of the *Habitat Mitigation and Management Plan* bond will be addressed separately. Release of the Clean Up Bond is not currently being requested.

On June 21, 2016, Mr. Mark Willow of SRK conducted an inspection of the Hayden Hill Mine to determine if there are "aspects of the surface mining operation that require modification of the existing financial assurance amount, or ... that the mined land has been reclaimed in accordance with the approved reclamation plan[s]." Mr. Kevin Roach representing LGMI, provided access to the facilities and detailed the reclamation activities conducted since the last bond release request in 2006. The success of the reclamation was then compared to the approved reclamation plans, and the revegetation success analyses prepared by Eastside Environmental of Chico, California entitled *Hayden Hill Mine Revegetation Assessment for Closure Properties 2015* (and their supplemental reports in 2016 – presented herein as Attachment 1a and 1b), to determine an equitable bond value to request for release. In summary, SRK believes that a release of \$2,060,520 from the currently held bond amount is warranted.

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## 1 Bond Release Criteria

SRK prepared the attached spreadsheet (Table 1) citing:

- individual facility reclamation commitments reference document;
- initial financial assurance amounts (prior to the 2006 partial bond release);
- current financial assurance amounts following the 2006 bond release percentages and recommendations (Tetra Tech, 2006);
- supplemental percentage of bond release requested for 2016;
- amount of bond release requested for 2016 based on that percentage; and,
- amount of bond remaining for each facility (if any) – projected following release of the proposed 2016 amounts.

Determining that the reclamation tasks are complete includes completion of any monitoring periods and meeting performance standards identified in the referenced reclamation plan(s). The success of reclamation was evaluated based on the completion of requisite earthworks, visible or measurable evidence of stability, including likelihood of repairs or maintenance (construction), revegetation success, and compliance with Water Quality Control Board (WQCB) permit parameters. In general, the release criteria were established as follows:

- **Phase 1 Release:** 60% release of the total estimated cost for reclamation of each facility upon completion of the earthwork (or one-time construction activities).
- **Phase 2 Release:** Additional 25% release of the total estimated cost for reclamation of each facility following germination of the planted vegetation on each reclaimed facility; expected to occur at the end of the first growing season following initial seeding.
- **Phase 3 Final Release:** Remaining 15% release of the total estimated cost for reclamation of each facility based on meeting the revegetation standards, expected to be at the end of three years of monitoring and the area meets the success criteria. For some facilities, compliance with WQCB permit parameters for surface water and/or groundwater for the preceding two years is also required for final bond release.

A significant portion of the bonding associated with earthworks and construction ( $\pm 60\%$ ) was released in 2006, while only limited bonding for revegetation was released at that time due to limitations on the monitoring period and inability to demonstrate longer-term stability and success in revegetation efforts. Given the current condition of the facilities at Hayden Hill, and the findings of Eastside Environmental with respect to revegetation success, a revision to the 2006 bond amounts is warranted. In many cases, the entire remaining percentage of the original bond is being requested for specific facilities.

### 1.1 Earthwork

Earthwork includes activities such as slope stabilization, regrading and cover placement. Because of the potential need for future maintenance and repair of earthwork activities, stability was defined as the absence of evidence of erosion or physical failure of the earthworks and presence of vegetation, although not necessarily fully meeting revegetation standards. The 2016 site inspection again indicated excellent stability of the earthwork activities at Hayden Hill, most of which had been completed over a decade ago.

### 1.2 Construction

Construction activities are those activities that are only performed once, and do not require any additional work once completed. These include items like demolition of a building, removal of a liner, backfilling of a pit or pond, construction of a pipeline or infiltration field, etc. Once completed, there is no additional work or repair required and 100% of the bond cost estimate for these activities would be released. Most of the bonding associated with construction was released in 2006.



### 1.3 Revegetation

Revegetation activities (and costs) are generally associated with the preparation of seedbeds, application of seed fertilizer and/or mulch, and the planting of trees. Because revegetation can fail, in which case some or all of the activity could need to be performed again, bond is held until completion of vegetation surveys, conducted after the prescribed monitoring period, can demonstrate that the revegetation standards have been met.

## 2 Site Inspection

During the site visit, SRK re-inspected each of the project facilities and the reclamation performed thereto. In summary, where earthworks and revegetation were performed, SRK observed the surface of the facilities to be stable with viable vegetation and negligible signs of active erosion. Vegetation surveys on most of the mine facility areas (Eastside Environmental 2015; 2016a; 2016b) indicate that the vegetation has met revegetation success criteria. Brief descriptions of each facility line (as presented in the original bonding and itemized during the 2004-2006 bond release request) are included below, and correspond to Table 1.

### 2.1 Open Pits

Selective backfilling and safety berm construction for the open pits was a one-time construction activity. Revegetation in and around Lookout Pit (a.k.a., North Pit Complex & South Pit Complex) and Providence Pit (Complex) has been found to achieve the standards for bond release (Eastside Environmental, 2015). As such, an additional 25% of the Lookout Pit bond is being requested, while the remaining 40% of the original bond held by the County for the Providence Pit is suitable for release.

With respect to the Basalt Quarry, an inspection by the County of Lassen in 2010 found that the Hayden Hill Basalt Mine Site (CA Mine ID# 91-18-0026) was reclaimed in accordance with the approved reclamation plan and that there are no other outstanding reclamation liabilities associated with this facility. As such, the County recommended release of the financial assurance pursuant to Public Resources Code (PRC), Division 2, Section 2773.1. The California Department of Conservation, Office of Mine Reclamation subsequently concurred with this recommendation in correspondence dated September 14, 2010 (Attachment 2). LGMI is, therefore requesting 100% release of the Basalt Quarry reclamation bond.

### 2.2 Heap Leach Pad

Earthworks on the heap leach pad were completed early during closure of the site, and no significant evidence of instability and/or erosion was observed during the SRK inspection in 2016. Construction and installation of the heap leach pad infiltration field was also approved in 2006 along with the earthworks. The vegetation success criteria for this component was achieved early (Keesey and Mustric, 2004), and has been verified more recently (Eastside Environmental, 2015). The minimum post-reclamation monitoring period of five years has been completed.

Final release of the bond on the heap leach pad also requires that the facility has not contributed to an exceedance of California Regional Water Quality Control Board permit parameters for surface water or groundwater during the preceding two years. According to LGMI, no exceedances of the aforementioned permit parameters has occurred in the previous two years. SRK is therefore recommending release of the remaining 40% of the heap leach pad reclamation bond.

### 2.3 Ponds

Primary closure of a pond is a construction activity. Once the liner is folded or removed, and the pond has been backfilled with suitable material, no further action would be warranted with respect to earthworks. The costs for this construction component of five of the site ponds were released in 2006; however, five other ponds remained open at that time. Since then, all of the ponds except the sediment ponds/flumes have undergone reclamation for which additional bond release is warranted. Revegetation success has been achieved on the Barren Pond, Sed. Pond DP1 & DP1a, 7-Bench Lined Pond, and the 7-Bench Clay Pond (collectively assessed and reported as "7 Bench Ponds") (Eastside Environmental, 2015; 2016a; 2016b). The



remaining ponds, including the Preg Pond, Storm Event Pond, Decant Pond (collectively known as 'Solution Ponds' in the revegetation report), Sed. Pond DP2, and the South ARD Pond, have been physically reclaimed, but have not yet demonstrated the requisite revegetation success; thus, release of only a portion of those bond amounts is being requested. The variable percentage of recommended releases is provided in Table 1.

## 2.4 Tailings Impoundment

LGMI completed the major earthwork and construction activities for the tailings impoundment in the fall of 2004, and 60% of the bonding associated with this facility was released in 2006. Revegetation occurred in late 2004. An early nomenclature difference for the Tailings Impoundment & Drainfield Construction has carried through the years of vegetation monitoring reports, which identified these facilities at Waste Rock Disposal Area & Westside Leach Fields. While the most recent monitoring report (Eastside Environmental, 2015) indicated that this facility did not achieve the 'richness' criterion for successful revegetation in 2015 (perhaps due to the recent drought conditions), previous reports provided to the County have indicated complete revegetation success (including 'richness') over the past decade. For this reason, SRK believes that the Tailings Impoundment & Drainfield Construction facilities warrant full bond release (i.e., remaining 40%).

Final release of the bond on the tailings impoundment also requires that the facility has not contributed to an exceedance of California Regional Water Quality Control Board permit parameters for surface water or groundwater during the preceding two years. According to LGMI, no exceedances of the aforementioned permit parameters has occurred in the previous two years.

## 2.5 Waste Rock Dumps

All reclamation earthworks and construction on the Hayden Hill waste rock dumps are complete. The Providence Dump and the East Dump were released in their entirety in 2006. The Laydown Yard Dump has achieved revegetation success (Eastside Environmental, 2015), while the Slot Dump has not yet achieved the requisite percent cover for complete bond release (Eastside Environmental, 2016). SRK observed no new evidence of surface instability, and revegetation has been established for the requisite monitoring periods on all dumps except the Slot Dump. The variable percentages of recommended releases are provided in Table 1.

Because of historic instability issues associated with the Main Waste Rock Dump, a special bond release mechanism was created for this facility. Upon completion of earthwork, 50% of the bond (for this facility) would be released. The remaining bond would be released in equal annual increments (10% per year) during a five-year warranty period. The five-year warranty period began when one of the warranty thresholds defined by The Mines Group, Inc. in *Guidelines for Slope Stability Monitoring at the North Waste Rock Dump Reclamation Site, Hayden Hill Mine, Lassen County, California*, was achieved. According to The Mines Group (2003a), that warranty period effectively began on January 30, 2001. Having already released 80% of the original bond for this facility and the warranty period thresholds achieved, SRK recommends that the remaining 20% of the financial surety associated with this facility also be released.

## 2.6 Roads

No bonding on haul roads and utility roads was released in 2006. LGMI had previously completed the earthwork portion of the reclamation for the access road and received 60% release; and additional reclamation has been completed since 2006. Ongoing monitoring at the site is minimal and revegetation success of the access road, East I-80 haul road, and West I-80 haul road is demonstrated in Eastside Environmental (2015). Therefore, SRK believes that it is appropriate that 100% of the haul road bond (identified in the 2015 revegetation report as East I-80 and I-80 West), 60% of the utility road bond (for earthworks), and the remaining 40% of the access road bond (for successful revegetation) be released.



## 2.7 Miscellaneous

The miscellaneous areas include:

- **Admin Complex:** Demolition of the administration site structures is complete, and the areas have been regraded and revegetated. Revegetation has been deemed successful (Eastside Environmental, 2015).
- **Mill Complex:** Demolition of the mill complex structures is complete, and the areas have been regraded and revegetated. Revegetation has been deemed successful (Eastside Environmental, 2015).
- **Crusher Complex:** The Crusher Complex was released in its entirety in 2006.
- **Shop Complexes:** Demolition of the Shop-Warehouse structures is complete, and the areas have been regraded and revegetated. Revegetation has been deemed successful (Eastside Environmental, 2015).
- **Growth Media Stockpiles:** Regrading and revegetation of the remaining growth media stockpiles has been deemed successful (Eastside Environmental, 2016).
- **Laydown Yard:** Revegetation of the laydown yard has been deemed successful (Eastside Environmental, 2015).
- **Miscellaneous Disturbed Areas:** This line item generally includes inter-facility disturbance that is not specifically identifiable as a mine component on a map, and generally includes the following (at a minimum):
  - Buildings and sheds (excluding Admin, Mill, Shop);
  - Miscellaneous tanks (excluding Mill);
  - Various utility poles around the site (excluding main power line);
  - Water supply system, including pipelines and booster tanks;
  - Explosives storage area (including Prill Bin);
  - Equipment ready line;
  - Vehicle parking areas;
  - Fuel station and tank farm;
  - Various above-ground piping and their corridors;
  - Power lines around the site; and
  - Perimeter fence.

Given the overall successful revegetation of the entire site, and the lack of any substantive disturbed and/or denuded areas remaining as of the 2016 inspection, SRK believes that it is reasonable to request 100% release of this bonding item. This includes release of the bonding associated with fence removal, as it is appropriate that a post-mining land use of agriculture/livestock grazing, which is proposed for these private lands, includes necessary fencing to control access and movement. It would therefore be inappropriate to require complete removal of the fencing at the site.

- **Well Closure:** Since 2006, LGMI has abandoned and reclaimed five of the 11 monitoring wells at the site (or 45% of the wells). As such, SRK recommends a 45% reduction in the original bond amount.
- **Number 2 Stockpile:** Revegetation of Stockpile #2 has been deemed successful (Eastside Environmental, 2015).
- **Revegetation Monitoring:** With all of the earthworks and construction activities essentially complete, SRK recommends that 60% of this line item be released.

The variable percentages of recommended releases for these facilities is provided in Table 1.

## 2.8 ARD Facilities

Full release of bonding associated with the 7-Bench ARD Unit, and the South ARD Unit was approved in 2006. The 7-Bench Pipeline (Pipeline) was partially released in 2006, but has now achieved the requisite revegetation success criteria and monitoring period (Eastside Environmental, 2015). Final release of bonding for this facility is therefore appropriate.

## 2.9 Clean Up Bond

The Clean Up Bond is held by the Regional Water Quality Control Board for cleanup of releases from the waste management units. This bond will be released upon '*demonstration of successful closure of the last waste management unit closed*'. LGMI is not requesting release of the Clean Up Bond at this time.

## 3 Conclusions

Based on our review of the reclamation commitments contained in the various closure/reclamation plans, review of third party revegetation assessment reports, and our inspection of the reclamation completed at the site to date, SRK recommends that a total of \$2,060,520 of the \$2,517,083 reclamation and closure bond for the Hayden Hill Mine be released at this time. This recommendation is based on observed site conditions and the demonstrated reclamation success at the site.

If you have any questions regarding this recommendation, please do not hesitate to contact me or Mark Willow at 775.828.6800.

Sincerely,

**SRK Consulting (U.S.), Inc.**



Jeffrey V. Parshley, R.G. (CA#5568)  
Corporate Consultant

Attachments:

- 1 – Hayden Hill Mine Revegetation Assessment for Closure Properties
- 1a – Hayden Hill Mine Revegetation Assessment for Addendum Properties
- 1b – Hayden Hill Mine Revegetation Assessment, Addendum for 7 Bench Ponds 2014-2015
- 2 – Basalt Quarry Bond Release Documentation



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**Table 1: Current Bonding and Proposed 2016 Release Requests**

Facility	Reclamation Plan	Initial Financial Assurance (prior to 2006 Release)	Current Bond Remaining	2006 Release	2016 Reduction Proposed	2016 Reduction Proposed	Remaining FA After Reduction	2015/2016 Reveg Pass
<b>OPEN PITS</b>								
Lookout Pit	Lookout Pit, 2000	\$895,765	\$ 358,306	60%	25%	\$ 223,941	\$ 134,365	Y
Providence Pit	Reclamation Plan Modifications, 1999	\$6,974	\$ 2,790	60%	40%	\$ 2,790	\$ -	Y
Basalt Quarry	Reclamation Plan for the Basalt Aggregate Quarry, 1994	\$12,500	\$ 12,500	0%	100%	\$ 12,500	\$ -	Y
<b>HEAP LEACH PAD</b>								
Heap Leach Pad	7-Bench/Heap Leach Pad, 2002	\$908,199	\$ 363,281	60%	40%	\$ 363,281	\$ -	Y
<b>PONDS</b>								
Preg Pond	7-Bench/Heap Leach Pad, 2002	\$116,545	\$ 116,545	0%	60%	\$ 69,927	\$ 46,618	N
Barren Pond	Reclamation Plan Modifications, 1999	\$25,973	\$ 10,389	60%	40%	\$ 10,389	\$ -	Y
Sed. DP1, DP1a & DP2	Reclamation Plan Modifications, 1999	\$39,619	\$ 39,619	0%	80%	\$ 31,695	\$ 7,924	Y - DP1 & DP1a only
Storm Event Pond	Reclamation Plan Modifications, 1999	\$124,769	\$ 124,769	0%	60%	\$ 74,861	\$ 49,908	N
Decant Pond	Tailings Facility, 2002	\$137,852	\$ 137,852	0%	60%	\$ 82,711	\$ 55,141	N
Sed. Ponds/Flumes (7 Total)	Reclamation Plan Modifications, 1999	\$18,537	\$ 18,537	0%	0%	\$ -	\$ 18,537	N
7-Bench Lined Pond	7-Bench/Heap Leach Pad, 2002	\$3,527	\$ 1,411	60%	40%	\$ 1,411	\$ -	Y
7-Bench Clay Pond	7-Bench/Heap Leach Pad, 2002	\$2,467	\$ 987	60%	40%	\$ 987	\$ -	Y
South ARD Pond	Reclamation Plan Modifications, 1999	\$4,235	\$ 1,694	60%	0%	\$ -	\$ 1,694	N
<b>TAILINGS IMPOUNDMENT</b>								
Tailings Impoundment & Drainfield Construction	Tailings Facility, 2002	\$789,944	\$ 315,978	60%	40%	\$ 315,978	\$ -	Y*
<b>WASTE ROCK DUMPS</b>								
Main Dump	Main Waste Rock Dump, 2000	\$951,439	\$ 190,288	80%	20%	\$ 190,288	\$ -	Y
Providence Dump	Reclamation Plan Modifications, 1999	\$176,416	\$ -	100%		\$ -	\$ -	
East Dump	Reclamation Plan Modifications, 1999	\$323,969	\$ -	100%		\$ -	\$ -	
Slot Dump	Reclamation Plan Modifications, 1999	\$11,216	\$ 11,216	0%	60%	\$ 6,730	\$ 4,486	N
Laydown Yard Dump	Reclamation Plan Modifications, 1999	\$11,216	\$ 4,486	60%	40%	\$ 4,486	\$ -	Y
<b>ROADS</b>								
Haul Roads	Reclamation Plan Modifications, 1999	\$41,372	\$ 41,372	0%	100%	\$ 41,372	\$ -	Y
Utility Roads	Reclamation Plan Modifications, 1999	\$107,567	\$ 107,567	0%	60%	\$ 64,540	\$ 43,027	N/A
Access Roads	Reclamation Plan Modifications, 1999	\$35,167	\$ 14,067	60%	40%	\$ 14,067	\$ -	Y
<b>MISCELLANEOUS</b>								
Admin Complex	Reclamation Plan Modifications, 1999	\$22,683	\$ 9,073	60%	40%	\$ 9,073	\$ -	Y
Mill Complex	Reclamation Plan Modifications, 1999	\$221,143	\$ 88,457	60%	40%	\$ 88,457	\$ -	Y
Crusher Complex	Reclamation Plan Modifications, 1999	\$144,668	\$ -	100%		\$ -	\$ -	
Shop Complexes	Reclamation Plan Modifications, 1999	\$70,065	\$ 28,026	60%	40%	\$ 28,026	\$ -	Y
Growth Media Stockpiles	Reclamation Plan Modifications, 1999	\$74,244	\$ 74,244	0%	100%	\$ 74,244	\$ -	Y
Laydown Yard	Reclamation Plan Modifications, 1999	\$964	\$ 964	0%	100%	\$ 964	\$ -	Y
Miscellaneous Disturbed Areas	Reclamation Plan Modifications, 1999	\$225,246	\$ 225,246	0%	100%	\$ 225,246	\$ -	Y
Well Closure	Reclamation Plan Modifications, 1999	\$139,059	\$ 139,059	0%	45%	\$ 62,577	\$ 76,482	N/A
Number 2 Stockpile	Reclamation Plan Modifications, 1999	\$11,571	\$ 4,628	60%	40%	\$ 4,628	\$ -	Y
Revegetation Monitoring	Reclamation Plan Modifications, 1999	\$45,956	\$ 45,956	0%	60%	\$ 27,573	\$ 18,382	N/A
<b>ARD FACILITIES</b>								
7-Bench Unit	7-Bench/Heap Leach Pad, 2002	\$165,041	\$ -	100%			\$ -	
7-Bench Pipeline	7-Bench/Heap Leach Pad, 2002	\$69,440	\$ 27,777	60%	40%	\$ 27,777	\$ -	Y
South ARD Unit	Reclamation Plan Modifications, 1999	\$429,077	\$ -	100%			\$ -	
<b>TOTALS (Reclamation)</b>		<b>\$6,364,426</b>	<b>\$ 2,517,083</b>			<b>2,060,520</b>	<b>456,564</b>	



## **Attachment 1**

**Hayden Hill Mine  
Revegetation Assessment for Closure Properties  
2015**



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**November 2015**

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## 1.0 Introduction

This report will chronicle the study design, methods and results of the Year 2015 Revegetation Assessment at specific Hayden Hill Gold Mine closure properties. Annual revegetation surveys of reclaimed sites are requirements of both the mine's 1991 Final Environmental Impact Statement/Report and the 1999 Reclamation Plan Modifications Report. Hayden Hill is located 15 miles southeast of the town of Adin in Lassen County, CA. Lassen Gold Mining, Inc. (LGMI), a subsidiary of Kinross Gold Inc., has to date (and beginning in 1996) reclaimed and seeded 25 distinct areas of their mining operations at the site, which include waste rock dumps, acid rock drainage facilities and a basalt quarry.

1991 EIR/S vegetation surveys identified four major habitat types at Hayden Hill: Low Sage; Upland Shrub; Jeffrey Pine/Mountain Shrub; and Meadow/Pasture. Low Sage, Upland Shrub, and Jeffrey Pine/Mountain Shrub habitats were found in the twenty-five closure property sites.

## 2.0 Methods

### 2.1 Transect design

Random 100 meter transects were selected at each of the mine's 25 reclaimed closure properties. Wooden stakes were flagged, marked and placed to delineate the transects at 0m, 50m (midpoint) and 100m (and in the case of the Basalt Quarry and 7 Bench Dump, at 90m rather than 100m). The GPS location and compass bearing of each transect's beginning and end were recorded to ensure the same transects could be revisited for future revegetation analysis. The compass bearings included a 17.5°W declination from magnetic north for a true direction reading. Color photographs of each transect at the 0 meter and 100 meter mark were taken.

### 2.2 Sample size

To determine sample adequacy for the revegetation study in 2000, data on ten quadrats from a representative closure property (7 Bench) were statistically analyzed to determine an initial estimated number of quadrat samples necessary for each closure property. The data recorded from each quadrat included a complete species list, plant count and ocular estimation of cover for each species rooted within the square-meter, as well as a percent cover estimate for bare ground, rocks, vegetative litter, and animal disturbance. Refer to Appendix B of this report for data sheet layout.

The data were then iterated for sample size using the data set's standard error and a two-tail t-test table with an 80% confidence level and 80% precision level, as specified in the Hayden Hill Mine project EIR/S. Initial data sets of 12 quadrats per transect were used for each closure area. After that initial information was collected, the data sets were re-iterated to meet a statistically valid sample size for each site, again using the 80% confidence and precision levels specified in the EIR/S.

In 2001, 20 quadrats per newly-reclaimed site was deemed adequate to provide a statistically valid sample size for the revegetation study, based on the iterations of the year 2000 closure properties.

The year 2001 closure properties South Pit, North Pit, and the Main Waste Rock Dump differed from 2001 closure property Prill Bin and all the 2000 closure properties in that these three areas contain separate seeded regions included as one area designation (e.g., "South Pit Complex" includes the geographically distinct regions South Pit Rim, South Pit, and South Pit Wall). The quadrats used to assess these areas were divided proportionally according to the size of the area being sampled, again using the minimum benchmark 20-quadrat sample size for each area. In all cases more than 20 quadrats were actually recorded (21 for South Pit areas, and 28 for both the Main Waste Rock Dump and North Pit complex areas).

In year 2002, the North Pit East Wall was added as a separate seeded region of the North Pit Complex, increasing the sample size from 21 to 28 quadrats for this closure property.

For the approximately 2-mile Access Road closure property, 20 random quadrats were selected at .10 mile increments, alternating every-other quadrat between the east and west berms of the road. Stakes were placed and photographs taken only at the Access Road's beginning and end, for it was suggested that snow removal equipment might scrape away any stakes located adjacent to the road.

In 2003, the closure property Heap Leach Pad was divided into two separate transects of 10 quadrats each. The transect locations were chosen to reflect two distinct directional aspects that the closure property faces – Northeast and Southwest.

In 2005, the Providence Pit Complex was divided into three separate transects of 7 quadrats each to cover the three distinct areas of this closure property – the pit bottom, the road and the berm.

Quadrat placement was determined with use of a random numbers table. A meter-square ½" PVC pipe quadrat was placed at the



specified distances on the transect, with the midpoint of the apparatus straddling the transect measuring tape. Plants rooted within the quadrat were evaluated for species identification, number and percent cover of the study area, and recorded on the data sheets (See Appendix B for representative data sheets). Unknown plant species were collected for identification, and invasive noxious weeds as identified by the state of California were noted. None of the noxious weeds present at Hayden Hill Mine are considered “A Rated” weed species by the state of California or Lassen County. “A- rated” weed species are plants the state of California finds necessary to eradicate, contain, reject or implement other holding action at the state-county level.

([http://www.cdfa.ca.gov/phpps/ipc/weedinfo/wininfo\\_list-pestrating.htm](http://www.cdfa.ca.gov/phpps/ipc/weedinfo/wininfo_list-pestrating.htm))

### 2.3 Data Analysis

Upon completing the fieldwork, the data was analyzed for species richness, density and percent cover, as presented in Tables B through H of this report. Species richness, density and percent cover are the criterion required to be analyzed as specified by the mine’s EIR/S and the Reclamation Plan Modifications document. No non-native species were evaluated in the final figures for species richness, density, or percent cover; a recording of all species, native and non-native, was included on the area of the data sheets where plant, bare ground, rock, vegetative litter and animal disturbance percentages were recorded.

Species richness for each closure property was calculated by averaging the number of native and seed mix species per quadrat (species/m<sup>2</sup>). Density for each closure property was calculated by averaging the total number of native and seed mix plants per quadrat (natives/m<sup>2</sup>). Percent cover for each closure property was calculated by averaging the ocular estimates of total cover percentage for all native and seed mix species per quadrat.

### 3.0 Results

Data were analyzed for species richness, density and percent cover, and compared to success thresholds defined in the Reclamation Plan Modifications document. The table below lists the success thresholds to which the data were compared:

**Table A. Success Thresholds for Hayden Hill Mine Revegetation**

Parameter	Success Threshold
Vegetative cover	24%
Species richness	4 ± 2
Density	6 ± 5

Species richness in 2015 was met at 21 of the 23 surveyed closure properties. Density was met at all surveyed closure properties. Percent cover was met at 20 properties: Access Road, Admin, Barren Ponds, East I-80, Heap Leach Pad, I-80 West, Laydown Yard, Laydown Yard Dump, Main Waste Rock Dump, Mill, North Park Dump, North Pit Complex, Pipeline, Prill Bin, Providence Pit Complex, Shop-Warehouse, South Pit Complex, Stockpile #2, and the Westside Leach Field. 19 of the 23 surveyed closure properties meet all success thresholds (See Table I).. Individual closure property results are listed below:



Table B. Sixteenth Year Quantitative Revegetation Assessment Results for 2000 Closure Properties

Location	Richness <sup>1</sup> (native species/m <sup>2</sup> )															
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Stockpile #2	4*	3	3	3	4	3	6	3	4	3	2	4	2	3	2	3
Laydown Yard	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

\*Bold and GREEN indicates a measurement that meets the success threshold

Location	Density <sup>2</sup> (native plants/m <sup>2</sup> )															
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Stockpile #2	18	11	11	9	14	7	11	6	11	8	7	13	6	7	7	7
Laydown Yard	6	4	5	4	4	5	5	5	6	5	5	9	6	5	6	5

Location	Percent Cover <sup>3</sup> (ocular estimation of native plants percentage covering 1 m <sup>2</sup> quadrats)															
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Stockpile #2	4	5	9	8	14	17	18	17	31	13	40	44	22	26	49	29
Laydown Yard	3	5	9	9	9	15	10	14	16	28	30	22	35	35	33	42

<sup>1</sup> Richness for native perennial and woody species and seed mix components, rounded to the nearest whole number.

<sup>2</sup> Density for native perennial and woody species and seed mix components, rounded to the nearest whole number.

<sup>3</sup> Percent cover represents native woody and perennial species and seed mix components, rounded to the nearest whole number.

**Table C. Fifteenth Year Quantitative Revegetation Assessment Results for 2001 Closure Properties**

Location	Richness (native species/m <sup>2</sup> )														
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Prill Bin	1	1	u/a	2	3	3	4	2	2	2	2	2	2	2	2
Main Waste Rock Dump	2	2	2	2	3	2	2	3	2	3	3	3	2	2	2
South Pit Complex	2	2	1	1	2	2	3	2	2	3	2	2	2	2	2
North Pit Complex	1	1	2	2	2	2	2	2	2	3	2	2	3	2	2

Location	Density (native plants/m <sup>2</sup> )														
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Prill Bin	2	1	u/a	8	9	8	5	10	7	8	8	8	9	7	8
Main Waste Rock Dump	6	8	5	5	7	6	5	6	6	5	6	5	5	3	5
South Pit Complex	8	8	3	6	8	9	5	7	6	7	10	8	10	7	4
North Pit Complex	3	5	8	6	7	5	5	5	7	7	3	6	10	5	10

Location	Percent Cover (ocular estimation of native plants percentage covering 1 m <sup>2</sup> quadrats)														
	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Prill Bin	1	2	u/a	16	18	15	14	22	15	18	29	32	35	37	33
Main Waste Rock Dump	17	22	25	41	33	32	58	58	53	54	57	54	44	48	48
South Pit Complex	1	5	3	5	11	9	6	16	19	24	17	14	28	28	28
North Pit Complex	1	2	4	8	16	11	12	10	16	33	21	24	23	28	31

**Table D. Fourteenth Year Quantitative Revegetation Assessment Results for 2002 Closure Properties**

Location	Richness (native species/m <sup>2</sup> )													
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
7 Bench Dump	1	u/a	2	3	3	1	2	2	2	2	2	2	2	2
Access Road	2	2	2	2	3	2	3	2	2	2	2	2	1	2
East I-80	2	2	2	2	2	1	2	2	1	1	2	1	2	2

Location	Density (native plants/m <sup>2</sup> )													
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
7 Bench Dump	5	u/a	11	9	10	3	10	8	10	10	11	10	9	9
Access Road	10	6	5	4	6	4	10	6	5	7	3	9	3	5
East I-80	10	7	5	8	7	2	7	6	2	4	4	2	5	3

Location	Percent Cover (ocular estimation of native plants percentage covering 1 m <sup>2</sup> quadrats)													
	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
7 Bench Dump	1	u/a	7	8	9	7	27	21	31	32	23	33	28	23
Access Road	1	7	3	4	6	11	18	13	22	27	23	35	26	29
East I-80	3	9	8	8	13	10	16	8	18	18	21	18	67	42



**Table E. Thirteenth Year Quantitative Revegetation Assessment Results for 2003 Closure Properties**

Location	Richness (native species/m <sup>2</sup> )												
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
I-80 West	2	3	3	4	3	3	3	4	4	2	4	3	2
Heap Leach Pad	4	4	3	3	3	3	3	3	2	2	2	3	2
Pipeline	1	3	3	2	3	2	3	2	2	2	2	2	2
Westside Leach Fields	3	4	4	3	3	4	4	3	4	3	2	2	2

Location	Density (native plants/m <sup>2</sup> )												
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
I-80 West	10	8	14	11	9	6	7	11	10	8	8	6	6
Heap Leach Pad	22	10	7	8	8	7	7	7	6	6	6	8	5
Pipeline	10	7	9	7	6	6	9	7	5	3	4	7	5
Westside Leach Fields	15	9	9	9	8	11	12	10	13	8	6	10	6

Location	Percent Cover (ocular estimation of native plants percentage covering 1 m <sup>2</sup> quadrats)												
	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
I-80 West	2	26	13	14	17	17	29	38	51	16	51	39	23
Heap Leach Pad	11	27	23	20	19	36	23	27	22	37	25	32	26
Pipeline	3	24	17	16	27	32	27	24	32	42	35	25	37
Westside Leach Fields	6	49	53	33	36	49	42	52	42	37	27	43	29

**Table F. Twelfth Year Quantitative Revegetation Assessment Results for 2004 Closure Properties**

Location	Richness (native species/m <sup>2</sup> )											
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Barren Pond	1	2	2	2	3	4	4	3	3	2	3	3
Laydown Yard Dump	2	4	3	3	2	3	2	2	2	1	1	2
Mill	2	3	3	3	4	3	3	3	2	3	2	3
North Park Dump	2	2	3	3	3	3	3	3	2	3	3	3
Shop-Warehouse	3	4	3	2	3	2	2	2	2	2	2	2
South ARD Ponds	3	2	2	1	1	1	1	1	1	1	1	1

Location	Density (native plants/m <sup>2</sup> )											
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Barren Pond	2	7	3	3	9	8	11	7	7	5	6	8
Laydown Yard Dump	17	13	11	7	8	8	6	10	6	4	4	5
Mill	6	6	5	6	9	9	7	8	9	7	9	7
North Park Dump	8	6	8	8	10	10	10	12	8	10	13	11
Shop-Warehouse	0	8	7	4	6	4	6	5	5	5	4	3
South ARD Ponds	9	8	6	3	3	2	1	3	5	2	1	2

Location	Percent Cover (ocular estimation of native plants percentage covering 1 m <sup>2</sup> quadrats)											
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Barren Pond	1	5	3	9	17	27	29	38	44	44	61	50
Laydown Yard Dump	7	21	20	8	16	22	15	20	19	13	19	24
Mill	7	18	18	22	42	29	36	37	48	40	46	61
North Park Dump	8	12	8	13	21	11	15	24	16	20	23	32
Shop-Warehouse	11	23	18	20	30	24	35	24	31	38	35	38
South ARD Ponds	7	9	9	4	7	5	5	7	7	7	13	15

**Table G. Eleventh Year Quantitative Revegetation Assessment Results for 2005 Closure Properties**

Location	Richness (native species/m <sup>2</sup> )										
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Admin	3	5	4	5	3	3	3	3	3	3	3
Providence Pit Complex	3	4	3	3	3	2	3	2	3	2	3
Waste Rock Disposal Area	4	4	4	4	3	2	2	2	2	2	1

Location	Density (native plants/m <sup>2</sup> )										
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Admin	21	20	11	13	8	9	8	7	7	7	11
Providence Pit Complex	17	14	9	8	10	6	10	7	12	8	9
Waste Rock Disposal Area	23	17	10	11	6	5	5	7	4	4	4

Location	Percent Cover (ocular estimation of native plants percentage covering 1 m <sup>2</sup> quadrats)										
	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Admin	8	17	13	30	26	52	45	54	59	53	57
Providence Pit Complex	10	12	18	20	29	17	32	26	31	38	37
Waste Rock Disposal Area	18	14	25	38	36	28	22	46	36	47	35



**Table H. Tenth Year Quantitative Revegetation Assessment Results for 2006 Closure Properties**

Location	<b>Richness</b> (native species/m <sup>2</sup> )									
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Solution Pond	4	2	3	2	2	2	1	1	2	2

Location	<b>Density</b> (native plants/m <sup>2</sup> )									
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Solution Pond	50	6	5	5	5	6	3	3	2	3

Location	<b>Percent Cover</b> (ocular estimation of native plants percentage covering 1 m <sup>2</sup> quadrats)									
	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
Solution Pond	10	3	10	13	20	21	18	18	10	6

**Table I. 2015 Revegetation Results Versus Success Thresholds**

<b>Location</b>	<b>Richness 4 ± 2 (Y or N)</b>	<b>Density 6 ± 5 (Y or N)</b>	<b>Percent Cover 24% (Y or N)</b>	<b>Success criterion achieved</b>
7 Bench Dump	Y	Y	N	
Admin	Y	Y	Y	✓
Access Road	Y	Y	Y	✓
Barren Pond	Y	Y	Y	✓
East I-80	Y	Y	Y	✓
Heap Leach Pad	Y	Y	Y	✓
I-80 West	Y	Y	Y	✓
Laydown Yard	Y	Y	Y	✓
Laydown Yard Dump	Y	Y	Y	✓
Main Waste Rock Dump	Y	Y	Y	✓
Mill	Y	Y	Y	✓
North Park Dump	Y	Y	Y	✓
North Pit Complex	Y	Y	Y	✓
Pipeline	Y	Y	Y	✓
Prill Bin	Y	Y	Y	✓
Providence Pit Complex	Y	Y	Y	✓
Shop-Warehouse	Y	Y	Y	✓
Solution Pond	Y	Y	N	
South ARD Ponds	N	Y	N	
South Pit Complex	Y	Y	Y	✓
Stockpile #2	Y	Y	Y	✓
Waste Rock Disposal Area	N	Y	Y	
Westside Leach Fields	Y	Y	Y	✓

### **3.1 7 Bench Dump**

This closure property, an Upland Shrub vegetation community reclaimed and seeded in 2001, had a 23% percent cover of native perennials, 1% below the success threshold, and an decrease of 05% from year 2014 results. The 7 Bench Dump's density of native perennials, native woody species and seed mix components was 9 plants/m<sup>2</sup>; its species richness was 2 species/m<sup>2</sup> (native perennials, native woody species and seed mix components only.) The 7 Bench Dump has met the success thresholds for richness and density in 2015.

The noxious weed identified at the 7 Bench Dump in 2015 was Cheat grass (*Bromus tectorum*).

### **3.2 South ARD Ponds**

This closure property, generally a Low Sage vegetation community reclaimed and seeded in 2003, had a 15% percent cover of native perennials, native woody species and seed mix components, 9% below the success threshold, but an increase of 2% from year 2014 results. The South ARD Ponds' density of native perennials, native woody species and seed mix components was 2 plants/m<sup>2</sup>; its species richness was 1 species/m<sup>2</sup> (native perennials, native woody species and seed mix components only). The South ARD Ponds met the success threshold for density in 2015.

The noxious weeds identified at the South ARD Ponds were Bulbous bluegrass (*Poa bulbosa*), Cheat grass (*Bromus tectorum*), Japanese brome (*Bromus japonicus*), Tumblemustard (*Sisymbrium altissimum*), and Medusahead grass (*Taeniaetherum caput-medusae*).

### **3.3 Stockpile #2**

This closure property, an Upland Shrub vegetation community reclaimed and seeded in 1999, had a 29% percent cover of native perennials, native woody species and seed mix components, 5% above the success threshold, but an decrease of 20% from year 2014 results. Stockpile #2's density of native perennials, native woody species and seed mix components was 7 plants/m<sup>2</sup>; its species richness was 3 species/m<sup>2</sup> (native perennials, native woody species and seed mix components only.) The Stockpile #2 has met all of the success thresholds in 2015.

The noxious weeds identified at the Stockpile #2 were Cheat grass (*Bromus tectorum*), Japanese Brome (*Bromus japonicus*) and Bulbous poa (*Poa bulbosa*).

### **3.4 Laydown Yard**

This closure property, an Upland Shrub vegetation community reclaimed and seeded in 1999, had a 41% percent cover of native perennials, native woody species and seed mix components, meeting and exceeding the success threshold. The Laydown Yard's density of native perennials, native woody species and seed mix components was 5 plants/m<sup>2</sup>; its species richness was 2 species/m<sup>2</sup> (native perennials, native woody species and seed mix components only). The Laydown Yard met all success thresholds in 2015.

The noxious weeds identified at the Laydown Yard were Cheat grass (*Bromus tectorum*) and Japanese brome (*Bromus japonicus*).

### **3.5 Laydown Yard Dump**

This closure property, an Upland Shrub vegetation community reclaimed and seeded in 2004, had a 24% percent cover of native perennials, native woody species and seed mix components, meeting the success threshold, and an increase of 5% from 2014 results. The Laydown Yard Dump's density of native perennials, native woody species and seed mix components was 5 plants/m<sup>2</sup>; its species richness was 2 species/m<sup>2</sup> (native perennials, native woody



species and seed mix components only). The Laydown Yard Dump met all success thresholds in 2015.

The noxious weeds identified at the Laydown Yard Dump closure property included Cheat grass (*Bromus tectorum*), Medusahead (*Taeniatherum caput-medusae*), Japanese brome (*Bromus japonicus*), Tumblemustard (*Sisymbrium altissimum*) and Bulbous bluegrass (*Poa bulbosa*).

### **3.6 Prill Bin**

This closure property, an Upland Shrub vegetation community reclaimed and seeded in 2000 and reseeded in 2003, had a 33% percent cover of native perennials, native woody species and seed mix components 9% above the success threshold, but a decrease of 4% from year 2014 results. The Prill Bin's density of native perennials, native woody species and seed mix components was 8 plants/m<sup>2</sup>; its species richness was 2 species/m<sup>2</sup> (native perennials, native woody species and seed mix components only). The Prill Bin met all of the success thresholds for species richness, density, and percent cover in 2015.

The noxious weeds identified at the Prill Bin closure property included Cheat grass (*Bromus tectorum*), Medusahead (*Taeniatherum caput-medusae*) and Japanese brome (*Bromus japonicus*).

### **3.7 Main Waste Rock Dump**

This closure property, a Juniper woodland/mountain shrub vegetation community reclaimed and seeded in 1996 and 2000, had a 48% percent cover of native perennials, native woody species and seed mix components, again exceeding the success threshold. The Main Waste Rock Dump's density of native perennials, native woody species and seed mix components was 5 plants/m<sup>2</sup>; its species richness was 2 species/m<sup>2</sup> (native perennials, native woody species and seed mix components only.) The Main Waste Rock Dump met the success thresholds for species richness, density, and percent cover in 2015.

The noxious weeds identified at the Main Waste Rock Dump were Cheat grass (*Bromus tectorum*) and Japanese brome (*Bromus japonicus*).

### **3.8 South Pit Complex**

This closure property, an Upland Shrub vegetation community reclaimed and seeded in 2000, had a 27% percent cover of native perennials, native woody species and seed mix components, which meets and exceeds the success threshold. The South Pit Complex's density of native perennials, native woody species and seed mix components was 4 plants/m<sup>2</sup>; its species richness was 2 species/m<sup>2</sup> (native perennials, native woody species and seed mix components only). The South Pit Complex met success thresholds for density and percent cover in 2014.

The noxious weeds identified at the South Pit Complex were Japanese brome (*Bromus japonicas*), Cheat grass (*Bromus tectorum*), Bull thistle (*Cirsium vulgare*) and Mullein (*Verbascum thapsus*).

### **3.9 North Pit Complex**

This closure property, an Upland Shrub vegetation community reclaimed and seeded in 2000 and 2001, had a 31% percent cover of native perennials, native woody species and seed mix components, 7% above success threshold and an increase of 4% over 2014 results. The North Pit Complex's density of native perennials, native woody species and seed mix components was 10 plants/m<sup>2</sup>; its species richness was 2 species/m<sup>2</sup> (native perennials, native woody species and seed mix components only). The North Pit Complex met the success threshold for species density and percent cover in 2015.

The noxious weed identified at the North Pit Complex was Cheat grass (*Bromus tectorum*).

### 3.10 Access Road

This closure property, generally a Low Sage vegetation community reclaimed and seeded in 2001, had a 27% percent cover of native perennials, native woody species and seed mix components, 2.95% above the success threshold, and an increase of 19% from year 2014 results. The Access Road's density of native perennials, native woody species and seed mix components was 5 plants/m<sup>2</sup>; its species richness was 2 species/m<sup>2</sup> (native perennials, native woody species and seed mix components). The Access Road met the percent cover and density success thresholds in 2015.

The noxious weeds identified on the Access Road included Medusahead (*Taeniatherum caput-medusae*), Bulbous bluegrass (*Poa bulbosa*), Japanese brome (*Bromus japonicus*) and Cheatgrass (*Bromus tectorum*).

### 3.11 East I-80

This closure property, an Upland Shrub vegetation community reclaimed and seeded in 2001, had a 42% percent cover of native perennials, native woody species and seed mix components, 18% above the success threshold, but a decrease of 25% from 2014 results. East I-80's density of native perennials, native woody species and seed mix components was 3 plants/m<sup>2</sup>; its species richness was 2 species/m<sup>2</sup> (native perennials, native woody species and seed mix components only). East I-80 closure property has met density and percent cover success thresholds in 2014.

The noxious weeds identified at East I-80 included Cheat Grass (*Bromus tectorum*), Mullein (*Verbascum thapsus*) and Japanese brome (*Bromus japonicus*).

### 3.12 I-80 West

This closure property, an Upland Shrub vegetation community reclaimed and seeded in 2002, had a 23% percent cover of native perennials, native woody species and seed mix components, 1% below the success threshold and a 15% decrease from 2014 results. I-80 West's density of native perennials, native woody species and seed mix components was 6 plants/m<sup>2</sup>; its species richness was 2 species/m<sup>2</sup> (native perennials, native woody species and seed mix components only). I-80 West met the success thresholds for species richness, and density in 2015.

The noxious weeds identified at the I-80 West closure property included Cheat grass (*Bromus tectorum*), Pepperweed (*Lepidium latifolium*) and Bull thistle (*Cirsium vulgare*) and Medusahead (*Taeniatherum caput-medusae*).

### 3.13 North Park Dump

This closure property, an Upland Shrub vegetation community reclaimed and seeded in 2004, had a 32% percent cover of native perennials, native woody species and seed mix components, 8% above the success threshold and an increase of 9% from 2014 results. The North Park Dump's density of native perennials, native woody species and seed mix components was 11 plants/m<sup>2</sup>; its species richness was 3 species/m<sup>2</sup> (native perennials, native woody species and seed mix components only). The North Park Dump has met richness, density and percent cover success thresholds in 2015.

The noxious weeds identified on the North Park Dump site were Bulbous bluegrass (*Poa bulbosa*) and Cheat grass (*Bromus tectorum*).



### 3.14 Heap Leach Pad

This closure property, an Upland Shrub vegetation community reclaimed and seeded in 2002, had a 26% percent cover of native perennials, native woody species and seed mix components, 2% above the success threshold, but a decrease of 6% from 2014 results. The Heap Leach Pad's density of native perennials, native woody species and seed mix components was 5 plants/m<sup>2</sup>; its species richness was 2 species/m<sup>2</sup> (native perennials, native woody species and seed mix components only). The Heap Leach Pad has met success thresholds for density and percent cover for 2015.

The noxious weeds identified at the Heap Leach Pad were Cheat grass (*Bromus tectorum*), Bulbous bluegrass (*Poa bulbosa*), Japanese brome (*Bromus japonicus*), Intermediate wheatgrass (*Agropyron intermedium*) and Medusahead (*Taeniatherum caput-medusae*).

### 3.15 Pipeline

This closure property, an Upland Shrub vegetation community reclaimed and seeded in 2002, had a 37% percent cover of native perennials, native woody species and seed mix components, again exceeding the success threshold. The Pipeline's density of native perennials, native woody species and seed mix components was 5 plants/m<sup>2</sup>; its species richness was 2 species/m<sup>2</sup> (native perennials, native woody species and seed mix components only). The Pipeline met all success thresholds for 2015.

The noxious weeds identified at the Pipeline closure property included Bull thistle (*Cirsium vulgare*), Japanese brome (*Bromus japonicus*), Cheat grass (*Bromus tectorum*), and Medusahead (*Taeniatherum caput-medusae*).

### 3.16 Westside Leach Fields

This closure property, generally a Low Sage vegetation community reclaimed and seeded in 2002, had 30% percent cover of native perennials, native woody species and seed mix components, again exceeding the success threshold. The Westside Leach Field's density of native perennials, native woody species and seed mix components was 6 plants/m<sup>2</sup>; its species richness was 2 species/m<sup>2</sup> (native perennials, native woody species and seed mix components only). The Westside Leach Fields again have met all success thresholds in 2015 for the 12<sup>th</sup> year in a row.

The noxious weeds identified at the Westside Leach Fields were Intermediate wheatgrass (*Agropyron intermedium*), Tumblemustard (*Sisymbrium altissimum*), Japanese brome (*Bromus japonicus*), Bulbous bluegrass (*Poa bulbosa*), Cheat grass (*Bromus tectorum*), and Medusahead (*Taeniatherum caput-medusae*).

### 3.17 Barren Pond

This closure property, an Upland Shrub vegetation community reclaimed and seeded in 2003, had a 50% percent cover of native perennials, native woody species and seed mix components, again exceeding the success threshold. The Barren Pond's density of native perennials, native woody species and seed mix components was 8 plants/m<sup>2</sup>; its species richness was 3 species/m<sup>2</sup> (native perennials, native woody species and seed mix components only). The Barren Pond again has met all success thresholds in 2015 for the 7<sup>th</sup> year in a row.

The noxious weed identified on the Barren Pond was Bulbous bluegrass (*Poa bulbosa*).



### 3.18 Mill

This closure property, an Upland Shrub vegetation community reclaimed and seeded in 2003, had a 61% percent cover of native perennials, native woody species and seed mix components, again meeting and exceeding the success threshold. The Mill's density of native perennials, native woody species and seed mix components was 7 plants/m<sup>2</sup>; its species richness was 2.5 species/m<sup>2</sup> (native perennials, native woody species and seed mix components only). The Mill has again met all three success thresholds in 2014 for the 8<sup>th</sup> year in a row.

The noxious weed identified on the Mill site was Cheat grass (*Bromus tectorum*), Medusahead (*Taeniaetherum caput-medusae*), and Bulbous bluegrass (*Poa bulbosa*).

### 3.19 Shop-Warehouse

This closure property, an Upland Shrub vegetation community reclaimed and seeded in 2003, had a 38% percent cover of native perennials, native woody species and seed mix components, again exceeding the success threshold. The Shop-Warehouse's density of native perennials, native woody species and seed mix components was 3 plants/m<sup>2</sup>; its species richness was 2 species/m<sup>2</sup> (native perennials, native woody species and seed mix components only). The Shop-Warehouse met the success thresholds for density and percent cover in 2015.

The noxious weeds identified on the Shop-Warehouse site were Cheat grass (*Bromus tectorum*), Medusahead (*Taeniaetherum caput-medusae*), Cranesbill (*Erodium cicutarium*), Japanese brome (*Bromus japonicus*), and Bulbous bluegrass (*Poa bulbosa*).

### 3.20 Admin

This closure property, an Upland Shrub vegetation community reclaimed and seeded in 2004, had a 57% percent cover of native perennials, native woody species and seed mix components, again exceeding the success threshold. The Admin's density of native perennials, native woody species and seed mix components was 11 plants/m<sup>2</sup>; its species richness was 3 species/m<sup>2</sup> (native perennials, native woody species and seed mix components only). The Admin has again met all three success thresholds in 2015 for the 8<sup>th</sup> year in a row.

The noxious weeds identified on the Admin site were Cheat grass (*Bromus tectorum*), Bulbous bluegrass (*Poa bulbosa*), and Medusahead (*Taeniaetherum caput-medusae*).

### 3.21 Providence Pit Complex

This closure property, an Upland Shrub vegetation community reclaimed and seeded in 2004, had a 37% percent cover of native perennials, native woody species and seed mix components, again meeting and exceeding the success threshold. The Providence Pit Complex's density of native perennials, native woody species and seed mix components was 9 plants/m<sup>2</sup>; its species richness was 3 species/m<sup>2</sup> (native perennials, native woody species and seed mix components only). The Providence Pit Complex met all the success thresholds in 2015.

The noxious weeds identified at the Providence Pit Complex were Cheat grass (*Bromus tectorum*), Japanese brome (*Bromus japonicus*), Mullein (*Verbascum thapsus*), and Medusahead grass (*Taeniaetherum caput-medusae*).

### 3.22 Waste Rock Disposal Area

This closure property, an Upland Shrub vegetation community reclaimed and seeded in 2004, had a 35% percent cover of native perennials, native woody species and seed mix components, again meeting and exceeding the success threshold. The Waste Rock Disposal Area's density of native perennials, native woody species and seed mix components was 4 plants/m<sup>2</sup>; its species richness was 1 species/m<sup>2</sup> (native perennials, native woody species

and seed mix components only.) The Waste Rock Disposal Area met success thresholds for species density and percent cover in 2015. The richness threshold was not met 2015 (this is first time in several years).

The noxious weeds identified on the Waste Rock Disposal site were Bulbous poa (*Poa bulbosa*), Japanese brome (*Bromus japonicus*) and Cheat grass (*Bromus tectorum*).

### **3.23 Solution Pond**

This closure property, an Upland Shrub vegetation community reclaimed and seeded in 2005 and 2006, had a 6% percent cover of native perennials, native woody species and seed mix components, 17.95% below the success threshold and a decrease of 4% from 2014 results. The Solution Pond's density of native perennials, native woody species and seed mix components was 3 plants/m<sup>2</sup>; its species richness was 2 species/m<sup>2</sup> (native perennials, native woody species and seed mix components only). The Solution Pond met the density success threshold in 2015.

The noxious weeds identified at the Solution Pond were Cheat grass (*Bromus tectorum*), Japanese brome (*Bromus japonicus*), Tumble mustard (*Sisymbrium altissimum*), Bull thistle (*Cirsium vulgare*), Medusahead (*Taeniatherum caput-medusae*), Cranesbill (*Erodium cicutarium*) and Bulbous bluegrass (*Poa bulbosa*).

## **4.0 Discussion**

Due to the ongoing drought in California, a temporary decrease in species richness and/or percent cover is an understandable occurrence and certain "finished" restoration sites (i.e., sites that have met success thresholds in previous years) may fall below the 2 plants/meter<sup>2</sup> richness success or the 24 percent cover thresholds as annual grass seed production varies with rainfall quantity and timing. Examples of this phenomenon are the 7 Bench Ponds and the Waste Rock Disposal Area. Since 2008, the 7 Bench site has met or exceeded percent cover success threshold of 24% in five out of eight years with 2015 just under at 23%. Comparatively, the Waste Rock Disposal Area, since 2005, has met richness success thresholds in ten out of eleven years.

The Providence Pit, South Pit and North Pit Complexes have all achieved richness, density and percent cover success thresholds in 2015. This is the second year all three mine pits have met all success thresholds.



**Table J. Transect Descriptions**

Location	Start	Finish	Length	Bearing	# of Quads
7 Bench (Waste Management Unit #8)	N 40° 59' 46.4" W 120° 51' 59.4"	N 40° 59' 43.8" W 120° 51' 57.9"	100 meters	SE 143°, then SW 194° at 80m.	12
7 Bench Dump	10T0679522 UTM4540198	10T0679506 UTM4540113	100 meters	SE 176°	20
Access Road	N 40° 16' 15.8" W 120° 29' 19.8"	N 40° 58' 52.9" W 120° 52' 45.1"	2 miles	NW 322°	20
Basalt Quarry	N 40° 59' 03.3" W 120° 54' 12.4"	N 40° 59' 00.4" W 120° 54' 11.4"	90 meters	SE 159°	12
Basalt Quarry Access Road	N 40° 59' 12.6" W 120° 54' 13.8"	N 40° 59' 10.6" W 120° 54' 17.2"	100 meters	SW 239°	12
Crusher Dump	N 40° 59' 35.5" W 120° 52' 48.1"	N 40° 59' 31.4" W 120° 52' 47.1"	100 meters	SE 168°	13
East Dump	N 40° 59' 47.3" W 120° 51' 51.9"	N 40° 59' 50.3" W 120° 51' 50.3"	100 meters	NE 31°	24
East I-80	N 40° 59' 39.0" W 120° 52' 10.0"	N 40° 59' 37.4" W 120° 52' 13.6"	100 meters	SW 223°	20
Laydown Yard	N 40° 59' 40.1" W 120° 52' 51.4"	N 40° 59' 42.7" W 120° 52' 54.1"	100 meters	NW 325°	20
Main Waste Rock Dump Section 1	N 40° 59' 54.7" W 120° 52' 38.7"	N 40° 59' 55.0" W 120° 52' 42.9"	100 meters	SW 260°	7
Main Waste Rock Dump Section 2	N 40° 59' 58.2" W 120° 52' 31.7"	N 41° 00' 01.2" W 120° 52' 33.1"	100 meters	NW 324°	14
Main Waste Rock Dump Section 3	N 41° 00' 20.2" W 120° 52' 41.4"	N 41° 00' 22.7" W 120° 52' 38.8"	100 meters	NE 23°	7
North Pit	N 41° 00' 07.7" W 120° 52' 05.6"	N 41° 00' 04.7" W 120° 52' 05.3"	100 meters	SE 161°	14
North Pit East Wall	N 41° 00' 01.0" W 120° 52' 01.9"	N 41° 00' 03.9" W 120° 52' 02.9"	100 meters	NW 329°	7
North Park Dump	10T0679289 UTM4541180	10T0679187 UTM4541192	100 meters	SW 263°	20
Prill Bin	10T0679119 UTM4540028	10T0679045 UTM4540090	100 meters	NW 296°	20
Providence Dump	10T0678810 UTM4540205	10T0678808 UTM4540307	100 meters	NW 345°	17
South ARD	N 40° 59' 17.0" W 120° 52' 31.3"	N 40° 59' 20.1" W 120° 52' 31.1"	100 meters	N 0°	12



**Table J. Transect Descriptions Continued**

<b>Location</b>	<b>Start</b>	<b>Finish</b>	<b>Length</b>	<b>Bearing</b>	<b># of Quads</b>
South Pit	N 40° 59' 55.7" W 120° 52' 13.9"	N 40° 59' 55.6" W 120° 52' 09.5"	100 meters	NE 77°	7
South Pit Rim	N 40° 59' 58.9" W 120° 52' 20.9"	N 41° 00' 00.8" W 120° 52' 17.6"	100 meters	NE 37°	7
South Pit Wall and Knob	N 40° 59' 50.2" W 120° 52' 05.3"	N 40° 59' 48.6" W 120° 52' 02.1"	100 meters	SE 108°	7
Stockpile #2	N 40° 59' 23.1" W 120° 52' 29.6"	N 40° 59' 24.5" W 120° 52' 33.0"	100 meters	NW 304°	16
Upper East Dump	10T0679596 UTM 4540489	10T0679671 UTM4540563	100 meters	NE 31°	16
Basalt Quarry Access Road 2	10T0677156 UTM4538937	10T0677074 UTM4538993	100 meters	NW 291°	20
Pipeline	10T0678862 UTM4540065	10T0678951 UTM4540111	100 meters	NE 34°	20
I-80 West	10T0678461 UTM4540719	10T9678461 UTM4540719	100 meters	NE 42°	20
Heap Leach Pad NE	10T0678505 UTM4539841	10T0678499 UTM4539741	100 meters	SE 171°	10
Heap Leach Pad SW	10T0678086 UTM4538920	10T0678144 UTM4538999	100 meters	NE 22°	10
7 Bench Ponds	10T0679487 UTM4540437	10T0679576 UTM4540474	100 meters	NE 53°	20
Westside Leach Fields	10T0677461 UTM4539040	10T0677443 UTM4539138	100 meters	NW 337°	20
Barren Pond	10T0677976 UTM4539926	10T0678080 UTM 4539908	100 meters	NE 86°	20
Laydown Yard #2	10T0678244 UTM 4540082	10T0678180 UTM4540216	100 meters	NW 320°	20
Mill	10T0678022 UTM4539981	10T0678109 UTM4539991	100 meters	NE 69°	20
Shop-Warehouse	10T0677849 UTM4540056	10T0677917 UTM4539987	100 meters	SE 121°	20
South ARD Ponds	10T0678779 UTM4539047	10T0678803 UTM4538939	100 meters	SE 153°	20
Admin	10T0677848 UTM4540240	10T0677763 UTM4540287	100 meters	NW 285°	20

**Table J. Transect Descriptions Continued**

<b>Location</b>	<b>Start</b>	<b>Finish</b>	<b>Length</b>	<b>Bearing</b>	<b># of Quads</b>
Waste Rock Disposal Area	10T0677734 UTM4539931	10T0677709 UTM4539835	100 meters	SW 181°	20
Providence Pit	10T0678454 UTM4540232	10T0678492 UTM4540295	85 meters	NE 17°	7
Providence Pit Rim	10T0678359 UTM4540152	10T0678447 UTM4540117	100 meters	SE 97°	7
Providence Pit Road	10T0678552 UTM4540261	10T0678488 UTM4540183	100 meters	SW 205°	7
Solution Pond 1	10T0678054 UTM4539210	10T0677466 UTM4539163	100 meters	SW 228°	20
Solution Pond 2	No data	10T0677587 UTM4539377	100 meters		20

Table K. Plant Species Observed in Quadrats

Plant	Data sheet symbol	Common name	Family	Native (Y/N)
<i>Achillea millefolium</i>	acmi	Yarrow	Asteraceae	Y
<i>Agroseris heterophylla</i>	aghe		Asteraceae	Y
<i>Cirsium sp.</i>	Cir sp.	Thistle	Asteraceae	Y
<i>Arnica sororia</i>	arso	Twin Arnica	Asteraceae	Y
<i>Artemisia cana</i>	arca	Silver sagebrush	Asteraceae	Y
<i>Artemisia tridentata</i>	artr	Big Sagebrush	Asteraceae	Y
<i>Blepharipappus scaber</i>	blsc	Blepharipappus	Asteraceae	Y
<i>Tragopogon monospermiensis</i>	trmo	Goat's beard	Asteraceae	N
<i>Chrysothamnus nauseosus</i>	chna	Rabbitbrush	Asteraceae	Y
<i>Chaenactis sp.</i>	chae sp.	Pincushion	Asteraceae	Y
<i>Madia elegans</i>	mael	Madia	Asteraceae	Y
<i>Cirsium vulgare</i>	civu	Bull Thistle	Asteraceae	N
<i>Lactuca serriola</i>	lase	Prickly lettuce	Asteraceae	N
<i>Gnaphalium palustre</i>	gnpa	Everlasting	Asteraceae	Y
<i>Eriophyllum lanatum</i>	erla	Oregon sunshine	Asteraceae	Y
<i>Erigeron eatonii</i>	erea	Daisy	Asteraceae	Y
<i>Stenotus acutis</i>	stac	Stenotus	Asteraceae	Y
<i>Psilocarphus brevissimus</i>	psbr	Wooly Marbles	Asteraceae	Y
<i>Cryptantha sp.</i>	cry sp.	Popcorn flower	Boraginaceae	Y
<i>Plagiobothrys sp.</i>	pla sp.	Popcorn Flower	Boraginaceae	Y
<i>Lepidium sp.</i>	lep sp.	Peppergrass	Brassicaceae	N
<i>Sisymbrium altissimum</i>	sial	Tumble mustard	Brassicaceae	N
<i>Downingia bacigalupii</i>	doba	Downingia	Campanulaceae	Y
<i>Spergula arvensis</i>	spar.	Spurrey	Caryophyllaceae	N
<i>Arenaria congesta var. crassula</i>	arcocr	Sandwort	Caryophyllaceae	Y
<i>Chenopodium sp.</i>	che sp.	Goosefoot	Chenopodiaceae	N
<i>Salsola tragus</i>	satr	Russian thistle	Chenopodiaceae	N
<i>Eleocharis macrystachys</i>	elma	Spikerush	Cyperaceae	Y



Table K. Plant Species Observed in Quadrats Continued

Plant	Data sheet symbol	Common name	Family	Native (Y/N)
<i>Lupinus sp.</i>	lup sp.	Lupine	Fabaceae	Y
<i>Trifolium sp.</i>	tri sp.	Clover	Fabaceae	N
<i>Lotus purshianus</i>	lopu	Lotus	Fabaceae	Y
<i>Ribes sp.</i>	rib. sp.	Currant	Grossulariaceae	Y
<i>Gayophytum diffusum</i>	gadi	Gayophytum	Onagraceae	Y
<i>Pinus jeffreyi</i>	pije	Jeffrey Pine	Pinaceae	Y
<i>Elymus glaucus</i>	elgl	Blue wildrye	Poaceae	Y
<i>Bromus japonicus</i>	brja	Japanese Brome	Poaceae	N
<i>Festuca idahoensis</i>	feid	Idaho fescue	Poaceae	Y
<i>Bromus carinatus</i>	brca	California brome	Poaceae	Y
<i>Sitanion hystrix (Elymus elymoides)</i>	sihi or elel	Squirreltail	Poaceae	Y
<i>Agropyron elongatum</i>	agel	Tall wheatgrass	Poaceae	N
<i>Agropyron intermedium</i>	agin	Intermediate wheatgrass	Poaceae	N
<i>Agropyron spicatum</i>	agsp	Bluebunch wheatgrass	Poaceae	Y
<i>Bromus tectorum</i>	brte	Cheat grass	Poaceae	N
<i>Poa bulbosa</i>	pobu	Bulbous bluegrass	Poaceae	Y
<i>Poa sandbergii</i>	posa	Sandberg's bluegrass	Poaceae	Y
<i>Deschampsia danthonioides</i>	deda	Annual hairgrass	Poaceae	Y
<i>Hordeum brachyantherum</i>	hobr	Meadow barley	Poaceae	Y
<i>Leymus cinereus</i>	leci	Basin wildrye	Poaceae	Y
<i>Taeniatherum caput-medusae</i>	tacame	Medusahead	Poaceae	N
<i>Vulpia bromoides</i>	vubr		Poaceae	N
<i>Navarettia sp.</i>	nav sp.	Skunkweed	Polemoniaceae	Y
<i>Phlox gracilis</i>	phga		Polemoniaceae	Y
<i>Eriogonum nudum</i>	ernu	Bare stem buckwheat	Polygonaceae	Y
<i>Eriogonum umbellatum</i>	erum	Sulfur buckwheat	Polygonaceae	Y
<i>Polygonum sp.</i>	pol. sp.	Knotweed	Polygonaceae	N
<i>Rumex Crispus</i>	rucr	Curly dock	Polygonaceae	N

**Table K. Plant Species Observed in Quadrats Continued**

<b>Plant</b>	<b>Data sheet symbol</b>	<b>Common name</b>	<b>Family</b>	<b>Native (Y/N)</b>
<i>Purshia tridentata</i>	putr	Bitterbrush	Rosaceae	Y
<i>Cercocarpus ledifolius</i>	cele	Curl-leaf mountain mahogany	Rosaceae	Y
<i>Geum triflorum</i>	getr	Old Man's Whiskers	Rosaceae	Y
<i>Verbascum thapsus</i>	veth	Woolly mullein	Scrophulariaceae	N
<i>Mimulus guttatus</i>	migu	Monkeyflower	Scrophulariaceae	Y
<i>Penstemon sp.</i>	pen sp.	Beardtongue	Scrophulariaceae	Y
<i>Scrophularia californica</i>	scca	California Figwort	Scrophulariaceae	Y
<i>Castilleja lacera</i>	cala		Scrophulariaceae	Y
<i>Castilleja tenuis</i>	cate		Scrophulariaceae	Y

**Table L. Noxious Weed List for Reclaimed Areas**

<b>Plant</b>	<b>Common name</b>	<b>data sheet symbol</b>
<i>Bromus tectorum</i>	Cheat grass	brte
<i>Bromus japonicus</i>	Japanese brome	brja
<i>Poa bulbosa</i>	Bulbous poa	pobu
<i>Lactuca serriola</i>	Prickly lettuce	lase
<i>Cirsium vulgare</i>	Bull thistle	civu
<i>Sisymbrium altissimum</i>	Tumble mustard	sial
<i>Taeniatherum caput-medusae</i>	Medusahead	tacame
<i>Verbascum thapsus</i>	Woolly mullein	veth
<i>Lepidium latifolium</i>	Perennial Pepperweed	lela
<i>Erodium cicutarium</i>	Cranesbill	erci



**Table M. Annual Rainfall, Hayden Hill Gold Mine**

July 1993 - June 1994	16.87
July 1994 - June 1995	19.33
July 1995 - June 1996	14.65
July 1996 - June 1997	13.67
July 1997 - June 1998	15.23
July 1998 - June 1999	18.74
July 1999 - June 2000	13.12
July 2000 - June 2001	8.84
July 2001 - June 2002	9.91
July 2002 - June 2003	11.85
July 2003-June 2004	15.34
July 2004 –June 2005	23.88
July 2005-June 2006	34.55
July 2006-June 2007	11.46 <sup>2</sup>
July 2007-June 2008	10.09
July 2008-June 2009	8.20
July 2009 – June 2010	6.01
July 2010 – June 2011	17.34
July 2011 – June 2012	10.01
July 2012 – June 2013	11.57
July 2013 – June 2014	14.23
July 2014 – June 2015	20.78

<sup>2</sup> Rainfall data for March 2007 taken from: <http://cdec.water.ca.gov/cgi-progs/queryMonthly?ADN> as data from the rain gage at Hayden Hill Mine was unavailable.

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**Appendix A.**

**Revegetation Assessment Transect Photos 2015  
See included DVD**



**Appendix B.**

**Revegetation Assessment Data Sheets 2015  
See included DVD**

**From:** [Kevin Roach](#)  
**To:** [Nancy McAllister](#)  
**Cc:** [Matthew May](#); [Steven Smith](#)  
**Subject:** RE: Financial Assurance Reduction Request  
**Date:** Wednesday, November 21, 2018 3:06:10 PM  
**Attachments:** [image001.png](#)

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Hi Nancy,

Thank you for your email below, it is very helpful.

I understand that due to recent (2017) apparent water quality exceedances in certain wells, release of the final 15% of financial assurance for some facilities may have to wait until a determination can be made by CVRWQCB.

As per the CVRWQCB issued Waste Discharge Requirements (WDR) and Monitoring and Reporting Program (MRP), the wells in question are designed to monitor groundwater beneath the Tailings Impoundment, Heap Leach Pad and the 7-Bench ARD Facility. As such, LGMI agrees that the amounts shown in your email below for the Heap Leach Pad and Tailings Impoundment may need be retained until the Water Board makes its determination.

While the 7-Bench Lined Pond, 7-Bench Clay Pond, and 7-Bench Pipeline are associated with the 7-Bench ARD Facility, LGMI respectfully requests that the full remaining financial assurance amounts be released for those units (i.e. \$529, \$370 and \$10,416 respectively). LGMI bases this request on the fact that the two ponds were completely drained, sediments removed, and backfilled during the reclamation/closure process and have no possibility of contributing to water quality contamination. The 7-Bench Pipeline, in addition to being fully functional and passing revegetation criteria, has a separate \$25,000 Investment CD (copy attached) pledged to CVRWQCB for long term performance and maintenance in the event it is needed.

LGMI does request County consideration of full release of the Lookout Pit including the \$134,365 (15%) based on successful achievement of Phase 3 revegetation criteria (Eastside Environmental, 2015) and lack of any water quality exceedances during the preceding two years. As for signage, LGMI is in the process of ordering replacement signs for the pit perimeters and commits to installation in 2019; LGMI estimates that this can be completed for under \$15,000. Should the County be compelled to retain Financial Assurance for this commitment, LGMI proposes that \$15,000 is a more reasonable amount than the full \$134, 365.

In summary, LGMI requests that Lassen County proceed with consideration of release of financial assurance excluding the Heap Leach Pad and Tailings Impoundment amounts (unless a CVRWQCB determination is obtained) and including the full amount for the Lookout Pit (\$134,365). Additionally, as discussed on the telephone, LGMI respectfully requests that release be considered by the Lassen County Board of Supervisors no later than the December 11, 2018 Board Meeting.

Please let me know if you have any questions.

Thank you,

Kevin

**Kevin Roach | Director, Reclamation Operations**

**KINROSS GOLD USA** | A Kinross Company

5075 S. Syracuse Street, 8<sup>th</sup> Floor

Denver, CO 80237

Cell : 775-742-0357

[kevin.roach@kinross.com](mailto:kevin.roach@kinross.com)

---

**From:** Nancy McAllister <nmcallister@co.lassen.ca.us>

**Sent:** Friday, November 16, 2018 4:13 PM

**To:** Kevin Roach <Kevin.Roach@Kinross.com>

**Cc:** Matthew May <MMay@co.lassen.ca.us>

**Subject:** <External> Financial Assurance Reduction Request

Hi Kevin,

After our telephone conversation the other day, I went over the latest version of the Tetra Tech review. It looks like 15% of the original financial assurance amount may need to be retained, due to potential water quality exceedances (2017), for the following facilities (final list pending CVRWQCB confirmation):

<u>Facility</u>	<u>Amt. to be Retained</u>
Heap Leach Pad	\$136,230
7-Bench Lined Pond	\$529
7-Bench Clay Pond	\$370
Tailings Impoundment	\$118,492
7-Bench Pipeline	<u>\$10,416</u>
	\$266,037

There are other facilities affected by the water quality exceedance requirement, but full release has only been requested for the facilities listed above. You had asked if Lookout Pit could also be considered for full release, as it has been more than two years since an exceedance was associated with that site. However, the final 15% of the financial assurance held for this facility (\$134,365) is recommended to be retained for completion of Phase 3 revegetation and replacement of hazard signage.

If you would like to proceed with consideration of release of the financial assurance portion not dependent on the Water Board's decision on the 2017 exceedances, this should not be a problem. The \$266,037 recommended to be retained due to potential water quality exceedances can be revisited for release after the Water Board has made clear their stance on those exceedances.

Please let us know how you would like to proceed.

Thank you,  
Nancy





Lassen Gold Mining, Inc.  
A Kinross company  
5075 S Syracuse St., Suite 800  
Denver, CO 80237

phone: (303) 802-1421  
Cell: (775) 742-0357

May 6, 2016

Mr. George Low, P.G.  
California Regional Water Quality Control Board  
Central Valley Region  
364 Knollcrest Drive, Suite 205  
Redding, California 96002

Mr. Maurice Anderson, Director  
County of Lassen  
Department of Planning and Building Services  
707 Nevada Street, Suite 5  
Susanville, CA 96130-3912

**RE: Revised Financial Assurance Review – Hayden Hill Mine**

Dear Mr. Low and Mr. Anderson:

Please find the enclosed documents comprising a revision of the 2016 financial assurance review for the Hayden Hill Mine. The previous submittal dated April 26, 2016 contained an error in which a portion of the estimated environmental monitoring costs had been inadvertently omitted. Please discard the April 26, 2016 version and replace with this revision. I apologize for any inconvenience.

This financial assurance review is required by Hayden Hill Mine's Closure Waste Discharge Requirements Order No. R5-2003-0022, Section F. 2. Financial Assurance and Section G.11.A. Provisions and as required by California Code of Regulations, Section 3804 (c). The current total amount of financial assurance in place and provided for closure and post closure maintenance is \$2,802,283. This total includes \$2,517,083 available as a Letter of Credit held by Lassen County Community Development Department (Lassen County) and \$285,200 available as a Letter of Credit held by California Regional Water Quality Control Board, Central Valley Region. Enclosed is a table providing the breakdown by facility of the existing financial assurances. An additional \$500,000 Letter of Credit is held by Lassen County for implementation of the Hayden Hill Habitat Mitigation Plan. As shown on the enclosed summary sheet of projected closure costs, the remaining work to be completed going forward from January 2016 has a total estimated cost of \$244,333.

If you have any questions or comments regarding this information, please contact me at your convenience by telephone at (775) 742-0357 or email at [kevin.roach@kinross.com](mailto:kevin.roach@kinross.com).

Sincerely,

Kevin J. Roach  
Director, Reclamation Operations

cc: File

RECEIVED

MAY 12 2016

Lassen County Department of  
Planning and Building Services

[www.kinross.com](http://www.kinross.com)

**HAYDEN HILL MINE**  
**ACRES OF DISTURBANCE AND**  
**CURRENT FINANCIAL ASSURANCE**  
26-Apr-16

Facility	Area	Area Acres	Facility Acres	Permit Plan	2016 Financial Assurance
<b>Open Pits</b> .....			112		
Lookout Pit. ....		83		LOP	\$ 358,306
Providence Pit. ....		21		RPM	\$ 2,790
Basalt Quarry. ....		8		BQ	\$ 12,500
<b>Heap Leach Pad</b> .....			129	7B/HL	\$ 363,281
<b>Ponds</b> .....			39		
Preg Pond .....		4		7B/HL	\$ 116,545
Barren Pond .....		2		RPM	\$ 10,389
Sed. DP1, DP1a, & DP2 .....		15		RPM	\$ 39,619
Storm Event Pond .....		5		RPM	\$ 124,769
Decant Pond .....		3		TI	\$ 137,852
Sed. Ponds/Flumes (7 total) .....		11		RPM	\$ 18,537
7-Bench Lined Pond .....		1		7B/HL	\$ 1,411
7-Bench Clay Pond .....		1		7B/HL	\$ 987
South ARD Pond .....		1		RPM	\$ 1,694
<b>Tailing Impoundment</b> .....			102	TI	\$ 315,978
<b>Waste Rock Dumps</b> .....			339		
Main Dump .....		209		MWD	\$ 190,288
Providence Dump .....		58		RPM	\$ -
East Dump .....		64		RPM	\$ -
Slot Dump .....		4		RPM	\$ 11,216
Laydown Yard Dump. ....		4		RPM	\$ 4,486
<b>Roads</b> .....			89		
Haul Roads. ....		20		RPM	\$ 41,372
Utility Roads .....		52		RPM	\$ 107,567
Access Roads .....		17		RPM	\$ 14,067
<b>Miscellaneous</b> .....			258		
Admin Complex .....		5		RPM	\$ 9,073
Mill Complex .....		13		RPM	\$ 88,457
Crusher Complex .....		13		RPM	\$ -
Shop Complexes .....		16		RPM	\$ 28,026
Growth Media Stockpiles .....		77		RPM	\$ 74,244
Laydown Yard. ....		1		RPM	\$ 964
Miscellaneous Disturbed Sites .....		109		RPM	\$ 225,246
Well Closure. ....		12		RPM	\$ 139,059
Number 2 Stockpile .....		12		RPM	\$ 4,628
Revegetation Monitoring .....				RPM	\$ 45,956
<b>ARD Facilities</b> .....			28		
Seven Bench Unit and Pipeline. ....		14		7B/HL	\$ 27,777
South ARD Unit .....		14		SARD	\$ -
<b>Disturbed Land</b> .....			1,096	Total Acres	\$ 2,517,083
<b>Clean Up Bond</b>	WMU Facilities				\$ 285,200
<b>Total Financial Assurance</b>					\$ 2,802,283

LOP - Closure Plan for the Lookout Pit  
RPM - Reclamation Plan Modifications  
BQ - Reclamation Plan for the Basalt Aggregate Quarry Lassen County, California  
7B/HL - An Integrated Reclamation and Closure Plan for the 7-Bench ARD Facility and the Heap Leach Pad  
TI - Closure Plan for the Tailing Facility  
MWD - Main Waste Rock Dump Reclamation Plan Modifications  
SARD - Report of Detailed Design ARD Storage Facilities

**HAYDEN HILL MINE**  
**Projected Life of Mine Closure Costs**  
**Summary by Year**

6-May-16

			<b>Total</b>
<b>Description</b>	<b>2016</b>	<b>2017</b>	<b>2016 - 2017</b>
<b>RECLAMATION</b>			
Well Closure	-	124,526	\$ 124,526
Roads	-	12,206	\$ 12,206
<b>Subtotal</b>	\$ -	\$ 136,732	\$ 136,732
<b>ENVIRONMENTAL</b>			
Post Closure Monitoring	30,980	27,755	\$ 58,735
<b>Subtotal</b>	\$ 30,980	\$ 27,755	\$ 58,735
<b>GENERAL AND ADMIN.</b>			
Mgmnt./Supervision (6%)	1,859	9,869	\$ 11,728
Contractor Profit (12%)	3,718	19,738	\$ 23,456
Contingency (7%)	2,169	11,514	\$ 13,683
<b>Subtotal</b>	\$ 7,745	\$ 41,122	\$ 48,867
<b>Grand Total</b>			
	\$ 38,725	\$ 205,608	\$ 244,333



**HAYDEN HILL MINE RECLAMATION PLAN**
**Cost Estimation Worksheet: WELL CLOSURE**

6-May-16

WELL #	Depth (ft)	Closure \$52.00	Permit	Closure Cost
M10-3C *	425	\$22,100	\$146	\$22,246
M89-5	200	\$10,400	\$146	\$10,546
M10-8B *	235	\$12,220	\$146	\$12,366
M90-9	385	\$20,020	\$146	\$20,166
M92-16	300	\$15,600	\$146	\$15,746
M94-19	220	\$11,440	\$146	\$11,586
Mob/Demob				\$14,500
Crew per diem				\$14,400
<b>TOTALS</b>				<b>\$121,556</b>

Well Site Acres	Well Sites	Well Sites	Site Acres	Total Acres
Monitoring Wells		6	0.4	2
<b>Total</b>		<b>6</b>		<b>2</b>

Equipment	Hours/ Acre	Equip. Hours	\$/Hour D8R	Contract \$/ Hour Seed/Harrow	Contract \$/Hour Fertilize	Mobilize/ Demob.	Equip. Costs
Light Recontour	3.0	7	\$225.23				\$1,622
Broadcast Seed / Harrow	1.0	2		\$73.14			\$176
Broadcast Fertilize	1.0	2			\$85.33		\$205
<b>Total</b>							<b>\$2,002</b>

Materials and Unit Costs	Delivered \$/Pound	Pounds/ Acre	Cost of Materials
Fertilizer	\$0.27	360	\$232
Seed	\$14.43	21	\$736
<b>Total</b>			<b>\$968</b>

	Contract	Equipment	Materials	Total
<b>GRAND TOTALS:</b>	<b>\$123,558</b>		<b>\$968</b>	<b>\$124,526</b>

**Assumptions:**

- All wells closed according to specific California regulations using contract drill rig.
- Costs are inclusive and based on linear feet and well diameter.
- Mobe / Demobe for reveg equipment covered under Roads.

	Description	Cost Code	2016	2017	Total
<b>Total Spending</b>	<b>Well Closure</b>		\$0	\$124,526	\$124,526
<b>Activity</b>					
Plug and Abandon - Contract	1798137.8100.050			\$121,556	\$121,556
Earthwork - Contract	1798131.8100.050			\$1,622	\$1,622
Seed/fertilize	1798135.8100.050			\$380	\$380
Seed	1798135.7700			\$736	\$736
Fertilizer	1798135.7700			\$232	\$232

**HAYDEN HILL MINE RECLAMATION PLAN**  
**Cost Estimation Worksheet: ROADS**

6-May-16

Type	Road Length	Reclaim Width	Road Acres
Utility Roads			3.2
<b>Totals</b>	<b>0</b>		<b>3.2</b>

Equipment Activity	Equip. Hours/Acre	Total Equip. Hours	Contract \$\$/Hour D8R	LGMI \$\$/Hour D10N	\$\$/Hour Scraper	Contract \$\$/Hour	Mobilize/Demob.	Equip. Costs
Mobe/Demobe							\$6,531.74	\$6,532
Rip & Grade	2.0	6	\$225.23					\$1,441
Reslope margins	3.0	10	\$225.23					\$2,162
Broadcast Seed / Harrow	1.0	3				\$73.14		\$234
Broadcast Fertilize	2.0	6				\$85.33		\$546
<b>Total</b>								<b>\$ 10,916</b>

Materials	Delivered \$\$/Pound	Pounds/Acre	Cost of Materials
Fertilizer	\$0.27	360	\$309
Seed	\$14.43	21	\$981
<b>Total</b>			<b>\$1,290</b>

	Contract	Equipment	Materials	Total
<b>GRAND TOTALS:</b>	<b>\$10,916</b>		<b>\$1,290</b>	<b>\$12,206</b>
<b>Cost per Acre:</b>	<b>\$3,411</b>	<b>\$0</b>	<b>\$403</b>	<b>\$3,814</b>

**Assumptions:**

Roads can not be reclaimed until wells are reclaimed in 2017.

	Description Roads	Cost Code	2016	2017	Total
<b>Total Spending</b>			\$0	\$12,206	\$12,206
<u>Activity</u>					
Earthwork - Dozer		1798146.6005		\$ 10,135	\$10,135
Seed/Fertilize		1798145.7701		\$780	\$780
Seed		1798145.7700		\$981	\$981
Fertilizer		1798145.7700		\$309	\$309

<b>HAYDEN HILL MINE RECLAMATION PLAN</b> <b>Cost Estimation Worksheet: Environmental Costs</b>
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6-May-16

		2016	2017 Total		
Professional Services (lab)	1751046.7200	7,560	7,560	15,120	(Sierra Environmental Laboratories)
Mechanical Supplies	1751046.7491	1,500	1,500	3,000	
Operating Supplies	1751046.7825	1,500	1,500	3,000	
Equipment Rental		500	500	1,000	
Vegetation Monitoring/Weed Control	1751046.8100.025	6,450	3,225	9,675	(Eastside Environmental)
Contract Sampling & Reporting	1751046.8100.025	13,470	13,470	26,940	(Bent Nail Inspections)
Total		30,980	27,755	58,735	

	2016	2017	Total
<u>Lab costs</u>	<u>7,560</u>	<u>7,560</u>	<u>15,120</u>
Tailing Dose Tank	540	540	1,080
HL Dose Tank	540	540	1,080
7-Bench Dose Tank	270	270	540
South ARD Dose Tank	270	270	540
BCR Influent	540	540	1,080
BCR Effluent	540	540	1,080
Pit	540	540	1,080
Monitor Wells	3,240	3,240	6,480
Lysimeters	1,080	1,080	2,160

	1st Half	2nd Half	Tot./yr	2015 prices
	\$ 4,860.00	\$ 2,700.00	\$ 7,560.00	
Tailing Dose Tank	\$ 270.00	\$ 270.00	\$ 540.00	TDS \$ 17.00
HL Dose Tank	\$ 270.00	\$ 270.00	\$ 540.00	T Rec Metals \$ 27.00
7-Bench Dose Tank	\$ 270.00	\$ -	\$ 270.00	Nitrate \$ 17.00
South ARD Dose Tank	\$ 270.00	\$ -	\$ 270.00	Alkaline \$ 16.00
BCR Influent	\$ 270.00	\$ 270.00	\$ 540.00	Conduct \$ 11.00
BCR Effluent	\$ 270.00	\$ 270.00	\$ 540.00	Calcium \$ 18.00
MW 3c	\$ 270.00	\$ 270.00	\$ 540.00	Magnesium \$ 18.00
MW 5	\$ 270.00	\$ 270.00	\$ 540.00	pH \$ 11.00
MW8b	\$ 270.00	\$ 270.00	\$ 540.00	Potassium \$ 18.00
MW9	\$ 270.00	\$ 270.00	\$ 540.00	Sodium \$ 18.00
MW 16	\$ 270.00	\$ 270.00	\$ 540.00	Chloride \$ 17.00
MW 19	\$ 270.00	\$ 270.00	\$ 540.00	Cyanide \$ 65.00
LT-S	\$ 270.00		\$ 270.00	Sulfate \$ 17.00
LT-D	\$ 270.00		\$ 270.00	
LM-S	\$ 270.00		\$ 270.00	Total \$ 270.00
LH-D	\$ 270.00		\$ 270.00	
LB-S	\$ -		\$ -	
North sub-pit	\$ 270.00	\$ -	\$ 270.00	
South Sub-Pit	\$ 270.00	\$ -	\$ 270.00	



**HAYDEN HILL MINE CLOSURE COSTS***Cost Estimation Worksheet: Base Case Costs*

6-May-16

Items	Deliver \$\$/Unit	Units	Unit Cost	Wages	Equip. Cost/Hour
Fertilizer (lb.)	\$0.27	360			
Seed (lb)	\$14.43	21			
Tree Planting w/ Browse Protection	\$1.33				
D8R w/ Operator (Contract)					\$225.23
D8L Mobilization + Demob					\$6,531.74
Broadcast Seeding with Harrow					\$73.14
Broadcast Fertilizer					\$85.33
Mobilize Revegetation Equipment					\$1,462.79
Well Abandonment Permit			\$146.00		
2" Well Abandonment (overdrill and grout)		Ft	\$52.00		
2" Complex Mon Well Abandonment (cement)		Ft	\$22.29		
Mob/Demob Abandonment Eq		Each	\$14,500.00		\$14,500.00
Per diem, equip, misc. per day costs		Day	\$1,200.00		
Contract Labor From Susanville				\$40.00	

2015 Contract rates

2015 Contract rates

2015 Contract rates

2015 Contract rates

2015 Contract rates



*County of Lassen*  
Department of Planning and Building Services

• Planning • Building Permits • Code Enforcement • Surveyor • Surface Mining

January 20, 2017

**Maurice L. Anderson, Director**  
707 Nevada Street, Suite 5  
Susanville, CA 96130-3912  
Phone: 530 251-8269  
Fax: 530 251-8373  
email: landuse@co.lassen.ca.us  
website: www.co.lassen.ca.us

Craig Drake, Field Manager  
Bureau of Land Management  
Applegate Field Office  
708 West 12<sup>th</sup> Street  
Alturas, CA 96101

Zoning & Building  
Inspection Requests  
Phone: 530 257-5263

Re: Draft Review of Hayden Hill Gold Mine Financial Assurance Reduction Request  
CA Mine ID #91-18-0012


Dear Mr. Drake:

This letter is in regard to a request received by Lassen County from Lassen Gold Mining, Inc. for a reduction to the financial assurances held for the reclamation of Hayden Hill Gold Mine, ID #91-18-0012. This request was received August 8, 2016 and included a report prepared by SRK Consulting, Inc. Lassen County has contracted with Tetra Tech, Inc. for additional inspection of the mine site and review of financial assurances and the requirements for their release. Tetra Tech has submitted to Lassen County a draft review of the financial assurance reduction request (attached).

As an involved party in the 2001 Memorandum of Understanding regarding this reclamation and closure bond, we ask that you take the time to look over this initial review. Please submit any comments or concerns to this department as soon as possible. All input will be considered for the final review of the reduction request, to be presented to the Lassen County Board of Supervisors for approval.

If you have any questions, please contact Nancy McAllister, Natural Resources Technician, at (530) 257-8265.

Sincerely,

  
For: Maurice L. Anderson  
Director

MLA:njm  
Enclosure

cc: Lassen Gold Mining, Inc.; California Department of Conservation; U.S. Forest Service, Big Valley Ranger District; California Regional Water Quality Control Board, Central Valley Region



*County of Lassen*  
Department of Planning and Building Services

• Planning • Building Permits • Code Enforcement • Surveyor • Surface Mining

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email: landuse@co.lassen.ca.us  
website: www.co.lassen.ca.us

January 20, 2017

Zoning & Building  
Inspection Requests  
Phone: 530 257-5263

Kate Burger, Senior Engineering Geologist  
California Regional Water Quality Control Board  
Central Valley Region  
364 Knollcrest Drive, Suite 205  
Redding, CA 96002

Re: Draft Review of Hayden Hill Gold Mine Financial Assurance Reduction Request  
CA Mine ID #91-18-0012

Dear Ms. Burger:

This letter is in regard to a request received by Lassen County from Lassen Gold Mining, Inc. for a reduction to the financial assurances held for the reclamation of Hayden Hill Gold Mine, ID #91-18-0012. This request was received August 8, 2016 and included a report prepared by SRK Consulting, Inc. Lassen County has contracted with Tetra Tech, Inc. for additional inspection of the mine site and review of financial assurances and the requirements for their release. Tetra Tech has submitted to Lassen County a draft review of the financial assurance reduction request (attached).

As an involved party in the 2001 Memorandum of Understanding regarding this reclamation and closure bond, we ask that you take the time to look over this initial review. Please submit any comments or concerns to this department as soon as possible. All input will be considered for the final review of the reduction request, to be presented to the Lassen County Board of Supervisors for approval.

If you have any questions, please contact Nancy McAllister, Natural Resources Technician, at (530) 257-8265.

Sincerely,

For: Maurice L. Anderson  
Director

MLA:njm  
Enclosure

cc: Lassen Gold Mining, Inc.; California Department of Conservation; Bureau of Land  
Management, Applegate Field Office; U.S. Forest Service, Big Valley Ranger District





*County of Lassen*  
Department of Planning and Building Services

• Planning • Building Permits • Code Enforcement • Surveyor • Surface Mining

**Maurice L. Anderson, Director**  
707 Nevada Street, Suite 5  
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Phone: 530 251-8269  
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email: landuse@co.lassen.ca.us  
website: www.co.lassen.ca.us

January 20, 2017

Pat Perez, Assistant Director  
Department of Conservation  
801 K Street, MS 09-06  
Sacramento, CA 95814

Zoning & Building  
Inspection Requests  
Phone: 530 257-5263

Re: Draft Review of Hayden Hill Gold Mine Financial Assurance Reduction Request  
CA Mine ID #91-18-0012


Dear Mr. Perez:

This letter is in regard to a request received by Lassen County from Lassen Gold Mining, Inc. for a reduction to the financial assurances held for the reclamation of Hayden Hill Gold Mine, ID #91-18-0012. This request was received August 8, 2016 and included a report prepared by SRK Consulting, Inc. Lassen County has contracted with Tetra Tech, Inc. for additional inspection of the mine site and review of financial assurances and the requirements for their release. Tetra Tech has submitted to Lassen County a draft review of the financial assurance reduction request (attached).

As an involved party in the 2001 Memorandum of Understanding regarding this reclamation and closure bond, we ask that you take the time to look over this initial review. Please submit any comments or concerns to this department as soon as possible. All input will be considered for the final review of the reduction request, to be presented to the Lassen County Board of Supervisors for approval.

If you have any questions, please contact Nancy McAllister, Natural Resources Technician, at (530) 257-8265.

Sincerely,

  
*Pat*, Maurice L. Anderson  
Director

MLA:njm  
Enclosure

cc: Lassen Gold Mining, Inc.; Bureau of Land Management, Applegate Field Office; U.S. Forest Service, Big Valley Ranger District; California Regional Water Quality Control Board, Central Valley Region



*County of Lassen*  
Department of Planning and Building Services

• Planning • Building Permits • Code Enforcement • Surveyor • Surface Mining

**Maurice L. Anderson, Director**  
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Phone: 530 251-8269  
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email: landuse@co.lassen.ca.us  
website: www.co.lassen.ca.us

January 20, 2017

Zoning & Building  
Inspection Requests  
Phone: 530 257-5263

Kevin Roach  
Lassen Gold Mining, Inc.  
5075 South Syracuse Street, Suite 800  
Denver, CO 80237

Re: Draft Review of Hayden Hill Gold Mine Financial Assurance Reduction Request  
CA Mine ID #91-18-0012


Dear Mr. Roach:

This letter is in regard to a request received by Lassen County from Lassen Gold Mining, Inc. for a reduction to the financial assurances held for the reclamation of Hayden Hill Gold Mine, ID #91-18-0012. This request was received August 8, 2016 and included a report prepared by SRK Consulting, Inc. Lassen County has contracted with Tetra Tech, Inc. for additional inspection of the mine site and review of financial assurances and the requirements for their release. Tetra Tech has submitted to Lassen County a draft review of the financial assurance reduction request (attached).

As an involved party in the 2001 Memorandum of Understanding regarding this reclamation and closure bond, we ask that you take the time to look over this initial review. Please submit any comments or concerns to this department as soon as possible. All input will be considered for the final review of the reduction request, to be presented to the Lassen County Board of Supervisors for approval.

If you have any questions, please contact Nancy McAllister, Natural Resources Technician, at (530) 257-8265.

Sincerely,

*For:* 

Maurice L. Anderson  
Director

MLA:njm  
Enclosure

cc: California Department of Conservation; Bureau of Land Management, Applegate Field Office;  
U.S. Forest Service, Big Valley Ranger District; California Regional Water Quality Control  
Board, Central Valley Region



*County of Lassen*  
Department of Planning and Building Services

• Planning • Building Permits • Code Enforcement • Surveyor • Surface Mining

January 20, 2017

**Maurice L. Anderson, Director**  
707 Nevada Street, Suite 5  
Susanville, CA 96130-3912  
Phone: 530 251-8269  
Fax: 530 251-8373  
email: landuse@co.lassen.ca.us  
website: www.co.lassen.ca.us

Chris Christofferson, District Ranger  
U.S. Forest Service  
Big Valley Ranger District  
P.O. Box 159  
Adin, CA 96006

Zoning & Building  
Inspection Requests  
Phone: 530 257-5263

Re: Draft Review of Hayden Hill Gold Mine Financial Assurance Reduction Request  
CA Mine ID #91-18-0012


Dear Mr. Christofferson:

This letter is in regard to a request received by Lassen County from Lassen Gold Mining, Inc. for a reduction to the financial assurances held for the reclamation of Hayden Hill Gold Mine, ID #91-18-0012. This request was received August 8, 2016 and included a report prepared by SRK Consulting, Inc. Lassen County has contracted with Tetra Tech, Inc. for additional inspection of the mine site and review of financial assurances and the requirements for their release. Tetra Tech has submitted to Lassen County a draft review of the financial assurance reduction request (attached).

As an involved party in the 2001 Memorandum of Understanding regarding this reclamation and closure bond, we ask that you take the time to look over this initial review. Please submit any comments or concerns to this department as soon as possible. All input will be considered for the final review of the reduction request, to be presented to the Lassen County Board of Supervisors for approval.

If you have any questions, please contact Nancy McAllister, Natural Resources Technician, at (530) 257-8265.

Sincerely,

  
MLA  
Maurice L. Anderson  
Director

MLA:njm  
Enclosure

cc: Lassen Gold Mining, Inc.; California Department of Conservation; Bureau of Land Management, Applegate Field Office; California Regional Water Quality Control Board, Central Valley Region



## Central Valley Regional Water Quality Control Board

16 February 2017

Mr. Maurice Anderson, Director  
County of Lassen  
Department of Planning and Building Services  
707 Nevada Street, Suite 5  
Susanville, CA 96130-3912

### **DRAFT TECHNICAL MEMORANDUM, COMPARISON OF BOND RELEASE REQUEST WITH ESTABLISHED CRITERIA, HAYDEN HILL MINE, ADIN, LASSEN COUNTY, WDID#5A183001003**

Dear Mr. Anderson:

Central Valley Regional Water Quality Control Board (Central Valley Water Board) has reviewed the *Draft Technical Memorandum, Comparison of Bond Release Request with Amount Eligible Based on Established Criteria, 2016 Update, Hayden Hill Mine, Lassen County, California* (Draft Technical Memorandum) received by our office on 20 January 2017. Tetra Tech Inc. prepared the Draft Technical Memorandum on behalf of Lassen County in response to a 2 August 2016 request from Lassen Gold Mining, Inc. (LGMI) for a reduction of its reclamation financial surety for the Hayden Hill Mine. LGMI is requesting a reduction of \$2,060,520 of its reclamation financial surety held by Lassen County in the form of a Letter of Credit for reclamation and closure of the mine. LGMI's request is supported by an analysis of reclamation status prepared by Stephen, Roberston, and Kirsten (SRK).

Waste Discharge Requirements (WDRs) Order No. R5-2003-0022 requires LGMI to have financial assurances for: closure of the identified waste management units (WMUs); reclamation of the site as required by Lassen County and the Department of Conservation under the Surface Mining and Reclamation Act; and post-closure maintenance of WMUs 1, 2, 8 and 9<sup>1</sup>, discharge structures, and drainfields for as long as the wastes pose a threat to water quality, in compliance with Title 27 regulations. Central Valley Water Board currently holds a \$285,200 Letter of Credit from LGMI to address closure and post-closure maintenance costs. Central Valley Water Board requires, and will continue to require, annual adjustments of the financial assurance mechanism to account for inflation and to address any changes in site conditions.

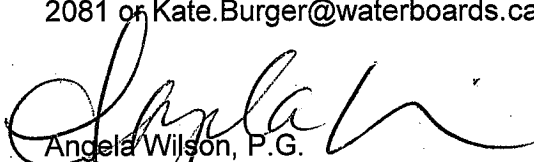
The Draft Technical Memorandum recommends the release of \$2,003,749 from the reclamation financial surety, pursuant to California Code of Regulations, title 27, section 22470(a). Central Valley Water Board is not opposed to the release of the recommended amount from the reclamation financial surety.

<sup>1</sup> Tailings Impoundment, Heap Leach Pad, 7-Bench Acid Rock Disposal Facility, South Acid Rock Disposal Facility

However, in a 16 November 2016 letter, the Central Valley Water Board required LGMI to submit an amended Report of Waste Discharge (ROWD) which will be used as the basis for updating the WDRs to reflect current site conditions and to ensure long-term water quality protection. In addition, pursuant to California Code of Regulations, Title 27, section 22510, Central Valley Water Board required submittal of a *Final Closure and Post-closure Maintenance Plan* (CPCMP) for the long-term monitoring, identification, and mitigation of water quality issues associated with the Lookout Pit, WMUs 1, 2, 8, and 9, drainfields, and associated liquid collection and treatment features. The CPCMP will provide for inspection, maintenance, and monitoring of the facility during the post-closure maintenance period, and will include a post-closure maintenance cost estimate for the entire facility. Inspection and maintenance will include the condition of final covers, drainage features, leachate collection and removal systems, groundwater monitoring wells, access roads, and site security. The 16 November 2016 letter requires submittal of the amended ROWD and CPCMP by 30 May 2017 and 30 September 2017, respectively.

The CPCMP will be implemented, and WDRs will remain in place, until the Central Valley Water Board determines that the waste no longer poses a threat to water quality [Cal. Code Regs., tit. 27, §22510(h)].

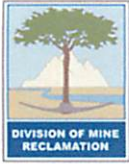
If the County approves the recommended release of \$2,003,749 from LGMI's reclamation financial surety, the Central Valley Water Board understands that \$513,334 will remain in the reclamation financial surety. Please let us know if our understanding is not correct. If you have questions, or would like to discuss further, please contact my staff, Kate Burger, at (530) 223-2081 or [Kate.Burger@waterboards.ca.gov](mailto:Kate.Burger@waterboards.ca.gov).



Angela Wilson, P.G.  
Supervising Engineering Geologist

KB:mc

cc via email: Chris Christofferson, Modoc National Forest, Adin  
Mike Luksic, Office of Mine Reclamation, Sacramento  
Craig Drake, Bureau of Land Management, Alturas



February 16, 2017

**VIA EMAIL: nmcallister@county.lassen.ca.us**  
**ORIGINAL SENT BY MAIL**

Ms. Nancy McAllister  
Lassen County Planning and Building Services  
707 Nevada Street, Suite 5  
Susanville, CA 96130

HAYDEN HILL GOLD MINE, CA MINE ID# 91-18-0012  
PRELIMINARY REVIEW OF FINANCIAL ASSURANCE REDUCTION REQUEST  
LASSEN COUNTY, CALIFORNIA

Dear Ms. McAllister:

The Division of Mine Reclamation (DMR) received a letter dated January 20, 2017 from the County of Lassen (County) soliciting initial review comments of technical documents related to the request from Lassen Gold Mining, Inc. (Operator) to reduce the amount of Financial Assurances at Hayden Hill Gold Mine. On August 2, 2016, the Operator submitted to the County and DMR an informational report titled "Documentation for Release of Financial Assurance – Hayden Hill Habitat and Management Plan Bond" by SRK Consulting of Reno, Nevada (SRK report), detailing reclamation activities that took place at the mine during the last several years. The County retained Tetra Tech Inc. of Rancho Cordova, California to provide a third-party review of the SRK Report. Tetra Tech's findings were presented in a draft "Technical Memorandum, Comparison of Bond Release Request with Amount Eligible Based on Established Criteria" dated January 3, 2017 (TT report).

DMR reviewed the SRK and TT reports and provides the following comments:

1. DMR expects that the County will provide a formal submittal of the annual Financial Assurance Cost Estimate pursuant to Public Resource Code Section 2773.4(d) prior to modification of the Financial Assurance amount for the Hayden Hill Gold mine.
2. DMR would like the opportunity to perform an inspection of the surface mining operation with County staff to verify that reclamation performance standards were substantially achieved prior to providing our comments on the annual Financial Assurance Cost Estimate. This inspection is needed due to the magnitude of the reduction in the Financial Assurance and the complexity of reclamation reported to have been completed, consisting mostly of revegetation and habitat restoration.
3. The surface mining operation is at present likely covered with snow. DMR requests that the County consider delaying formal submittal of the Financial Assurance Cost Estimate to allow DMR the opportunity to conduct a site inspection once revegetation habitat restoration and reclamation efforts are visible so the success of the reclamation can be evaluated.

DMR appreciates the County's request for early consultation as well as their retention of a third-party consultant for reviewing a reclamation project of this scale.



Ms. Nancy McAllister  
February 16, 2017  
Page 2

If you have any questions on these comments or require any assistance, please contact DMR staff at (916) 323-9198.

Sincerely,



Beth Hendrickson, Manager  
Environmental Services Unit



Paul Fry, Manager  
Engineering Geology Unit

**From:** [Kevin Roach](#)  
**To:** [Maurice Anderson](#)  
**Cc:** [Matthew May](#); [Gaylon Norwood](#); [Nancy McAllister](#); [Mark Ioli](#); [Steve Smith](#)  
**Subject:** RE: Draft Review of Hayden Hill Gold Mine Financial Assurance Reduction Request  
**Date:** Friday, February 03, 2017 11:04:32 AM  
**Attachments:** [image001.gif](#)

---

Maury,

Thank you for providing me Tetra Tech's *Draft Technical Memorandum* (TM), dated January 3, 2017, which is a review of LGMI's 2016 request for financial assurance reduction at the Hayden Hill Mine. LGMI appreciates the opportunity to review and comment on the draft TM prior to its finalization. Generally, we are very pleased with Tetra Tech's overall concurrence with the work and dollar amounts eligible for bond release. Following are some general comments on the Draft TM that LGMI would appreciate being considered prior to finalization and distribution of the document:

### **Section 5.1**

- Lookout Pit and Providence Pit:
  - o Regarding pit signage, LGMI recognizes that the signage has weathered and faded. LGMI will replace signs, as necessary, in 2017.
  - o Regarding potential fencing of pits, LGMI requests that this text be removed, as it does not agree with the approved reclamation and closure plans for the open pits. The pits have been bermed and signs placed in accordance with the approved reclamation plans.
- Laydown Yard Dump, Access Roads, Administrative Complex, Mill Complex, and Laydown Yard:
  - o Regarding the assessment of apparent lack of vegetative success for the facilities, we ask that Tetra Tech please reconsider these judgments, as they appear to be qualitative assessments, made in mid-November, and contradict the quantitative analyses made by Eastside Environmental's trained Botanist following prescribed and established scientific protocols.
- Miscellaneous Disturbed areas:
  - o Regarding the revegetation success for these areas, LGMI agrees that a specific assessment needs to be prepared, and these areas more clearly identified. As such, LGMI will develop and implement an assessment plan in 2017 following the established protocol used at the other site facilities. LGMI agrees with the retention of 15% until revegetation success can be practicably demonstrated.
  - o Regarding potential fencing of pit facilities, please see comments above.
  - o Regarding potential fencing of the bioreactor area, please note that the gas odor present near this facility is normal for a functioning system of this nature and is not harmful to humans or animals at the concentrations possible in this unconfined area. The odor and gas is of

the same nature that one would find at a natural hot spring attraction such as Old Faithful in Yellowstone Park. As such LGMI requests that the language suggesting possible fencing of this facility be removed.

## **Section 5.2**

- The fifth sentence states that the combined bond amount is \$6,364,426. Although that was the original combined amount prior to the previous reduction, the current amount is \$2,517,083. Please provide additional clarification so as to avoid any confusion on the part of other reviewers.

## **Section 5.3**

- The second sentence states that current bond is \$6,364,426. The correct amount is \$2,517,083, please correct as noted above.
- The third sentence states that the estimated total reclamation costs are \$6,364,426. This is no longer correct and the sentence does not seem relevant anymore, please consider removing for clarification.

## **Section 6.0**

- Fourth Paragraph
  - o Regarding replacement of pit signs, please refer to Section 5.1 comment above regarding LGMI's plan to replace signs in 2017 as necessary.
  - o Regarding potential pit fencing, please refer to Section 5.1 comments above.
- Fifth Paragraph
  - o Regarding potential fencing of bioreactor area, please refer to Section 5.1 comments above.
- Sixth Paragraph
  - o Regarding observed revegetation success and perceived deficiencies of the various listed areas, please refer to Section 5.1 comments above.

LGMI respectfully requests that the comments provided above are taken into consideration and incorporated into the finalization of the TM.

Again, thank you for the opportunity to comment on the draft memorandum and please do not hesitate to contact me to discuss our comments or the TM.

Best regards,  
Kevin

**Kevin Roach | Director, Reclamation Operations**

**KINROSS GOLD USA** | A Kinross Company

5075 S. Syracuse Street, 8<sup>th</sup> Floor





*County of Lassen*  
Department of Planning and Building Services

• Planning • Building Permits • Code Enforcement • Surveyor • Surface Mining

June 21, 2018

**Maurice L. Anderson, Director**  
707 Nevada Street, Suite 5  
Susanville, CA 96130-3912  
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Fax: 530 251-8373  
email: landuse@co.lassen.ca.us  
website: www.co.lassen.ca.us

Zoning & Building  
Inspection Requests  
Phone: 530 257-5263

Kevin Roach  
Lassen Gold Mining, Inc.  
5075 South Syracuse Street, Suite 800  
Denver, CO 80237

Pat Perez, Assistant Director  
Department of Conservation  
801 K Street, MS 09-06  
Sacramento, CA 95814

Craig Drake, Field Manager  
Bureau of Land Management  
Applegate Field Office  
708 West 12<sup>th</sup> Street  
Alturas, CA 96101

Chris Christofferson, District Ranger  
U.S. Forest Service  
Big Valley Ranger District  
P.O. Box 159  
Adin, CA 96006

Kate Burger, Senior Engineering Geologist  
CA Regional Water Quality Control Board  
Central Valley Region  
364 Knollcrest Drive, Suite 205  
Redding, CA 96002

Re: Review of Financial Assurance Cost Estimate for Power Line Removal  
Hayden Hill Gold Mine, CA Mine ID #91-18-0012

This letter is in regard to a Financial Assurance Cost Estimate (FACE), prepared by the Lassen Municipal Utility District (LMUD), for the power line removal portion of reclamation of Hayden Hill Gold Mine, ID #91-18-0012.

A request was received by Lassen County on August 8, 2016, from Lassen Gold Mining, Inc. (LGMI), for a reduction to the financial assurances held for the reclamation of Hayden Hill Gold Mine. During the review of this request, it was determined that removal of the onsite power line is the responsibility of LMUD. A FACE for the removal of said power line has been prepared by LMUD and considered adequate by this Department. Please find a copy of this FACE attached with supporting documents.

As an involved party in the 2001 Memorandum of Understanding regarding this reclamation and closure bond, we ask that you take the time to look over this FACE. In accordance with PRC Section 2773.4(d) and CCR Section 3805, Lassen County (acting as lead agency under the Surface Mining and Reclamation Act) is submitting the FACE to the Department of Conservation, Division of Mine Reclamation (DMR) for review. The FACE will be considered approved if comment is not received from DMR within the 45-day review period, ending approximately August 6, 2018. Please submit any comments or concerns to the Department of Planning and Building Services at the address above prior to this date, so that all input can be considered.

June 21, 2018

Page 2 of 2

Once a FACE has been approved for the power line removal portion of reclamation, and a financial assurance has been posted in the same amount, the power line removal task will be removed from the LGMI FACE for the remainder of the required reclamation. This Department will then continue review of LGMI's request for a reduction to financial assurances held for reclamation, which will ultimately be presented to the Lassen County Board of Supervisors for approval.

If you have any questions, please contact Nancy McAllister, Natural Resources Technician, at (530) 257-8265.

Sincerely,



Maurice L. Anderson

for Director

MLA:njm

Enclosures

cc: Douglas John, Division of Mine Reclamation  
Doug Smith, Lassen Municipal Utility District

S:\PLA\Admin\FILES\800 Planning\20 Mining Files\Master Correspondence OMR and Operators\91-18-0012 Hayden Hill\Bond Reduction Request 2016 & Correspondence\LMUD Power Line FACE