

UNITED STATES  
ENVIRONMENTAL PROTECTION AGENCY  
REGION 6

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In the Matter of:

Chevron Mining Inc.,

Respondent.

§  
§  
§ Administrative Settlement Agreement and  
§ Order on Consent for Early Design Actions  
§  
§ CERCLA Docket No. 06-13-12  
§  
§  
§ Proceeding under CERCLA §§ 104, 106,  
§ 107, 122

THIRD AMENDMENT TO THE ADMINISTRATIVE SETTLEMENT  
AGREEMENT AND ORDER ON CONSENT FOR EARLY DESIGN ACTIONS

1. On September 26, 2012, the United States Environmental Protection Agency (“EPA”) and the Respondent entered into an administrative settlement agreement and order on consent (“Agreement”), Docket No. CERCLA 06-13-12, for conducting Early Design Actions at the Chevron Questa Mine Site in Questa, New Mexico. On September 30, 2014, the EPA and Respondent entered into the First Amendment to the Agreement (“First Amendment”) to conduct additional Early Design Actions at the Site. On November 13, 2014, the EPA and Respondent entered into the Second Amendment to the Agreement (“Second Amendment”) to conduct two more Early Design Actions at the Site. This Third Amendment to the Agreement (“Third Amendment”) is entered under the authority vested in the President of the United States by Sections 104, 106(a), 107, and 122 of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (“CERCLA”), 42 U.S.C. §§ 9604, 9606(a), 9607, and 9622. The authority vested in the President has been delegated to the Administrator of the EPA by Executive Order 12580, 52 Fed. Reg. 2923 (Jan. 29, 1987), and further delegated to the Regional Administrators of the EPA by EPA Delegation No. 14-14-C

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for Early Design Actions*

(May 11, 1994). This authority has been redelegated by the Regional Administrator to the Director, Superfund Division, by EPA Regional Delegation No. R6-14-14-C (June 8, 2001).

2. On June 2, 2014, Respondent permanently ceased operations at Chevron Questa Mine. Its cessation of operations presented the opportunity for further early design activities. On September 30, 2014, the EPA and Respondent entered into the First Amendment to expand the scope of the Agreement to include three additional early design projects: 1) design of a ground water extraction system in the Lower Sulphur Gulch Waste Rock Pile drainage, 2) design of ground water extraction systems to enhance the lower 002 seepage barrier and upper 003 seepage barrier at the Tailing Facility Area and 3) design and construction of a pilot surface-based mine dewatering system. On November 14, 2014, the EPA and Respondent entered into a Second Amendment to further expand the scope of the Agreement to include two more early design projects: 1) design of the grading plan for the Tailing Facility and 2) design and construction of field trials of Spring Gulch waste rock cover material. The purpose of this Third Amendment is to further expand the scope of the Agreement to include vegetation and wildlife studies at the Tailing Facility to aid in the Tailing Facility cover design.

3. Section XXVII (Modifications) of the Agreement allows for modification with the mutual written agreement of EPA and Respondent. Pursuant to Section XXVII of the Agreement, this Third Amendment will modify Section VIII (Performance of the Work), Section XVIII (Stipulated Penalties), Section XXVI (Financial Assurance), Section XXX (Integration/Appendices) and Appendix A, the Statement of Work (“SOW”).

4. Pursuant to Section XXVI (Financial Assurance), Paragraph 103, this Third Amendment shall serve as notice to Respondent that the estimated cost of completing the Work

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has increased. The Effective Date of this Third Amendment shall serve as the notice date for the purposes of Paragraph 103. The estimated cost of completing the Work is \$24,069,784.

5. Section VIII (Performance of the Work), Paragraph 26 is hereby amended to delete “and” in Paragraph 26(j), insert a comma and “and” after Paragraph 26(k), and add the following subparagraph:

(l) Tailing Facility vegetation and wildlife studies.

6. Section XVIII (Stipulated Penalties), Paragraph 70(b) is amended to add the following subparagraph:

(18) Pre-Design Reports for Tailing Facility vegetation and wildlife studies  
(Section 6.14.3 of the SOW).

7. Section XXVI (Financial Assurance), the first full paragraph of Paragraph 100 is hereby amended to read as follows:

Respondent shall establish and maintain a performance guarantee for the benefit of EPA and the State (through the New Mexico Environment Department and the New Mexico Energy, Minerals, and Natural Resources Department) in the amount of \$24,069,784 in one or more of the following forms in order to secure the full and final completion of the Work by Respondent, provided that, if Respondent intends to use multiple mechanisms under this Agreement, such mechanisms shall be limited to surety bonds guaranteeing payment, letters of credit, trust funds and insurance policies:

8. Section XXVI (Financial Assurance), Paragraph 102 is hereby stricken in its entirety and replaced with the following language:

Initial Performance Guarantee.

- a. Until and unless Respondent is notified in writing by EPA of a change in the name of the beneficiary, any revised or alternative performance guarantee

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provided by Respondent pursuant to Paragraphs 103, 105 or 106 shall also be for the benefit of EPA and the State and may not include a demonstration under Paragraph 100(f).

- b. Respondent has selected, and EPA and the State have found satisfactory, as an initial performance guarantee, a written guarantee by Chevron Corporation (Chevron), pursuant to Paragraph 100(e), attached hereto as Appendix B. Within 30 days after the Effective Date of this Third Amendment, Respondent shall execute or otherwise finalize all instruments or other documents required in order to make the selected performance guarantee(s) legally binding in a form substantially identical to the documents attached hereto as Appendix C, and such performance guarantee shall thereupon be fully effective. Within 30 days after the Effective Date of this Third Amendment, Respondent shall submit copies of all executed and/or otherwise finalized instruments or other documents required in order to make the selected performance guarantee legally binding to the United States, EPA and the State, as specified in Section XXIX (Service of Documents), with a copy to the Section Chief, Enforcement Assessment Section, Superfund Division, U.S. Environmental Protection Agency, Region 6, 1445 Ross Ave., Suite 1200, Dallas, TX 75202, and to the EPA Regional Financial Management Officer, Superfund Division, U.S. Environmental Protection Agency, Region 6, 1445 Ross Ave., Suite 1200, Dallas, TX 75202.

9. Section XXVI (Financial Assurance), Paragraph 104 is hereby amended to strike “(the portion of the Work not covered by financial assurance under the MMD Mining Act Permit

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TA-001RE and NMED Discharge Permit 1055).” Paragraph 104 is also amended to strike “\$6,300,000” and replace it with “\$24,069,784.” Thus Paragraph 104 shall read as follows:

If Respondent seeks to ensure completion of the Work through a guarantee pursuant to Paragraph 100(e) of this Agreement, Respondent shall (a) demonstrate to EPA’s satisfaction that the guarantor satisfies the requirements of 40 C.F.R. § 264.143(f) and (b) resubmit sworn statements to EPA setting forth the information required by 40 C.F.R. § 264.143(f) on the anniversary of the Effective Date or such other date as provided in 40 C.F.R. § 264.143(f)(5) or as otherwise determined by EPA. For the purposes of this Agreement, wherever 40 C.F.R. § 264.143(f) refers to “sum of current closure and post-closure costs estimates and the current plugging and abandonment costs estimates,” the dollar amount to be used in the relevant financial test calculations shall be the current cost estimate of \$24,069,784 for the Work at the Site and any other SWDA, CERCLA, TSCA or other federal, state or tribal environmental obligations financially assured by Respondent or a guarantor by means of passing a financial test.

10. Section XXX (Integration/Appendices), Paragraph 115, is hereby amended to read as follows:

The following documents are attached and incorporated into this Agreement:

“Appendix A” is the SOW. “Appendix B” is Respondent’s initial performance guarantee submitted in accordance with Paragraph 102(b) of this Agreement.

11. Appendix A of this Third Amendment, which is Revision 3 to the Statement of Work for Early Design Actions, hereby supersedes Appendix A of the Agreement, which was Revision 2 to the Statement of Work for Early Design Actions.

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for Early Design Actions*

12. This Third Amendment is effective on the date signed by EPA. Except as specified in this Third Amendment, all other terms and conditions of the Agreement are unchanged and remain in full effect. EPA will provide Respondent with a file-stamped copy of this Third Amendment on or as promptly as possible after the date of signature by EPA.

It is so agreed and ordered:

U. S. Environmental Protection Agency

  
\_\_\_\_\_  
Carl Edlund

8/12/16

\_\_\_\_\_  
Date

Director, Superfund Division, Region 6

*Third Amendment to the ASA/AOC  
for Early Design Actions*

UNITED STATES  
ENVIRONMENTAL PROTECTION AGENCY  
REGION 6

In the Matter of:	§ § § Administrative Settlement Agreement and § Order on Consent for Early Design Actions § § CERCLA Docket No. 06-13-12
Chevron Mining Inc.,  Respondent.	§ § § Proceeding under CERCLA §§ 104, 106, § 107, 122

THIRD AMENDMENT TO THE ADMINISTRATIVE SETTLEMENT  
AGREEMENT AND ORDER ON CONSENT FOR EARLY DESIGN ACTIONS

THE UNDERSIGNED RESPONDENT enters into this Third Amendment to the Administrative Settlement Agreement and Order on Consent for Early Design Actions, CERCLA Docket No. 06-13-12, regarding the Chevron Questa Mine Site in Questa, New Mexico.

FOR RESPONDENT:

Chevron Mining Inc.

6001 Bollinger Canyon Road, San Ramon, CA 94583-2324  
Print Address

By: Robert R. John  
Signature

8/11/16  
Date

Robert R. John  
Print Name of Signatory





**APPENDIX A TO THE THIRD AMENDMENT TO THE EARLY DESIGN AOC  
REVISION 3 TO STATEMENT OF WORK FOR  
EARLY DESIGN ACTIONS**

**CHEVRON QUESTA MINE SUPERFUND SITE  
QUESTA, NEW MEXICO  
CERCLIS ID NO: NMD002899094**

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 6  
SUPERFUND DIVISION**

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Attachment 3	Figure 1-3 (ROD) – Questa Tailing Facility
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# **REVISION 2 TO STATEMENT OF WORK FOR EARLY DESIGN ACTIONS**

## **CHEVRON QUESTA MINE SUPERFUND SITE QUESTA, NEW MEXICO**

### **1. INTRODUCTION**

This Statement of Work (SOW) sets forth the framework and requirements for implementation of the work (Work) described in the Administrative Settlement Agreement and Order on Consent for Early Design Actions for the Chevron Questa Mine Superfund Site, Docket No. 06-13-12 (Agreement) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). The Chevron Questa Mine Superfund site (Site), CERCLIS ID No. NMD002899094, is depicted in Attachments 2 (Figure 1-2) and 3 (Figure 1-3) to this SOW.

### **2. PURPOSE**

The purpose of this SOW is to set forth the framework, requirements and schedules for implementing the Early Design Actions in accordance with the United States Environmental Protection Agency's (EPA's) December 20, 2010 Record of Decision (ROD) for the Site, as further delineated in this SOW. The ROD describes EPA's Selected Remedy.

### **3. ROLE OF EPA**

EPA will provide oversight of Chevron Mining Inc.'s (CMI's) Work. This will include the review and comment on deliverables such as work plans, reports, and other submittals related to the Early Design Actions. EPA's acceptance or approval of deliverables is administrative in nature and allows CMI to proceed to the next steps in implementing the Work. EPA's acceptance or approval does not imply any warranty of performance, nor does it imply that the Work, when completed, will meet performance standards and be accepted by EPA. Acceptance or approval of plans, reports, and other required submittals by EPA does not relieve CMI or its contractors of responsibility for the adequacy of the submittal or from their professional responsibilities. Pursuant to Section VIII of the Agreement (Performance of the Work), EPA retains the right to not accept any of the deliverables, including submittals associated with contractor selection, work plans, reports, schedules, or any other deliverables required by the Agreement, including this SOW. EPA may require that CMI submit detailed information to demonstrate that any contractor, subcontractor, or analytical laboratory selected is qualified to conduct the

Work, including information on personnel qualifications, equipment and material specifications.

CMI shall simultaneously submit copies of all deliverables to the New Mexico Environment Department (NMED) and New Mexico Energy, Minerals and Natural Resources Department's Mining and Minerals Division (MMD) for their review and comment in accordance with Section XXIX, Paragraph 112 of the Agreement. EPA will ensure that NMED and MMD have had an opportunity to comment on all deliverables before they are accepted by EPA. EPA will compile all comments, remove redundant comments, and reconcile conflicting comments prior to submittal to CMI.

CMI shall support EPA's initiation and conduct of activities related to the implementation of oversight activities.

### **3.1. Community Relations**

EPA will conduct community relations activities throughout the Early Design Actions, including (1) developing and maintaining a community relations plan that identifies EPA's community involvement and outreach efforts and community concerns, (2) holding community meetings, (3) preparing community fact sheets to keep the community informed of ongoing Site activities, and (4) maintaining the existing Site information repositories at the Village of Questa Municipal Offices in Questa, New Mexico, the NMED office in Santa Fe, New Mexico, and the EPA Region 6 office in Dallas, Texas. CMI shall provide community relations support to EPA throughout the Early Design Actions as described in Section 6.1.9 of this SOW.

## **4. OVERVIEW OF EARLY DESIGN ACTIONS**

Early Design Actions are to be conducted by CMI in accordance with the Agreement and the Work required by this SOW. These Early Design Actions are as follows:

### **4.1. Pre-Design Tailing Facility Area Ground Water Investigation**

CMI shall conduct a pre-design ground water investigation of the bedrock and alluvial aquifers in the area of the Tailing Facility to further delineate the nature and extent of mine-related ground water contamination to evaluate the adequacy of the ground water component of the Selected Remedy.

## 4.2. Pre-Design Support Investigations for Upgrading Seepage Barriers and Well Extraction Systems

CMI shall perform pre-design ground water investigations to support the design for upgrading the seepage barriers in the area of the 002 and 003 collection systems at the Tailing Facility Area and new well extraction systems at the mouths of the mine side drainages at the Mine Site Area.

## 4.3. Pre-Design Borrow Characterization of Spring Gulch Waste Rock

CMI shall conduct a pre-design characterization of the proposed Spring Gulch Waste Rock Pile borrow material to further assess its suitability, when properly amended, as a non-acid generating and non-toxic cover material for the evapotranspiration (ET) cover system selected in the ROD for the waste rock piles. The borrow characterization shall consist of the following:

- Field Characterization – CMI shall measure the spatial variability of molybdenum concentrations and potential acid generation and quantify the salvageable volume of waste rock that is non-acid generating and meets the 600 milligram per kilogram (mg/kg) molybdenum borrow screening criterion specified in the ROD;
- Evaluation of Amendment/Borrow Mixtures for Achieving Water Holding Capacity – CMI shall measure the water holding capacity of Spring Gulch waste rock and then design and test amendment/borrow mixtures to meet the specific water holding capacity specified in the ROD for the ET cover system;
- Greenhouse Study – CMI shall conduct a greenhouse study using amended Spring Gulch waste rock to evaluate plant growth, plant uptake of molybdenum and direct toxicity to plants;
- Assessment of Toxicity Through a Focused Literature Review and Other Studies – CMI shall conduct a focused literature review and other studies as appropriate to assess exposure and toxicity of molybdenum to appropriate animal species through herbivory and other routes of exposure and use the plant uptake data from the greenhouse study to inform the assessment.

## 4.4. Remedial Design Options for Waste Rock Piles

CMI will conduct a multi-stakeholder facilitated process to develop and evaluate remedial design options. For this process, CMI will convene a technical working group (TWG) in which experts retained by EPA, NMED, MMD, and other stakeholders as appropriate will be invited to participate. The TWG will provide technical expertise to

assist CMI in the development and evaluation of design options. The TWG will provide input relating to EPA's Selected Remedy as well as the regulatory requirements and Performance Standards set forth in the ROD. The TWG will provide factual findings from that process to CMI for consideration in preparing deliverables for EPA review.

The design options assessment process will consist of the following general steps, each of which will be carried out in an iterative manner by CMI with the participation of the TWG and each of which will result in a draft deliverable to be submitted by CMI to EPA for review: (1) Development of general design guidelines and parameters; (2) development of preliminary design options (at a conceptual level) for the roadside waste rock piles; and (3) development of integrated design options (at a conceptual level) for all of the waste rock piles and any necessary waste rock repositories. The design options assessment process is described in detail in Section 6.6 of this SOW.

#### **4.5. Group 1 Waste Rock Pile Pilot Project**

CMI shall conduct a pilot project on the Goathill North Waste Rock Pile. This waste rock pile shall comprise the first waste rock pile group (Group 1) referenced in the ROD. This project serves as a pilot design project because it is the first waste rock pile to be addressed and information obtained from the project will be used in subsequent waste rock pile remediation designs. The pilot project also will be designed to be a complete remediation project for the Goathill North Waste Rock Pile. If at any time before construction the parties obtain information indicating the Goathill North Waste Rock Pile is not the best option for the pilot project, the parties may agree to select a different waste rock pile for the pilot project.

CMI shall conduct the pilot project to test a range of construction methods, engineering concepts, or specific design elements for the waste rock piles at a field scale. The pilot project shall include an examination of the practicality, effectiveness and constructability of the methods or design concepts that are developed by CMI with the assistance of the facilitated TWG process. The pilot project shall also include studies to identify appropriate cover design parameters and specifications. The pilot project shall be conducted to establish optimal design specifications and performance criteria to meet Performance Standards and ARARs, including a performance criterion to be developed during the remedial design phase that will focus on reducing net percolation through the non-acid generating cover system to a level that would allow attainment of ground water remediation goals and be protective of ground water.

The pilot project shall also include without limitation the determination of optimal cover and revegetation design specifications for promoting vegetative growth, protecting wildlife, and minimizing erosion and long-term slope maintenance. The project shall evaluate types, application methods, and application rates of amendments. Any need for multiple applications of amendments to promote vegetative growth once the cover is in place shall also be assessed.

The suitability of the cover material used in the Group 1 Waste Rock Pile pilot project, whether it be amended Spring Gulch waste rock that is selected based on the results of the Borrow Characterization described in Section 4.3 above or another borrow source, will be verified by field testing during such pilot project. Field testing shall include testing plant tissue for metals uptake, analysis of closely co-located samples of the amended waste rock material, and tracking of plant mortality and vigor over time.

#### **4.6. Pre-Design Treatability Studies for Water Treatment**

CMI shall conduct treatability studies to evaluate the performance of water treatment technologies as selected in the ROD and develop design criteria for the water treatment plants that, according to the ROD, are to be built and operated at the Mine Site Area and Tailing Facility Area. The treatability studies shall provide sizing and operations criteria to be used in design drawings and specifications and in the engineer's cost estimate to optimize the remedial design. As stated in Section 12 of the ROD, efficiencies may be determined in treatment system processes, locations, and sizing that result in cost savings for construction and operation and maintenance (O&M) of the water treatment systems and reduce ongoing O&M and treatment residuals disposal with respect to these systems.

#### **4.7. Design of Ground Water Extraction System in the Lower Sulphur Gulch Waste Rock Pile Drainage**

CMI shall design a new ground water extraction system in the pre-mine drainage of the Sulphur Gulch South Waste Rock Pile, the Lower Sulphur Gulch drainage. The general location of this extraction system is identified on Attachment 4 as "Lower Sulphur Gulch Extraction System." The purpose of this ground water extraction system is to capture impacted ground water in the Lower Sulphur Gulch colluvium before it enters the Red River alluvial aquifer. CMI shall design the extraction system so the extracted water is pumped to and treated with lime for pH adjustment at Sump 5000 until the water treatment plant located at the Mine Site Area is in operation. The extracted water will then be pumped to the water treatment plant. Subject to EPA review and comment, CMI shall incorporate the findings from the "Pre-Design Investigations to Upgrade Seepage Barriers and Well Extraction Systems – Mine Site Report" in developing the Remedial Design for the specific location and installation details of the new ground water extraction system. The ROD calls for a total of four ground water extraction systems, with one of the systems capturing ground water from the drainages of the three roadside waste rock piles. This SOW only addresses one of the roadside waste rock pile drainages, the Lower Sulphur Gulch drainage from the Sulphur Gulch South Waste Rock Pile.

#### **4.8. Design of Ground Water Extraction Systems to Enhance Lower 002 Seepage Barrier and Upper 003 Seepage Barrier at Tailing Facility**

There are two seepage interception systems located at the tailing facility which have been operating since 1975 and have had multiple phases of upgrades. The current Outfall 002 interception system is located south of Dam No. 1 and includes the lower 002 seepage barrier. CMI shall design an upgrade to the Outfall 002 system that will add new ground water extraction wells across the Dam No. 1 arroyo just downgradient of the location of the existing lower 002 seepage barrier. The general location of this upgrade is identified on Attachment 5 (Figure 12-26) as “New Lower 002 Extraction Wells.”

The current Outfall 003 seepage interception system includes seepage barriers across the drainage on the eastern slope of Dam No. 4 and an extraction well, EW-1. CMI shall design an upgrade to the Outfall 003 system comprised of a new seepage collection system. The general location of this upgrade is identified on Attachment 5 (Figure 12-26) as “New 003 Seepage Barrier.”

CMI shall incorporate the findings from the “Pre-Design Investigations to Upgrade Seepage Barriers and Well Extraction Systems – Tailing Facility Report” and any findings from the East Diversion Channel Removal activities south of Dam 1 in developing the Remedial Design for the upgrades to the lower 002 and upper 003 seepage barriers.

#### **4.9. Design and Construction of Pilot Surface-Based Mine Dewatering System**

CMI shall design and construct a pilot surface-based mine dewatering system (“pilot dewatering system”) in lieu of the underground-based dewatering system that is used to maintain the water level in the underground mine workings at a certain elevation. Consistent with the ROD, the objective of the new system is to maintain the water level in the underground workings below the elevation of the Red River, thereby maintaining a hydraulic gradient in bedrock towards the mine. CMI shall design this pilot dewatering system to eliminate or reduce the migration of mine impacted ground water to the Red River. CMI shall design the system to achieve these objectives.

Following EPA approval of the design, CMI shall construct and operate the pilot surface-based mine dewatering system. Performance testing and adaptive management may be used to determine the water elevation that achieves the performance objectives most efficiently. Water extracted with the new system shall be pumped to and treated with lime for pH adjustment at Sump 5000. Once the water treatment plant located at the Mine Site Area is in operation, the extracted water will then be pumped to the water treatment plant for treatment. CMI shall monitor the water level in the mine, surrounding bedrock monitoring wells, and seeps and springs to assess the effectiveness of this mine dewatering system.

Following evaluation of the results of the performance monitoring, CMI shall design any supplemental system elements necessary to achieve the above performance objectives over the long term.

#### **4.10. Grading Plan for Tailing Facility**

CMI shall develop a grading plan for the Tailing Facility for incorporation into the Tailing Facility remedial design. The grading plan shall be designed to result in positive drainage of stormwater runoff without affecting dam integrity. The plan shall consider the long-term draindown and consolidation of the tailing material, potential borrow source volumes and availability, and appropriate design criteria.

#### **4.11. Spring Gulch Waste Rock Cover Field Trials**

CMI shall conduct field trials using Spring Gulch waste rock as cover material over a total of approximately five to fifteen acres of selected areas of the Blind Gulch/Spring Gulch waste rock piles. The field trials shall be designed to evaluate at a field scale various methods and techniques for material handling, amendment incorporation, cover placement, and revegetation. The field trials will utilize the results of the work performed under Section 4.3 of this SOW and support the design of the Group 1 Waste Rock Pile Pilot Project under Section 6.7.2.

#### **4.12. Tailing Facility Vegetation and Wildlife Studies**

These studies are intended to provide information necessary for Tailing Facility cover design, revegetation plans, and operation and maintenance plans consistent with the requirements of Section 12.2.3 of the ROD regarding cover revegetation and monitoring. CMI shall conduct the following studies at the Tailing Facility:

- In the interim cover areas (specific areas to be determined during study design), (1) perform a survey of the vegetation canopy cover, density, plant species frequency, and root distribution; (2) measure interim cover thickness at the plant survey locations; (3) sample above-ground plant tissue and perform DNA analysis; and (4) collect and analyze above-ground plant tissue samples from a diverse set of species, and collocated root zone soil samples, for molybdenum and copper. The plant survey is consistent with current State permit requirements, while the remaining studies are intended to provide information on any relationships between cover thickness and vegetation characteristics, provide information on what vegetation elk are consuming, and support the development of species-specific bioaccumulation models to evaluate exposure to large herbivorous wildlife consistent with ROD revegetation and monitoring requirements.
- Collect data on the elk population present at the Tailing Facility, including home range data, areas of foraging, and general health, through methods such as

electronic tagging/tracking and sampling of blood and feces for molybdenum and other clinical parameters. This study and the scat study below are intended to evaluate whether elk are being adversely affected by molybdenum in Tailing Facility vegetation (which was not determined prior to the ROD) and which vegetation the elk are consuming, consistent with ROD revegetation and monitoring requirements.

- Collect elk and mule deer scat from different locations across the Tailing Facility and in different seasons and analyze for plant DNA.
- Assess the number, spatial distribution, and to the extent practicable, average burrow depths near each mound, volume of soil and tailings displaced to the interim cover surface, and the interim cover thickness near each gopher mound sampled on the Tailing Facility interim cover areas to evaluate impact to cover integrity. This study is intended to evaluate any impact to cover integrity from burrowing mammals such as gophers, as requested by the State.

## 5. PERFORMANCE STANDARDS

Performance Standards for the Work are the standards by which EPA will determine whether CMI's Work has been satisfactorily completed. Performance Standards include, but are not limited to, the remedial action objectives (RAOs) and remediation goals set forth in Section 8.0 of the ROD that are applicable to the Early Design Actions or other measures of achievement as defined in the ROD, the Agreement, this SOW and other EPA-approved submittals. They are also based on the standards, standards of control, and other substantive requirements, criteria and limitations representing ARARs set forth in the ROD.

### 5.1. Remedial Action Objectives

RAOs were developed for the five areas to be addressed by the Selected Remedy to protect human health and the environment. They provide general descriptions of the objectives of the cleanup. They are media-specific goals that specify the contaminants of concern (COCs), exposure routes and receptors, and an acceptable contaminant level or range of levels for each exposure route (*i.e.*, remediation goals). The RAOs are established on the basis of the nature and extent of the contamination, the resources that are currently and potentially threatened, and the potential for human and environmental exposure.

### 5.2. Remediation Goals



Remediation goals are media-specific, quantitative goals that define the extent of cleanup required to achieve the RAOs. They are based primarily on health or ecological criteria developed by EPA in risk assessment or federal and State of New Mexico (State) numeric criteria or standards identified by EPA to be ARARs for the Site. These goals represent the cleanup levels set forth in the ROD for the COCs targeted in each medium being addressed by the Selected Remedy. The remediation goals in the ROD also serve as a design basis for the remedial design and remedial action.

## **6. WORK TO BE PERFORMED**

CMI shall perform the Work necessary to complete the Early Design Actions which are part of the Selected Remedy set forth in the ROD and as defined in the Agreement and Section 4 of this SOW. The Work includes (1) pre-design ground water investigation at the Tailing Facility Area, (2) pre-design support investigations for upgrading the seepage barriers in the area of the 002 and 003 collection systems at the Tailing Facility Area and new well extraction systems at the mouths of the mine side drainages at the Mine Site Area, (3) pre-design borrow characterization of Spring Gulch waste rock, (4) preliminary remedial design options for the waste rock piles, (5) Group 1 Waste Rock Pile remedial design pilot project, (6) pre-design treatability studies for water treatment, (7) design of a ground water extraction system in the Lower Sulphur Gulch Waste Rock Pile Drainage, (8) design of ground water extraction systems to enhance the lower 002 seepage barrier and upper 003 seepage barrier at the Tailing Facility Area, (9) design and construction of a pilot surface-based mine dewatering system, (10) preparation of a grading plan for the Tailing Facility, and (11) field trials of Spring Gulch waste rock cover material.

### **6.1. General Requirements**

The following general requirements shall be met by CMI when performing the Work:

#### **6.1.1. Deliverables**

All plans, reports and other deliverables required by the Agreement or this SOW shall be submitted to EPA, NMED and MMD in accordance with the Agreement, including Section VIII (Performance of the Work). CMI shall prepare pre-design and design documents in order to implement the Early Design Actions set forth above. Deliverables being submitted for meetings shall be submitted five working days in advance of the meeting to EPA, NMED, MMD and other stakeholders as appropriate, to allow for review prior to the meeting, unless otherwise agreed by the Project Coordinators.

#### **6.1.2. Document Distribution**

CMI shall submit a minimum of one hard copy of all plans, reports, and other major deliverables to each of the following: the EPA Project Coordinator, the EPA Oversight Contractor, and the NMED and MMD project coordinators. In addition, CMI shall

maintain a SharePoint site on which it will make available to EPA, NMED, and MMD electronic copies of all such documents in both MS Office® (Word®, Excel®, Project®, etc.) and a portable document format (pdf) in the format provided by EPA or as specified herein. The number of actual copies required by EPA, NMED and MMD will periodically be reassessed throughout performance of the Early Design Actions by the EPA Project Coordinator, and CMI shall be notified if additional or fewer copies are needed. If requested, additional electronic copies and/or hard copies of final submissions shall also be provided to other key stakeholders (e.g., Village of Questa, Taos County, U.S. Forest Service, Amigos Bravos, and other interested non-governmental organizations) as well as other EPA technical consultants and regulatory officials as directed by EPA.

#### 6.1.3. Personnel, Materials and Services

CMI shall furnish all necessary and appropriate personnel, materials, and services needed for, or incidental to, performing and completing the Early Design Actions.

#### 6.1.4. Communication

The Project Coordinator for CMI shall communicate at least weekly with the EPA Project Coordinator, either in face-to-face meetings, through conference calls, or through electronic mail, unless otherwise agreed to in writing. The NMED and MMD Project Coordinators shall be invited to participate in those meetings or calls and shall be copied on emails. CMI shall document all decisions that are made in those meetings and conversations. CMI shall forward this documentation, which may be in the form of an email, to EPA, NMED, and MMD within five working days of the meeting or conversation.

#### 6.1.5. Monthly Progress Reports

CMI shall prepare and send to EPA monthly progress reports to document the status of the Work, beginning in the month following the Effective Date of the Agreement and ending with the month following completion of the Work set forth under the Agreement and this SOW. CMI shall provide copies of the monthly progress reports to NMED and MMD.

#### 6.1.6. Attendance at Meetings

CMI shall attend periodic project meetings as requested by EPA, unless otherwise agreed to in writing or through e-mail. Such meetings and events shall be attended by at least one representative of EPA, EPA's Oversight Contractor, NMED and/or MMD, if practicable. All meetings, site visits, and conference call meetings shall be coordinated by CMI with EPA, NMED, and MMD Project Coordinators. CMI shall also attend all Work-related meetings at the Site with EPA, unless otherwise agreed in writing or through e-mail.

CMI shall provide documentation of all meeting results to EPA within 5 working days following the meeting.

CMI shall invite EPA, NMED and MMD to each weekly project meeting it holds with its contractors and subcontractors in the field.

6.1.7. Retention of Records

CMI shall maintain all technical and financial records for the Early Design Actions in accordance with Section XII of the Agreement (Record Retention).

6.1.8. Field Operation Office and Equipment

The requirements of this paragraph may be met through compliance with the corresponding requirements of the *In re Chevron Mining Inc.*, Administrative Settlement Agreement and Order on Consent for Removal Actions, Appendix A – Statement of Work for Removal Actions. CMI shall provide office space for the EPA Project Coordinator and EPA authorized oversight officials/contractors, as well as NMED and MMD personnel, at the Site if CMI or its contractors have office space at the Site. If no office space is established at the Site, CMI shall provide office space for the EPA Project Coordinator, EPA-authorized oversight officials/contractors, and NMED/MMD personnel in proximity to CMI's field-operation office near the Site. Minimum office requirements shall include an air-conditioned, heated, well-lighted, private office, two office desks with chairs, one four-drawer file cabinet, a telephone with a private line, and Internet access. In addition, CMI shall provide access to a facsimile transmission machine, a photocopier, and sanitation facilities. CMI shall also provide the field operation office with a refrigerator, a table to review full sized drawings, and other reasonable accessories needed to conduct oversight activities. CMI shall provide the field operation office space and equipment no later than one week prior to the start of field activities. CMI shall notify EPA in writing upon completion of these field support activities.

6.1.9. Community Relations Support

CMI shall provide the following community relations support to EPA throughout the Early Design Actions:

6.1.9.1. Attendance at Community Relations Events

CMI and its contractors shall attend community meetings as requested by EPA, unless otherwise agreed to in writing or through e-mail.

6.1.9.2. Logistics and Presentation Support

CMI shall help EPA in selecting and reserving meeting space for EPA to hold community meetings, as well as the logistics for such events. This includes

helping to set up the seating arrangements, tables, presentation equipment, and any visual displays and then take down such arrangements after the meetings. CMI shall also prepare presentation materials/handouts (i.e., transparencies, slides, and/or handouts) as instructed by EPA. Such materials/handouts shall be approved by EPA before distribution or use.

#### 6.1.9.3. Technical Support

CMI shall provide technical support for community relations, including community meetings. This support may include preparing technical input to news releases, briefing materials and other community relations vehicles, arranging for Site tours upon request, and helping EPA to coordinate with local agencies as requested.

#### 6.1.9.4. Fact Sheet Preparation Support

CMI shall help EPA prepare fact sheets that inform the public about activities related to the Early Design Actions, schedules for the Early Design Actions, field investigations, construction, measures to be taken to protect the community, provisions for responding to emergency releases and spills, any potential inconveniences such as excess traffic and noise that may affect the community during Early Design Actions, and other topics as required by EPA. EPA will determine the final content of all fact sheets related to the Work.

#### 6.1.9.5. Information Repository Support

CMI shall support EPA in maintaining the Site information repositories by providing hard and/or electronic copies of all Early Design Action documents to the repositories as directed by EPA. CMI shall periodically visit the Questa repository at EPA's request to verify that Site-related documents are being maintained and available for review by the public.

## 6.2. Project Planning and Scoping

CMI shall perform the activities described below as part of project planning and scoping for the Work. In light of the multiple areas and various types of pre-design and design Work, planning and scoping activities shall be required for the Early Design Actions, including attendance at scoping meetings, conducting Site visits, and the preparation of Early Design Action work plans and schedules.

The preparation of the Overall Site Plan and detailed work plans is described below. During scoping meetings, CMI and EPA may agree to reduce the number of plans or reports that would be developed for each of the Early Design Actions. In many cases, existing plans prepared as part of the Early Design Actions may be updated or modified

for a subsequent element of this Work. Plans or reports that are duplicative may be deleted if agreed to by EPA.

#### 6.2.1. Attend Scoping Meetings

Scoping meetings shall be scheduled for each Early Design Action, as appropriate. A scoping meeting may address more than one Early Design Action. CMI shall contact the EPA Project Coordinator within three (3) working days after the Effective Date of the Agreement to schedule the first scoping meeting. The first scoping meeting shall be held no later than 30 days after the Effective Date of the Agreement, unless otherwise agreed to by the Project Coordinators. CMI and its principal contractors shall attend all scoping meetings. The scoping meetings are to be held at locations to be determined by the EPA Project Coordinator and may include the EPA Region 6 Office in Dallas, TX, or the NMED or MMD offices in New Mexico.

#### 6.2.2. Conduct Site Visits

CMI shall conduct Site visits during project planning and scoping, as appropriate, to develop a conceptual understanding of how the Work will be accomplished (*e.g.*, field observation of sampling locations or borehole drilling locations). Information gathered during the visits shall be used to better scope the Work and to help determine the extent of additional data requirements.

The Site Health and Safety Plan (HASP) must be updated and located on Site before any Site visits can be conducted (*see* Section 6.2.8 below).

#### 6.2.3. Evaluate Existing Data and Documents

CMI shall evaluate existing data and documents, including the ROD, Final RI Report, Final FS Report (Revision 3), and other data and documents (*e.g.*, New Mexico ground water discharge permits and mining permits or NPDES permits) as needed to prepare work plans.

#### 6.2.4. Develop Draft Work Plans

CMI shall prepare and submit to EPA for approval the work plans for the Early Design Actions. The work plans to be submitted are as follows:

- Work Plan for Pre-Design Ground Water Investigation at the Tailing Facility Area;
- Work Plan for Pre-Design Investigations to Upgrade Seepage Barriers and Well Extraction Systems;
- Work Plan for Pre-Design Borrow Characterization of Spring Gulch Waste Rock;
- Work Plan for Group 1 Waste Rock Pile Pilot Project;
- Work Plan for Pre-Design Treatability Studies on Water Treatment;

- Work Plan for Pre-Design Investigation and Preparation of Grading Plan for Tailing Facility;
- Work Plan for Field Trials of Spring Gulch Waste Rock Cover Material; and
- Work Plan for Tailing Facility Vegetation and Wildlife Studies.

The scope of each of these work plans are described in detail in subsequent sections of this SOW. The required schedules for submitting each work plan are also discussed in those subsequent sections.

#### 6.2.4.1. Work Plan Elements

The work plans shall also include without limitation the following information:

- a comprehensive description of project tasks, the procedures to accomplish them, project documentation, and project schedule;
- a statement of any problems and potential problems posed and how the objectives of the completed Work will address the problems;
- the technical approach and design for the Work to be performed including a detailed description of each activity, the assumptions used, the information needed for each activity, any information to be produced during and at the conclusion of each activity, and a description of the Work products that will be submitted to EPA;
- the details of planned field sampling, including sampling objectives, sampling media, sampling locations, depths and frequency, sampling equipment and procedures, sample handling, analytical methods, analytical parameters and constituents, and a breakdown of samples to be analyzed through Contract Laboratory Program (CLP) and other sources, as well as the justification for those decisions; tables of geographic coordinates and the appropriate maps showing locations of previous sampling locations and proposed sampling locations; and
- schedules identifying specific dates for completion of each required activity and submission of each deliverable described in the work plans as well as information about timing, initiation, and completion of all critical path milestones for each activity and deliverable and the expected review time for EPA.

#### 6.2.5. Project Organization and Responsibilities

The work plans shall include an organizational structure which outlines the responsibilities and authority of all organizations and key personnel involved in the Work, as appropriate for each Early Design. The work plans shall also include the curricula vitae or resumes of CMI's proposed contractors, subcontractors and their key personnel. Selection of any engineer, contractor, or subcontractor shall be subject to

approval by EPA. While EPA approval is not required for the stakeholder technical experts participating in the TWG, CMI will consult with EPA regarding the technical qualifications of any expert proposed by a stakeholder.

#### 6.2.6. Early Design Actions Project Schedule

Within 30 days of the Effective Date of the Agreement, CMI shall submit a draft "Early Design Actions Project Schedule" (Project Schedule) to EPA for approval, with copies to NMED and MMD. CMI shall prepare the Project Schedule based on the time periods set forth in the Agreement and this SOW. The Project Schedule shall specify time periods for completion of each required activity and submission of each deliverable required by the Agreement and this SOW, including the TWG-facilitated process for developing and assessing waste rock pile design options.<sup>1</sup>

CMI shall update the Project Schedule as needed, and as agreed upon, by the Project Coordinators. The schedule and all updates shall be submitted to EPA, NMED, and MMD as hard copies and electronic copies in Microsoft® Project® and pdf formats.

#### 6.2.7. Overall Site Plan

CMI has the overall responsibility to prepare, update, and maintain an Overall Site Plan for implementation of the Early Design Actions. This Overall Site Plan is defined below and includes some Site-wide plans. Information specific to each Early Design Action will be included in the individual work plan for the respective Early Design Action, as necessary, because of the significant differences in characteristics, field conditions, and nature of the Work. Many of the plans identified herein are to be prepared or updated as part of the Removal Actions and, therefore, may be acceptable for this Work with minimal revision or modification. Others may have been prepared as part of the CERCLA RI/FS. CMI shall review the existing plans or those to be prepared for the Removal Actions and update or modify, as necessary, for the pre-design and design Work. Plans not being prepared for the Removal Actions, but needed to implement these Early Design Actions, shall be prepared by CMI. Any existing plans that do not require revision for this Work shall be referenced or incorporated into the appropriate plans for this Work. Since CMI's contractors or subcontractors may prepare their own plans, CMI will incorporate such plans into the Overall Site Plan submitted to EPA for approval in accordance with the Agreement and this SOW.

CMI shall submit a draft of the Overall Site Plan to EPA for approval within 90 days of the Effective Date of the Agreement.

CMI shall revise the Overall Site Plan to address all EPA comments. The revised Overall Site Plan shall be submitted to EPA for approval within 30 days after receipt of EPA comments.

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<sup>1</sup> EPA recognizes that the timeframes for completing some of the TWG-facilitated activities will be beyond CMI's control due to scheduling and other issues and that additional TWG meetings may be productive; therefore, specified schedules may need to be revised.

CMI shall periodically reassess and update the Overall Site Plan as necessary, to take into account the different areas or conditions of the Site where Work is being performed or the nature of the Work.

The Overall Site Plan shall consist of the following components described in Sections 6.2.7.1. through 6.2.7.4. Each of those “plans” may be a section of the Overall Site Plan, rather than a separate document.

#### 6.2.7.1. Site Management Plan

CMI shall prepare a “Site Management Plan” (SMP) that provides EPA with a written understanding of how ingress/egress, security, contingency procedures, management responsibilities, and waste disposal are to be handled during all pre-design and design activities.

##### 6.2.7.1.1. Pollution Control and Mitigation Plan

The SMP shall include a “Pollution Control and Mitigation Plan” (PCMP) that outlines the process, procedures, and safeguards that will be used to ensure hazardous substances, contaminants or pollutants are not released off Site.

##### 6.2.7.1.2. Waste Management Plan

The SMP shall include a “Waste Management Plan” (WMP) that outlines how wastes that are encountered during the Early Design Actions will be managed and disposed. CMI shall specify the procedures that will be followed when wastes are managed, including on-Site and off-Site storage, treatment, and/or disposal.

##### 6.2.7.1.2.1. Decontamination Plan

A “Decontamination Plan” that describes the equipment and methods that shall be used for decontamination procedures shall be included in the WMP.

##### 6.2.7.1.2.2. Water Control Plan

A “Water Control Plan” that addresses methods for collection, treatment, disposal or discharge of decontamination water, dust control water, storm water, and other surface water shall be included in the WMP.



## 6.2.7.2. Sampling and Analysis Plan

CMI shall prepare a "Sampling and Analysis Plan" (SAP). The SAP shall be written to reflect the specific objectives of any data acquisition to be conducted for the Early Design Actions. The SAP shall outline the data collection and quality assurance requirements of any sampling and analysis conducted by CMI. It shall be designed in a manner that ensures that sample collection and analytical activities are conducted in accordance with technically acceptable protocols, as determined by EPA, and that the data meet data quality objectives (DQOs). The SAP shall include laboratory analyses for all COCs identified in the ROD for the appropriate media, including Target Analyte List (TAL) metals, molybdenum, fluoride, uranium, pH, total dissolved solids (TDS), sulfate, and other inorganic chemicals as appropriate. The SAP provides a mechanism for planning field activities.

### 6.2.7.2.1. Quality Assurance Project Plan

CMI shall update or prepare a "Quality Assurance Project Plan" (QAPP) as part of the SAP. The QAPP shall be prepared in accordance with EPA QA/R-5 (latest draft or revision). The QAPP shall describe the project objectives and organization, functional activities, and quality assurance/quality control (QA/QC) protocols that shall be used to achieve the desired DQOs. The DQOs shall, at a minimum, reflect use of analytical methods for identifying and remediating contamination consistent with the levels for the RAOs and cleanup levels set forth in the ROD. The QAPP shall address sampling procedures, sample custody, analytical procedures, and data reduction, validation, reporting and personnel qualifications.

### 6.2.7.2.2. Field Sampling Plan

CMI shall prepare a "Field Sampling Plan" (FSP) as part of the SAP that defines the sampling and data collection methods that shall be used for Early Design Actions. This includes the pre-design ground water investigation at the Tailing Facility Area, the design support investigation to upgrade the seepage barriers in the area of the 002 and 003 collection systems at the Tailing Facility Area and new well extraction systems at the mouths of the mine side drainages at the Mine Site Area, the pre-design borrow characterization of Spring Gulch waste rock at the Mine Site Area, the pilot project for the Group 1 Waste Rock Pile, and treatability studies for water treatment. Since specific field sampling details will vary for each Early Design Action, they will be included in the work plans for each Early Design Action (*see* Section 6.2.4.1. above). Either the FSP or the work plan for an individual Early Design Action shall include a description of how investigation-derived waste will be managed.

#### 6.2.7.2.3. Data Management Plan

CMI shall prepare a "Data Management Plan" that outlines the procedures for storing, handling, accessing, retaining and securing data collected during performance of the Work. CMI shall consistently document the quality and validity of all field and laboratory data compiled. All data compiled shall be electronically supplied to EPA in ArcView® format or other electronic format as directed by EPA in accordance with the Data Management Plan. All GIS data sets shall be in a UTM or State Plane coordinate system.

#### 6.2.7.2.4. Field Logs

CMI shall maintain written daily field log books as the primary record for field investigation, characterization, and other data acquisition activities. These log books will contain all measurements and observations as directly recorded in the field or study environment, and entries regarding:

- all field measurements, including pH, temperature, conductivity, water flow, air quality parameters, and soil, waste rock and tailing characteristics;
- processes and methods followed to implement approved plans;
- health and safety monitoring performed by CMI pursuant to the health and safety plan;
- written entries describing sampling locations, their geographical coordinates, sampling techniques, and a general description of CMI's daily activity; and
- any unusual occurrences, circumstances or difficulties.

CMI shall record data directly and legibly in field log books with entries signed and dated by CMI or its contractors. Original written field log book entries may not be obscured when CMI makes changes in written log book entries, and CMI or its agent will sign and date any changes. CMI shall use standard format information sheets for its written daily log entries.

#### 6.2.7.3. Contingency Plan

CMI shall prepare a "Contingency Plan" that will provide contingency measures for potential spills and discharges from materials handling or transportation. The Contingency Plan shall describe methods, means, and facilities required to prevent contamination of soil, water, atmosphere, uncontaminated structures, equipment or material from the discharge of waste due to spills. CMI shall provide for equipment and personnel to perform emergency measures required to contain a spill and to remove and properly dispose of any media that become

contaminated due to spillage, and provide for equipment and personnel to perform decontamination measures that may be required to remove spillage from previously uncontaminated structures, equipment, or material. CMI shall include the name and telephone number of the person that is responsible for responding in the event of an emergency situation or incident. The Contingency Plan shall include a "Spill Prevention, Control and Countermeasures Plan" as specified in 40 CFR Part 112.

#### 6.2.7.4. Construction Quality Assurance Project Plan

CMI shall prepare a draft "Construction Quality Assurance Project Plan" (CQAPP) for the Group 1 Waste Rock Pile pilot project, a draft CQAPP for the pilot dewatering system, and a draft CQAPP as part of the grading plan. The CQAPP shall be prepared in accordance with "Construction Quality Assurance for Hazardous Waste Land Disposal Facilities" (EPA, October, 1986). It shall detail the approach for quality assurance by addressing quality assurance requirements and standards related to construction activities, including installation, excavation, and decontamination. At a minimum, the draft CQAPP shall include the following elements:

##### 6.2.7.4.1. Personnel

Responsibility and authority of all organization and key personnel to be involved with remedial construction activities shall be provided, including an organizational chart.

##### 6.2.7.4.2. CQAPP Personnel Qualifications

In the pertinent draft CQAPP, CMI shall notify EPA in writing of the name, title, address, telephone number and qualifications of its proposed Quality Assurance Official or Officials (QA Official(s)) who will conduct the quality assurance program as specified in the EPA-approved Quality Management Plan (*see* Section VII of the Agreement (Designation of Contractors and Project Coordinators)). Minimum qualifications of the QA Official(s) and supporting inspection personnel shall be provided. The QA Official(s) shall be responsible for assuring that the Early Design Action pilot project is constructed to meet construction quality assurance project requirements. The QA Official(s) shall implement the CQAPP by reviewing test information and inspecting the work performed by CMI's construction contractors. Certain specifications of the quality assurance program are set forth in Section VIII, Paragraph 33 of the Agreement (Quality Assurance and Sampling). As part of this notification, CMI shall certify to EPA in writing that the proposed QA Official(s) is/are unaffiliated with, and "independent" from, CMI's construction contractors. EPA's acceptance will be based on professional and ethical reputation, previous experience in the type of quality assurance activities

to be implemented and demonstrated capability to perform the required activities. Additionally, EPA's acceptance will be based on the requirement of independence between the QA Official(s) and the construction contractors.

After receiving CMI's notice regarding the QA Official(s), as described in the preceding paragraph, EPA will issue a notice of disapproval or an authorization to proceed regarding the QA Official(s). If at any time thereafter, CMI proposes to replace a QA Official(s), CMI shall give written notice, including the name, title, address, telephone number, and qualifications of the newly proposed QA Official(s), to EPA, and CMI must obtain authorization to proceed from EPA before the new QA Official(s) performs, directs, or supervises any Work to be performed under the Agreement and this SOW.

#### 6.2.7.4.3. Inspection Activities

Inspection activities shall be described, including observations and tests necessary to monitor and certify completion of construction and installation work. The scope and frequency of each type of inspection to be conducted shall be specified. Inspections shall be required to verify compliance with environmental and permitting requirements and include without limitation air quality and emissions monitoring records, and waste disposal records. Inspections shall also ensure compliance with all health and safety procedures described in the HASP.

#### 6.2.7.4.4. Sampling Requirements

Requirements shall be included for sampling activities, sample size, sample locations, frequency of testing, criteria for acceptance and rejection, and plans for correcting problems as addressed in the project specifications.

#### 6.2.7.4.5. Documentation

Reporting requirements shall be described for all CQAPP activities. This shall include such items as daily logs, summary reports and inspection data sheets.

### 6.2.8. Health and Safety Plan

Within 30 days of the Effective Date of the Agreement, CMI shall update the existing HASP for this Work, as appropriate, in conformance with applicable Mine Safety and Health Administration (MSHA)<sup>2</sup>, Occupational Safety and Health Administration

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<sup>2</sup> Conformance with MSHA requirements shall be for that portion of the Site on CMI property.

(OSHA), and EPA requirements, including, but not limited to, 29 C.F.R. § 1910. EPA shall not approve or disapprove the HASP, but shall review it to assure its existence and shall require compliance by CMI with its terms as part of the Agreement.

The HASP shall specify employee training, protective equipment, medical surveillance requirements, and standard operating procedures, and include an Emergency Response Plan in accordance with 40 C.F.R. § 300.150 of the NCP and 29 C.F.R. §§ 1910.120 1(1) and (1)(2). A task-specific section of the HASP shall also be included to address health and safety requirements for Site visits. Since the Site is an operating mining facility, the HASP shall identify health and safety requirements specified under MSHA for Site visitors. The Emergency Response Plan describes how to handle emergencies at the Site and minimize risks associated with a response. This response plan should be reviewed and rehearsed regularly, and a copy should be provided to local emergency response facilities.

#### 6.2.9. Data Acquisition, Analysis, Validation and Evaluation

In scoping and preparation of all pre-design and design work plans, CMI shall determine what Site environmental data are needed to perform the Work. CMI shall evaluate existing data to determine what additional data are necessary, including data for:

- (1) the pre-design ground water investigation at the Tailing Facility Area,
- (2) the pre-design support investigation to upgrade seepage barriers in the area of the 002 and 003 collection systems at the Tailing Facility Area and new well extraction systems at the at the mouths of the mine side drainages Mine Site Area,
- (3) the pre-design borrow characterization of the Spring Gulch waste rock at the Mine Site Area to assess the quantity of material that is non-acid generating and passes the 600 mg/kg borrow screening criterion for molybdenum, the water holding capacity of unamended and amended Spring Gulch material, and the potential toxicity of amended material to greenhouse-grown plants and appropriate animal species,
- (4) the Group 1 Waste Rock Pile pilot project for testing and monitoring a range of design parameters and criteria related to cover, amendment types and application, revegetation, and monitoring metals uptake into vegetation,
- (5) the pre-design treatability studies for water treatment,
- (6) the design of the ground water extraction system in the Lower Sulphur Gulch Waste Rock Pile Drainage,
- (7) the design of the extraction well systems to enhance the lower 002 seepage barrier and the upper 003 seepage barrier,
- (8) the design and construction of the pilot dewatering system,

- (9) the preparation of the grading plan for the Tailing Facility,
- (10) the field trials of the Spring Gulch waste rock cover material, and
- (11) the Tailing Facility vegetation and wildlife studies.

CMI shall determine the data requirements for conducting all performance monitoring and other monitoring required by this SOW. CMI shall propose DQOs for the required data consistent with "Guidance for the Data Quality Objectives Process," EPA/600/R96/055, QA/G4, August 2000.

Additional data requirements may be identified by CMI or EPA at any time throughout the Early Design Actions. Whenever such requirements are identified by CMI, it shall submit to EPA for approval a technical memorandum documenting the need for the additional data and identifying potential updates to the DQOs, if necessary. If EPA determines that data are needed in addition to those data proposed by CMI, EPA shall notify CMI in writing. CMI shall be responsible for fulfilling the additional data and analysis needs identified by EPA consistent with the general scope and objectives of this SOW.

CMI shall perform the following data acquisition, sample analysis, validation, and evaluation activities:

#### 6.2.9.1. Data Acquisition

CMI shall acquire environmental samples and other data that are required to perform the Early Design Actions. CMI shall perform field activities or a combination of activities described below for data acquisition in accordance with the EPA-approved FSP and QAPP. Before beginning significant phases of field activities, EPA, NMED, MMD, and CMI shall hold an initial meeting with all principal personnel to clarify objectives, communication channels, and related matters. CMI shall notify EPA, NMED and MMD at least 10 days before sampling events are planned, so that inspections of the sampling procedures may be arranged.

##### 6.2.9.1.1. Mobilization and Demobilization

CMI shall provide the necessary personnel, equipment, and materials for mobilization and demobilization to and from the Site for the purpose of conducting the required sampling programs. The following mobilization and demobilization work shall be performed:

- identify field support equipment, supplies and facilities;
- mobilization;
- site preparation;
- installation of utilities;

- construction of temporary utilities; and
- demobilization.

#### 6.2.9.1.2. Field Investigation

CMI shall conduct environmental sampling as needed for the pre-design and design activities discussed below. All field sampling personnel shall have adequate training and field experience to perform field sampling procedures and techniques in accordance with the QAPP and FSP. EPA may require that CMI submit detailed information to demonstrate that all field sampling personnel are qualified to conduct the sampling, including information on personnel qualifications such as training and experience.

#### 6.2.9.2. Sample Analysis

CMI shall arrange for the analysis of environmental samples collected during the previous task. CMI shall, as needed and consistent with Section VIII, Paragraph 33 of the Agreement (Quality Assurance and Sampling), perform the following activities or combination of activities to analyze test results:

- Contract Laboratory Program (CLP)-Type Laboratory Sample Analysis;
- CMI shall submit qualifications of the proposed analytical laboratory(ies) in advance to demonstrate to EPA's satisfaction that each laboratory is qualified to perform the analytical work;
- All laboratories will use methods and analytical protocols for the analytes in the media of interest within detection and quantification limits consistent with EPA QA/QC procedures and with DQOs accepted in the QAPP for the Site by EPA;
- All laboratories will have and follow an approved QA program;
- If a laboratory not in the CLP is selected, methods consistent with CLP methods that would be used for the purposes proposed and QA/QC procedures accepted by EPA will be used; in addition, a laboratory QA program will be submitted for EPA review and approval, and the laboratory's EPA proficiency tests for waste water and drinking water for at least the previous two years will be submitted to EPA;
- EPA may require that CMI submit detailed information to demonstrate that any laboratory used is qualified to conduct the analytical work, including information on personnel qualifications, equipment and material specifications; and
- CMI shall provide EPA and its contractors with unlimited access to laboratory personnel, equipment and records related to sample collection, transportation and analysis.

#### 6.2.9.3. Analytical Support and Data Validation

CMI shall arrange for the validation of environmental samples collected during the previous task. CMI shall perform appropriate data validation to ensure that the data are accurate and defensible. CMI shall perform the following activities or combination of activities to validate test results:

- prepare and ship environmental samples in accordance with the FSP and QAPP;
- implement EPA-approved laboratory QA program;
- provide sample management (chain-of-custody, sample retention, and data storage) to ensure proper management of samples and accurate chain-of-custody procedures for sampling tracking, protective sample packing techniques, and proper sample-preservation techniques;
- coordinate with appropriate sample management personnel; and
- validate the quality of the data, the accuracy of the data, and the chain-of-custody.

#### 6.2.9.4. Data Evaluation and Reporting

CMI shall organize and evaluate existing data and data gathered during previous tasks that will be used in the Early Design Actions. CMI shall evaluate the usability of the data collected. CMI may use data from any samples collected or testing performed prior to the Effective Date in support of the Early Design Actions, as long as the samples were collected or testing was performed in a manner consistent with the substantive requirements of Section 6.2.9 of this SOW pertaining to data quality. CMI shall evaluate, interpret, and tabulate data in an appropriate presentation format for final data tables. CMI shall design and set up an appropriate database for pertinent information collected that will be used during the Early Design Actions. CMI shall notify EPA in advance of any computer modeling it proposes to use and obtain EPA approval before such use.

CMI shall evaluate and present results in a "Data Evaluation Summary Report" and submit the report to EPA for approval. The Data Evaluation Summary Report shall be included in the pre-design and design reports.

### 6.3. Pre-Design Ground Water Investigation at the Tailing Facility Area

#### 6.3.1. Pre-Design Work Plan for the Ground Water Investigation at the Tailing Facility Area

Within 90 days after the Effective Date of the Agreement, CMI shall prepare and submit to EPA for approval a "Pre-design Work Plan for the Ground Water Investigation at the Tailing Facility Area." The work plan shall include those elements specified in Section



6.2.4.1 of this SOW. This work plan shall include a description of all tasks to be conducted for further characterizing the extent of ground water contamination from the tailing facility. Such investigation shall include portions of the Guadalupe Mountains and the Red River Gorge to define the extent and nature of contamination to evaluate the adequacy of the ground water component of the Selected Remedy. The work plan shall also include a schedule for completing the tasks. The schedule shall include specific dates for each task and subtask, including the expected review times for EPA.

The Tailing Facility Area investigation shall be designed to include without limitation the identification of transport pathways and fate of tailing water seeping from the tailing facility. The work plan shall also be designed to delineate the vertical and horizontal extent of ground water COCs (*e.g.*, molybdenum, uranium, manganese and sulfate). The work plan shall include equipotential and isoconcentration maps of molybdenum, uranium, manganese, sulfate and other COCs as appropriate in the alluvial and basal bedrock (volcanic) aquifers that are updated based on, without limitation, the most current ground water quality monitoring data collected and reported under New Mexico Ground Water Discharge Permit DP-933. The work plan shall specify that the tailing facility water balance calculations prepared for the RI/FS shall be updated, as appropriate, based on the new information collected by this additional investigation.

The work plan shall describe the proposed additional ground water monitoring wells, including a well to replace former piezometer TPZ-5B. The work plan shall also include a map showing well locations and total depths, as well as the subsurface data to be collected to further delineate the extent of ground water contamination. Hydrogeologic cross sections shall be included in the work plan depicting existing wells and the proposed wells, aquifers, and COC concentrations (*e.g.*, molybdenum, uranium, manganese and sulfate).

CMI shall revise the draft work plan to address all EPA comments. A revised work plan shall be submitted to EPA for approval within 30 days after receipt of EPA comments.

Upon EPA approval of the work plan and schedule, they shall become enforceable parts of the Agreement.

#### 6.3.2. Pre-Design Investigation of Tailing Facility Area Ground Water

Upon receipt of EPA's written approval of the Pre-Design Work Plan for the Ground Water Investigation at the Tailing Facility Area, CMI shall commence the ground water investigation in accordance with the approved work plan and schedule. CMI shall provide EPA, NMED, and MMD a minimum 10-day advance notice of the start of field activities. CMI shall provide the agencies with updates and progress reports by telephone during all drilling, well construction, aquifer testing and well sampling activities as part of the communication discussed in Section 6.1.4.

Based on the results of the drilling program and/or well testing data, CMI may propose, or EPA may require, at any time during the investigation, the installation of additional monitoring wells to meet the objectives of the investigation.

#### 6.3.3. Pre-Design Report for the Ground Water Investigation at Tailing Facility Area

CMI shall prepare and submit to EPA for approval a draft "Pre-Design Ground Water Investigation at the Tailing Facility Area Report" in accordance with the EPA-approved schedule. The draft report shall include all analytical results and an interpretation of the data, including updated isoconcentration maps of molybdenum, sulfate, uranium and other COCs, as appropriate, and updated north/south and east/west geologic cross sections that depict subsurface information collected from the new wells. The draft report shall also include an update to the RI/FS water balance calculations for the tailing facility, as appropriate.

The draft report shall include without limitation the following:

- Summary of the objectives and requirements described in the approved work plan;
- Summary of the Work completed;
- Identification of vendors and equipment used;
- Boring logs and well construction diagrams;
- Well and analytical data;
- Issues and problems encountered during the investigation;
- Results and conclusions; and
- Documentation of completion of the Work and the date of completion.

CMI shall revise the draft report to address all EPA comments. The revised report shall be submitted to EPA for approval within 30 days after receipt of EPA comments.

### 6.4. Pre-Design Support Investigations for Upgrading Seepage Barriers and Well Extraction Systems

#### 6.4.1. Pre-Design Work Plan for Investigations to Upgrade Seepage Barriers and Well Extraction Systems

Within 90 days after the Effective Date of the Agreement, CMI shall prepare and submit to EPA for approval a draft "Pre-Design Work Plan for Investigations to Upgrade Seepage Barriers and Well Extraction Systems." The work plan shall include those elements specified in Section 6.2.4.1 of this SOW. This work plan shall describe the tasks for conducting additional investigations to support the design for upgrading the

seepage barriers in the area of the 002 and 003 collection systems at the Tailing Facility Area and new well extraction systems at the mouths of the mine side drainages at the Mine Site Area. The work plan shall also include a schedule for completing the tasks. The schedule shall include specific dates for each task and subtask, including the expected review times for EPA.

CMI shall revise the draft work plan to address all EPA comments. The revised work plan shall be submitted to EPA for approval within 30 days after receipt of EPA comments.

Upon EPA approval of the work plan and schedule, they shall become enforceable parts of the Agreement.

6.4.2. Pre-Design Investigations to Upgrade Seepage Barriers and Well Extraction Systems

Upon receipt of EPA's written approval of the Pre-Design Work Plan for Investigations to Upgrade Seepage Barriers and Well Extraction Systems, CMI shall commence the pre-design investigation activities to upgrade the seepage barriers in the area of the 002 and 003 collection systems at the Tailing Facility Area and new well extraction systems at the mouths of the mine side drainages at the Mine Site Area in accordance with the EPA-approved work plan and schedule. CMI shall provide EPA, NMED and MMD a minimum 10-day advance notice of the start of field activities.

6.4.3. Pre-Design Report for Investigations to Upgrade Seepage Barriers and Well Extraction Systems

CMI shall prepare and submit to EPA for approval a draft "Pre-Design Investigations to Upgrade Seepage Barriers and Well Extraction Systems Report" in accordance with the approved schedule. The draft report shall present the information collected to support the detailed designs for upgrading the seepage barriers in the area of the 002 and 003 collection systems at the Tailing Facility Area and new well extraction systems at the mouths of the mine side drainages at the Mine Site Area.

The draft report shall include without limitation the following:

- Summary of objectives and requirements described in the approved work plan;
- Summary of the Work completed;
- Identification of vendors and equipment used;
- Boring logs and well construction diagrams;
- Analytical data;
- Identification of any design specifications and/or performance criteria to be utilized for the detailed design; and

- Documentation of completion of the Work and the date of completion.

CMI shall revise the draft report to address all EPA comments. The revised report shall be submitted to EPA for approval within 30 days after receipt of EPA comments.

## 6.5. Pre-Design Borrow Characterization of Spring Gulch Waste Rock

CMI shall conduct a pre-design borrow characterization of the proposed Spring Gulch Waste Rock Pile borrow material to further assess its suitability, when properly amended, as a non-acid generating and non-toxic cover material for the ET cover system. This work shall consist of (1) a field characterization of the Spring Gulch Waste Rock Pile to quantify the volume of waste rock that is non-acid generating and meets the 600 mg/kg molybdenum borrow screening criteria specified in the ROD, (2) an evaluation of amendment/borrow mixtures for achieving water holding capacity, (3) a greenhouse study using amended Spring Gulch waste rock to evaluate plant growth, plant uptake of molybdenum and direct toxicity to plants, and (4) an assessment of toxicity to appropriate animal species through a focused literature review and other studies as appropriate.

### 6.5.1. Pre-Design Work Plan for Borrow Characterization of Spring Gulch Waste Rock

Within 90 days after the Effective Date of the Agreement, CMI shall prepare and submit to EPA for approval a "Pre-Design Work Plan for Borrow Characterization of Spring Gulch Waste Rock." The work plan shall include those elements specified in Section 6.2.4.1 of this SOW. The work plan shall describe all the tasks to be performed for the studies and include a schedule for completing the tasks. The schedule shall include specific dates for each task and subtask, including the expected review times for EPA. The work plan shall include a description of the proposed additional data to be collected by CMI to further assess the suitability of Spring Gulch waste rock as a non-acid generating borrow source for cover that will support revegetation and provide water holding capacity to levels that will allow the ET cover system to meet performance standards.

Since the chemical and physical properties of the Spring Gulch Waste Rock Pile are heterogeneous, the study shall adequately characterize the spatial variability of the chemical and physical properties of the waste rock to identify portions suitable for use as cover material, with the goal of maximizing the amount of Spring Gulch waste rock that can be used for cover. The characterization shall also include Acid Base Accounting (ABA) tests and the physical and mineralogical tests necessary to determine the potential for acid generation. It will include the concentration and chemical forms of molybdenum within the Spring Gulch Waste Rock Pile.

CMI shall also measure the water holding capacity of Spring Gulch waste rock and then design and test amendment/borrow mixtures to meet the water holding capacity needed

for an effective ET cover system. A performance criterion will be developed during the pre-design phase for the ET cover system to achieve the remedial action objectives for the Mine Site Area. This criterion will focus on reducing net percolation through the nonacid generating cover system to a level that would allow attainment of ground water remediation goals and be protective of ground water. The work plan shall provide for the development of the ET cover system performance criterion and submittal of the performance criterion to EPA for approval.

Actual bioavailability of molybdenum shall be verified as part of the greenhouse study to measure molybdenum uptake into plant shoot and root tissues and toxicity effects to plants. The greenhouse study shall also serve to demonstrate the effectiveness of organic and mineral amendments that substantially improve moisture storage characteristics and promote vegetative growth. Edaphic properties of unamended and amended Spring Gulch waste rock will be evaluated by chemical and physical tests, including tests of particle size distribution, water holding capacity and available soil nutrient characteristics. Plant growth responses, molybdenum uptake and toxicity to plants will be compared to unamended controls.

Molybdenum uptake data from the greenhouse study will be further evaluated by a focused literature review and other studies as appropriate to assess molybdenum toxicity to appropriate animal species through herbivory and other routes of exposure.

CMI shall revise the draft work plan to address all EPA comments. The revised work plan shall be submitted to EPA for approval within 45 days after receipt of EPA comments.

Upon EPA approval of the work plan and schedule, they shall become enforceable parts of the Agreement.

#### 6.5.2. Pre-design Borrow Characterization of Spring Gulch Waste Rock

Upon receipt of EPA's written approval of the Pre-Design Work Plan for Borrow Characterization of Spring Gulch Waste Rock, CMI shall commence the borrow characterization, water holding capacity evaluation, greenhouse study, focused literature review and other studies in accordance with the approved work plan and schedule. CMI shall provide EPA, NMED, and MMD 10-day advance notice of the start of field activities. A detailed field schedule will also be provided 10 days in advance of field activities.

#### 6.5.3. Pre-Design Reports for Borrow Characterization of Spring Gulch Waste Rock

CMI shall prepare and submit to EPA for approval a draft "Pre-Design Spring Gulch Waste Rock Pile Borrow Characterization Study Report" (Borrow Characterization Report) and draft "Pre-Design Spring Gulch Waste Rock Greenhouse Study Report" (Greenhouse Study Report) in accordance with the approved schedule. The results of the water holding capacity evaluation shall be included in the Borrow Characterization

Report. The results of the assessment on molybdenum toxicity to specific animal species through the focused literature review and other studies shall be included with the Greenhouse Study Report.

The draft Borrow Characterization Report shall, at a minimum, include all methods, analytical results, an evaluation and interpretation of the data, and an estimation of the salvageable volume of potentially suitable Spring Gulch waste rock that could be used as cover material for the Mine Site Area waste rock piles. As appropriate, the draft report shall include without limitation the following:

- Summary of the study objectives and requirements established in the approved work plan;
- Background, including available information about the construction, past investigations, characterization and uses of the Spring Gulch Waste Rock Pile and materials;
- Identification of limiting criteria and methods to evaluate acid-generating potential and molybdenum form and content;
- Methods used to establish spatial certainty of sampling effort and variance among sample values;
- Maps and graphical representations to depict 3-dimensional sampling locations and isopleths of test results for acid-forming potential, and the total, oxide, and sulfide forms of molybdenum throughout the volume of the Spring Gulch Waste Rock Pile that is proposed for cover material;
- Evaluation of 3-dimensional model for salvageable volume of potentially suitable Spring Gulch waste rock to include descriptions of methods to segregate, salvage and process materials that meet screening criteria for acid-generating potential, and molybdenum content;
- Description of problems or unusual occurrences encountered during the field sampling effort, testing of samples or evaluation of data; and
- Documentation of completion of the borrow characterization study and the date of completion.

The draft Greenhouse Study Report shall include all methods, analytical results, an evaluation and interpretation of the data, an assessment of the suitability of amended Spring Gulch waste rock in terms of direct toxicity to plants and toxicity to herbivorous animals based on the focused literature review and other studies as appropriate, and water holding capacity. As appropriate, the draft report shall include without limitation the following:

- Summary of the study objectives and requirements established in the approved work plan;

- Background and discussion of appropriate literature reviewed, previous rye grass and earthworm toxicity testing of Spring Gulch material and EPA's development of borrow screening criteria performed as part of the RI/FS, other relevant vegetation studies conducted at the Questa mine as well as literature comparisons of greenhouse studies to field performance for native plants. The literature review, which will not be limited to peer-reviewed articles, will support proposed designs and treatments in test plots and pilot-scale testing and will support studies of amendments to be used within the cover systems for the waste rock piles, cover construction methods, alternative grading, and long-term performance. It will include literature concerning organic and inorganic amendments, cover designs (e.g. moisture storage, erosion, cover depth), and studies of vegetation development at other sites;
- Discussion of methods used to collect and screen Spring Gulch field samples to produce materials for use in the greenhouse study;
- Tables and discussion describing mixtures of amendments with Spring Gulch materials to produce test growth media and the results of amendment treatments compared to requirements established in the approved work plan;
- Discussion of plant materials used, species, accessions and cultivars selected, and propagation methods, if any;
- Tables and discussion of environmental control within the greenhouse environment, including temperature, shading, any supplemental bench heating, irrigation schedules and any pH adjustments, buffers or nutrients added to irrigation water or test growth media;
- Photographs of greenhouse facilities, equipment, spacing and placement of plant containers within the greenhouse facilities and chronological development of plants within each treatment and close-ups of typical plant development and pathology or stress symptoms;
- Tables and discussion relating differences in physical, chemical and hydrologic properties between screened and amended Spring Gulch test media used in the greenhouse study and unscreened field (though amended) Spring Gulch source material that would represent actual field conditions. If a smaller size (screened) fraction of Spring Gulch waste rock is used in the greenhouse study, scaling of greenhouse media to whole field media properties, including volumetric water holding capacity shall be a key component of the report;
- Graphical representation of results and discussion of experimental design and data analysis, including parametric or non-parametric tests, treatment of missing data, and any data transformations; and
- Documentation of completion of the Spring Gulch waste rock greenhouse study (e.g., last measurement taken in greenhouse or last test result received from laboratory) and the date of completion.
- An evaluation of molybdenum exposure and toxicity to appropriate animal species through herbivory and other routes of exposure, based on a focused

literature review, plant uptake data obtained from the greenhouse study, and other studies that may be conducted by CMI, as appropriate.

CMI shall revise the draft Borrow Characterization Report and Greenhouse Study Report to address all EPA comments. The revised reports shall be submitted to EPA for approval within 45 days after receipt of EPA comments.

## 6.6. Remedial Design Options for Waste Rock Piles

CMI will convene a TWG, as described in Section 4.4 of this SOW, to assist CMI in a process for developing and assessing preliminary design options for the waste rock piles. A facilitator will assist the TWG in performing its work. The TWG will consist of experts with expertise in geotechnical engineering, engineering geology, mining/earthworks construction engineering, acid rock drainage geochemistry, and/or hydrology. The stakeholders that will be invited to have an expert participate in the TWG include EPA, NMED, MMD, and other stakeholders as appropriate. CMI will consult with EPA regarding the technical qualifications of proposed experts. The views or opinions stated by the stakeholder experts during the TWG process may not necessarily reflect the position of the stakeholders they represent.

As discussed below, CMI will develop draft proposed design guidelines and parameters; draft preliminary design options (at a conceptual level) for the roadside waste rock piles; and one or more draft preliminary integrated designs (at a conceptual level) for all of the waste rock piles. The TWG will be asked to evaluate and refine the proposed design guidelines and parameters, evaluate and refine the preliminary design options, assess the design options with respect to key design factors, and compare and contrast the relative performance of the design options in relation to each of those factors. As part of this process, the TWG will be asked to evaluate the extent to which the design options can achieve Performance Standards, comply with ARARs, and take into consideration the TBC material set forth in the ROD. Information developed by the TWG may be used by CMI to evaluate the potential availability of a technical basis for modifying a Performance Standard or waiving an ARAR as provided under CERCLA.

The TWG is expected to provide its factual findings and expert input to CMI for consideration in preparing the preliminary design option(s) for the roadside waste rock piles and the preliminary integrated design option(s) for all waste rock piles, including any waste rock repositories that may be needed.

The following subsections define the steps in the early design options assessment process.

### 6.6.1. Scoping Meeting

Within seven (7) days of the Effective Date of the Agreement, CMI shall send out a letter to the stakeholders referenced in Section 4.4 of this SOW requesting their technical experts' participation in the TWG. The letter should discuss the requirements to



participate in the TWG and ask each stakeholder to provide the name of its technical expert to CMI within 30 days. Within 90 days of the Effective Date of the Agreement, CMI shall hold the Scoping Meeting for the TWG. Before the Scoping Meeting, CMI will provide background and reference materials to the TWG. During the Scoping Meeting, CMI, working with the facilitator, will provide an overview of the background materials, the design options assessment process, Performance Standards, ARARs, TBCs and the anticipated schedule.

#### 6.6.2. General Design Guidelines and Options Report

Within 30 days following the Scoping Meeting, CMI shall provide the TWG with a draft "General Design Guidelines and Options Report" that will include draft general design guidelines and parameters that will apply to all of the waste rock piles, including initial definitions of design options that include the principal distinguishing features of each option (such as slopes). CMI shall work with the facilitator to schedule and conduct TWG meetings to discuss, supplement, and refine the draft general design guidelines and parameters, including selection of a range of preliminary design options (at a conceptual level) for further consideration. Based on the findings of the TWG, CMI may revise the draft General Design Guidelines and Options Report.

Within 90 days following the initial submission of the draft General Design Guidelines and Options Report to the TWG, CMI shall submit the draft General Design Guidelines and Options Report to EPA for review. The General Design Guidelines and Options Report shall include the following information:

- Stability requirements (e.g., shallow and deep-seated slope failure mechanisms to be evaluated);
- Design extreme event (e.g., potential triggering mechanisms for slope failures);
- Material properties (e.g., shear strength);
- Ground and surface water evaluations to be included in the assessment; and
- Definition of a limited number of preliminary design options (at a conceptual level) to be evaluated further (with the principal distinguishing features of each design option, such as slopes, included). The design options shall be sufficiently different to compare and contrast meaningfully during assessment. Design options ultimately defined as a result of TWG assessment may include features drawn from different options.

EPA will approve, approve with modifications, or disapprove the General Design Guidelines and Options Report in accordance with the procedures set forth in Section IX of the Agreement (EPA Approval of Plans and Other Submissions). If EPA approves (or approves with modifications) the General Design Guidelines and Options Report, CMI shall initiate the next phase of the assessment process. If EPA disapproves the General Design Guidelines and Options Report, EPA will provide a written explanation to CMI along with the disapproval.

CMI shall revise the General Design Guidelines and Options Report to address all EPA comments. If EPA has disapproved the Report, CMI shall revise the Report and resubmit it to the TWG for further consideration within 30 days after receipt of EPA's disapproval.

### 6.6.3. Roadside Waste Rock Piles Design Options

Within 90 days of receipt of EPA's written approval (or approval with modifications) of the General Design Guidelines and Options Report, CMI shall provide the TWG with a draft "Roadside Waste Rock Piles Design Options Report" for review. The draft report shall be based on the General Design Guidelines and Options Report and shall contain design concepts for each potential option for the roadside waste rock piles, including the basic engineering approach, quantities, and time periods for activities, calculated factors of safety for completed designs, and a brief outline of any design issues for each option.

CMI shall work with the facilitator to schedule and conduct TWG meetings to discuss, supplement, and refine the draft Roadside Waste Rock Piles Design Options Report.

In addition to reviewing the information in the draft Roadside Waste Rock Piles Design Options Report and discussing, supplementing, and refining the draft design options, the TWG will be asked to evaluate the performance of each design option with respect to key design factors including, but not limited to: slope stability and factor of safety; management of underlying natural slopes; slope angles capable of supporting an ET cover; sustainable vegetation; water management; environmental protection and construction-related environmental impacts; ability to achieve ARARs and TBCs; worker safety; public safety; community impacts; and cost.

CMI will analyze each proposed design option, considering the TWG evaluations: (1) to provide the basis for selecting appropriate slope gradients for each waste rock pile that are consistent with the remedy selected by EPA in the ROD or that include a technical justification for any inconsistency with the ROD; (2) to ensure the design option is protective of human health and the environment and complies with ARARs or includes a justification for one of the ARAR waivers allowable under CERCLA; and (3) to ensure the design option will achieve the performance standards set forth in the ROD, including all Remedial Action Objectives, or include a technical basis for modifying such performance standards. Any request by CMI to modify a Performance Standard, waive an ARAR, or otherwise substantively modify the ROD shall be contained in a separate submission to EPA. EPA shall consider any such request in accordance with CERCLA, the NCP and EPA guidance.

Based on information needs identified during the assessment, the TWG may propose recommendations for, or CMI may identify, pilot studies or testing to test design concepts, methodologies, and design elements. If small-scale pilot studies or tests are identified and agreed to by CMI that could be implemented during the assessment process, CMI may propose such studies or tests, along with preliminary schedules, to EPA for review. If such work and schedules are approved by EPA, EPA may adjust the schedule of deliverables under this SOW to enable such studies or tests to be planned and

implemented by CMI and reported to the TWG. Any work plan prepared by CMI for a pilot study or test must be approved by EPA before the pilot study or test can be performed. Additionally, any pilot study or test to be undertaken as part of the assessment process shall be performed in conformance with all Site-specific plans and the Health and Safety Plan required under the Agreement and this SOW.

Based on the results of the TWG's evaluation and the results of any pilot studies or tests completed or any other information developed during the assessment process, CMI may revise its draft Roadside Waste Rock Piles Design Options Report. Within 120 days of submittal of the draft Roadside Waste Rock Piles Design Options Report to the TWG, CMI shall submit the draft Roadside Waste Rock Piles Design Options Report to EPA for review. The information in the Roadside Waste Rock Piles Design Options Report shall inform the preparation of the draft Integrated Waste Rock Pile Conceptual Design Options Report discussed in Section 6.6.4. The Roadside Waste Rock Piles Design Options Report shall include the following information:

- Definitions of the Roadside Waste Rock Piles Design Options;
- A comparative analysis of the Roadside Waste Rock Piles Design Options with respect to the key design factors, including descriptions of key benefits, risks, and trade-offs;
- Sensitivity analysis, as needed;
- Assessment of uncertainties and levels of confidence; and
- Results of any pilot studies that were conducted as part of this evaluation.

EPA will approve, approve with modifications, or disapprove the Roadside Waste Rock Piles Design Options Report in accordance with the procedures set forth in Section IX of the Agreement (EPA Approval of Plans and Other Submissions). If EPA approves (or approves with modifications) the Roadside Waste Rock Piles Design Options Report, CMI will initiate the next phase of the assessment process. If EPA disapproves the Roadside Waste Rock Piles Design Options Report, EPA will provide a written explanation to CMI.

CMI shall revise the Roadside Waste Rock Piles Design Options Report to address all EPA comments. If EPA has disapproved the Report, CMI shall revise the Report and resubmit it to the TWG for further consideration within 30 days after receipt of EPA's disapproval.

#### 6.6.4. Integrated Waste Rock Pile Conceptual Design Options

Within 120 days of receipt of EPA's written approval (or approval with modifications) of the Roadside Waste Rock Piles Design Options Report, CMI shall provide the TWG with a draft "Integrated Waste Rock Pile Conceptual Design Options Report" for review. The draft report shall be based on the Roadside Waste Rock Piles Design Options Report and shall contain a draft preliminary integrated design for all waste rock piles, including any waste rock repositories that are necessary, for evaluation by the TWG.

CMI shall work with the facilitator to schedule and conduct TWG meetings to discuss, supplement, and refine the draft Integrated Waste Rock Pile Conceptual Design Options Report. The TWG will provide the results of its assessment to CMI.

Based on information needs identified during the assessment, the TWG may propose recommendations for, or CMI may identify, pilot studies or testing to test design concepts, methodologies, and design elements, the results of which may be incorporated into the waste rock pile design options. If small-scale pilot studies or tests are identified and agreed to by CMI that could be implemented during the assessment process, CMI may propose such studies or tests along with preliminary schedules to EPA for review. If such work and schedules are approved by EPA, EPA may adjust the schedule of deliverables under this SOW to enable such studies or tests to be planned and implemented by CMI and reported to the TWG. Any work plan prepared by CMI for a pilot study or test must be approved by EPA before the pilot study or test can be performed. Additionally, any pilot study or test to be undertaken as part of the assessment process shall be performed in conformance with all Site-specific plans and the Health and Safety Plan required under the Agreement and this SOW.

Based on the results of the TWG's evaluation and the results of any pilot studies or tests completed or any other information developed during the assessment process, CMI may revise its draft Integrated Waste Rock Pile Conceptual Design Options Report. Within 120 days of submission of the draft Integrated Waste Rock Pile Conceptual Design Options Report to the TWG, CMI shall submit the Integrated Waste Rock Pile Conceptual Design Options Report to EPA for approval. The Integrated Waste Rock Pile Conceptual Design Options Report shall include the following information:

- Definitions of the Integrated Waste Rock Pile Design Options;
- A comparative analysis of the Integrated Waste Rock Pile Design Options with respect to the key design factors, including descriptions of key benefits, risks, and trade-offs, if required;
- Sensitivity analysis, if required;
- Repository siting options, if required; and
- Results of any pilot studies that were conducted as part of this evaluation.

EPA will approve, approve with modifications, or disapprove the Integrated Waste Rock Pile Conceptual Design Options Report in accordance with the procedures set forth in Section IX of the Agreement (EPA Approval of Plans and Other Submissions). If EPA approves (or approves with modifications) the Integrated Waste Rock Pile Conceptual Design Options Report, CMI will initiate the next phase of the assessment process. If EPA disapproves the Integrated Waste Rock Pile Conceptual Design Options Report, EPA will provide an explanation to CMI.

CMI shall revise the Integrated Waste Rock Pile Conceptual Design Options Report to address all EPA comments. If EPA has disapproved the Report, CMI shall revise the Report and resubmit it to the TWG for further consideration within 30 days after receipt of EPA's disapproval.

## 6.7. Group 1 Waste Rock Pile Remedial Design Pilot Project

CMI shall conduct a pilot waste rock pile remediation project on the Goathill North Waste Rock Pile to test a range of construction methods, concepts, and specific design elements and criteria at a field scale. The pilot project shall be designed to collect design information during and after construction over a period of approximately 5 to 10 years, in addition to the performance of routine post-construction maintenance and monitoring. The pilot project would include evaluation of grading, cover, and vegetation criteria, for determining how best to achieve the Performance Standards, comply with ARARs, and take into consideration the TBC material set forth in the ROD. This project is considered a pilot project because it is the first waste rock pile to be addressed and information obtained from the project will be used in subsequent waste rock pile remediation designs. The pilot project shall include an examination of the constructability, effectiveness, and practicality of the methods or concepts described in the preliminary design reports to be prepared under Section 6.6 of this SOW. The pilot project shall include, but is not limited to, evaluations of regrading, cover placement, amendment application, and revegetation to a degree that is intended to represent final remediation of the waste rock pile. Cover design parameters to be tested include, but are not limited to, edaphic properties, water holding capacity, percolation, and percent organic matter. The pilot project shall be designed and constructed for complete remediation of the waste rock pile.

The pilot project shall evaluate various cover design parameters and physical properties of borrow materials, while employing a minimal cover depth of three feet as specified in the ROD. The pilot project shall include testing of a range of design parameters, including grain size, grading design, amendment types, application methods and frequency, and revegetation techniques. Monitoring shall be performed to evaluate metals uptake in plant tissue. Any applicable DQOs for the pilot project shall also be documented.

The pilot project shall be designed to determine optimal cover and vegetation design specifications for achieving performance criteria in reducing net percolation, promoting vegetative growth and protecting wildlife, and minimizing erosion and long-term slope maintenance. As provided in Section 6.5.1 of this SOW, a performance criterion will be developed during pre-design for the store and release/ET cover system to achieve the remedial action objectives for the Mine Site Area. The pilot project shall be designed to measure the amount of surface infiltration into and net percolation through the cover system in order to assess the effectiveness of the various treatments in achieving the performance criterion for infiltration and percolation.

As stated above, the schedule for the pilot project shall include sufficient time (estimated at 5 – 10 years) to evaluate performance and incorporate pilot project results into the remedial design of subsequent waste rock piles. The durations may vary with the concepts being tested; some issues such as constructability would be assessed very quickly, while assessment of vegetation success would take longer.

Following EPA's written acceptance of the Roadside Waste Rock Piles Design Options Report, Pre-Design Spring Gulch Waste Rock Pile Borrow Characterization Study Report, or Group 1 Waste Rock Pile Pre-Design Investigation Report (if performed), whichever is latest, CMI shall commence the design of the Group 1 Waste Rock Pile pilot project, consistent with the ROD, and this SOW. All design plans and specifications shall be developed consistent with EPA's Superfund Remedial Design and Remedial Action Guidance (OSWER Directive No. 9355.0-4A), except as otherwise specified in this SOW or the Pilot Project Work Plan.

#### 6.7.1. Group 1 Waste Rock Pile Pre-Design Investigation

Within 90 days after the Effective Date, CMI shall prepare and submit to EPA a "Goathill North Stability Evaluation Report," containing a summary and evaluation of existing stability data for the Goathill North Waste Rock Pile. The Goathill North Stability Evaluation Report also shall identify any additional information that is required to perform the design of the Group 1 Waste Rock Pile pilot project, and if there is such information needed, describe the pre-design investigation work that is required to obtain such information and propose a schedule for such work.

If pre-design investigation work is required, within 60 days after EPA approval of the Goathill North Stability Evaluation Report, CMI shall prepare and submit to EPA for approval a draft "Group 1 Waste Rock Pile Pre-Design Investigation Work Plan" for the pre-design investigation work identified in the Goathill North Stability Evaluation Report. The work plan shall include those elements specified in Section 6.2.4.1 of this SOW.

CMI shall revise the draft work plan to address all EPA comments. A revised work plan shall be submitted to EPA for approval within 30 days after receipt of EPA comments.

Upon receipt of EPA's written approval of the Group 1 Waste Rock Pile Pre-Design Investigation Work Plan, CMI shall commence the pre-design investigation work in accordance with the approved work plan and schedule. CMI shall provide EPA, NMED, and MMD a minimum 10-day advance notice of the start of field activities. CMI shall provide EPA with updates and progress reports by telephone during any sampling activities.

Following completion of the pre-design investigation, CMI shall prepare and submit to EPA for approval a draft "Group 1 Waste Rock Pile Pre-Design Investigation Report" in accordance with the EPA-approved schedule. The draft report shall include without limitation the following, as appropriate: a summary of the objectives and requirements described in the approved work plan; a summary of the work completed; analytical results; a summary of any issues and problems encountered during the investigation; results and conclusions; and documentation of completion of the work and the date of completion.

CMI shall revise the draft report to address all EPA comments. The revised report shall be submitted to EPA for approval within 30 days after receipt of EPA comments.

#### 6.7.2. Group 1 Waste Rock Pile Design

The design process for the Group 1 Waste Rock Pile remedial design pilot project shall consist of four stages, as described below: preliminary design, intermediate design, pre-final design, and final design. The final design shall provide sufficient detail to support invitation-to-bid packages for Group 1 Waste Rock Pile pilot project construction. In addition to the Scoping Meeting for the Group 1 Waste Rock Pile Design, CMI, EPA, NMED, and MMD shall meet periodically during each stage of the Group 1 Waste Rock Pile design process to discuss key design elements.

##### 6.7.2.1. Preliminary Design

Within 120 days after receipt of EPA's written acceptance of the Roadside Waste Rock Piles Design Options Report, Pre-Design Spring Gulch Waste Rock Pile Borrow Characterization Study Report, or Group 1 Waste Rock Pile Pre-Design Investigation Report (if performed), whichever is latest, CMI shall submit to EPA a draft "Group 1 Waste Rock Pile Preliminary Design Report," which will initiate the design effort for the preferred design option for the Group 1 Waste Rock Pile. During the preparation of the Group 1 Waste Rock Pile Preliminary Design Report, CMI, EPA, NMED, and MMD shall meet at least monthly to discuss the preliminary design. The preliminary design report shall include or discuss, at a minimum, the following:

- Preliminary plans, drawings, and sketches;
- Preliminary design calculations;
- Results of applicable studies and additional field sampling and analysis, if any, conducted as part of the roadside waste rock piles design options evaluation or the integrated waste rock piles conceptual design options evaluation, or conducted since the Feasibility Study;
- Identification of data gaps, if any;
- Recommendations for additional data collection, if necessary;
- Design basis memorandum, including design assumptions and parameters, design restrictions and performance criteria;
- Outline of technical specifications;
- Preliminary anticipated pilot project monitoring and operation requirements;
- Preliminary construction schedule;
- Identification of potential community impacts; and
- Preliminary design for any waste rock repository(ies) required for pilot project material

If recommendations for additional data collection are made, CMI may propose to collect such data as described in Section 6.2.9 of this SOW.

The design includes various elements of grading, cover, and vegetation. The grading design will include geometry and aerial extent of waste rock piles; interbench placement and interbench slopes; estimated cut and fill volumes of waste rock to be moved to achieve required interbench slopes; and estimated volume of waste rock to be placed in repository(ies), if required. The design basis memorandum will include: identification of Performance Standards, ARARs, pertinent codes and standards, and pertinent TBC material identified in the ROD and discussion of how they will be addressed. Other technical factors of importance to be considered for design and construction will include: use of currently accepted environmental control measures, constructability of the design, use of currently acceptable construction practices and techniques, and use of green remediation practices. During the preliminary design, the potential community impacts will be identified, including potential coordination issues with mining personnel and other coordination issues (*e.g.*, utilities, environmental, community impacts), potential work zone transportation and management strategies, potential work zone impacts, and potential construction and traffic control approaches (*e.g.*, road closures).

CMI shall address all EPA comments on the draft preliminary design report either in a revised design report submitted to EPA for acceptance within 30 days of receipt of EPA comments, or, upon CMI request and EPA approval, in the draft Intermediate Design Report.

#### 6.7.2.2. Intermediate Design

Within 120 days after receipt of EPA's written acceptance of the Group 1 Waste Rock Pile Preliminary Design Report or EPA's approval of CMI's request to address EPA comments in the draft Intermediate Design Report, CMI shall submit to EPA a draft "Group 1 Waste Rock Pile Intermediate Design Report." The intermediate design report shall include or discuss, at a minimum, the following:

- Refined plans and drawings;
- Refined design calculations;
- Summary of the results of any data collection recommended in the Preliminary Design, or any relevant operational data;
- Updated design basis memorandum, as necessary;
- Refined technical specifications;
- Refined anticipated pilot project monitoring and operation requirements;
- Project schedule for construction and implementation;
- Constructability review; and
- Refined design for any waste rock repository(ies) required for pilot project material.

CMI shall address all EPA comments on the draft Intermediate Design Report in the draft Pre-Final Design Report.



#### 6.7.2.3. Pre-Final Design

Within 90 days after receipt of EPA's comments on the Group 1 Waste Rock Pile Intermediate Design Report, CMI shall develop a draft "Group 1 Waste Rock Pile Pre-Final Design Report," which will provide the design effort at a level sufficient for preparation of bid documents.

The pre-final design report shall include or discuss, at a minimum, the following:

- Draft final drawings, detail drawings, list of materials and quantities;
- Final design calculations;
- Final design assumptions and parameters;
- Draft final technical specifications;
- Updated project schedule for the construction and implementation of the pilot project, identifying timing for initiation and completion of all critical path tasks;
- An Operation and Maintenance ("O&M") Plan for the pilot project; and
- Draft final design for any waste rock repository(ies) required for pilot project material.

CMI shall address all EPA comments on the draft Pre-Final Design Report in the draft Final Design Report.

#### 6.7.2.4. Final Design and Pilot Project Work Plan

Within 30 days after receipt of EPA's comments on the Group 1 Waste Rock Pile Pre-Final Design Report, CMI shall submit a draft "Group 1 Waste Rock Pile Final Design Report and Pilot Project Work Plan." The design documents included in this report will be at a level considered suitable to issue for construction.

The Pilot Project work plan shall describe all the tasks to be performed for the pilot project and include a schedule for completing the tasks. The schedule shall include specific dates for each task and subtask, including the expected review times for EPA. The work plan shall include those elements specified in Section 6.2.4.1 of this SOW.

CMI shall address all EPA comments on the draft Final Design Report and Pilot Project Work Plan within 30 days after receipt of EPA comments.

Upon EPA approval of the Pilot Project Work Plan and schedule, they shall become enforceable parts of the Agreement.

### 6.7.3. Update Overall Site Plan

CMI shall update and maintain the necessary plans within the Overall Site Plan and the HASP for conducting the pilot project. Within 90 days after receipt of EPA's written acceptance of the Group 1 Waste Rock Pile Final Design Report and Pilot Project Work Plan, CMI shall review the existing plans and submit to EPA updated plans or addenda to plans, as necessary, to conduct the pilot project. The updated plans shall include an updated SAP, QAPP and FSP. Since CMI contractors or subcontractors may prepare their own plans, CMI shall incorporate any plans or procedures received from any of its contractors or subcontractors into the Overall Site Plan. CMI shall revise and update the appropriate plans, as necessary, throughout the pilot project.

### 6.7.4. Conduct Pilot Project for Group 1 Waste Rock Pile

CMI shall conduct the pilot project for the Group 1 Waste Rock Pile by performing the Work set forth in the Agreement, this SOW, and the EPA-approved Group 1 Waste Rock Pile Final Design Report and Pilot Project Work Plan. CMI shall perform the Work in accordance with the EPA-approved work plan schedule. The pilot project implementation will be broken into two major phases:

- Construction; and
- Monitoring.

#### 6.7.4.1. Construction Phase

The construction phase includes tasks covering the period of major construction activities. Activities which shall be conducted by CMI during this phase of the Early Design Actions include without limitation the following:

##### 6.7.4.1.1. Attend Pre-Construction Meeting

Within 30 days after receipt of EPA's written approval of the Group 1 Waste Rock Pile Final Design Report and Pilot Project Work Plan, CMI shall hold a pre-construction meeting with EPA, NMED, and MMD. Participants at the meetings shall include CMI's Project Coordinator, QA Official(s), and a representative of each of CMI's contractors and subcontractors that will perform the Work. Other participants for the meeting may include local emergency responders to implement the HASP (e.g., police and fire departments), State Department of Transportation officials (for potential road closures or vehicular traffic on state highways), or any other local or State government officials whose presence is appropriate for the nature of the Work to be performed. At the meeting, CMI shall provide participants with a detailed construction schedule that includes the actual dates for mobilization to the Site and construction start up.

#### 6.7.4.1.2. Advance Notice of Start of Construction

CMI shall provide a 10-day advanced notification of the start of the pilot project field activities to EPA, NMED, MMD and all other participants at the pre-construction meeting.

#### 6.7.4.1.3. Construct Pilot Project

Within 30 days after conducting the pre-construction meeting, or as otherwise provided in the approved schedule, CMI shall commence field construction activities in accordance with Section 6.2.7.4 of this SOW.

#### 6.7.4.1.4. Mobilization and Demobilization

CMI shall provide the necessary personnel, equipment, and materials for mobilization and demobilization to and from the Site for the purpose of performing the pilot project, including all required field testing, confirmatory sampling and performance and environmental monitoring. The following mobilization and demobilization Work shall be performed:

- identify field support equipment, supplies and facilities;
- mobilization;
- site preparation;
- installation of utilities;
- construction of temporary utilities; and
- demobilization.

#### 6.7.4.1.5. Provide Site Access

CMI shall provide EPA, NMED, MMD and other regulatory officials and their designated representatives with access to the Site, including all property owned or controlled by CMI and utilized by CMI in carrying out the Work, as provided in Section X of the Agreement (Access to the Site and Other Property).

#### 6.7.4.1.6. Maintain Field Logs and Daily Records

CMI shall maintain field logs and daily records documenting activities occurring in the field during construction as specified in Section 6.2.7.2.4 of this SOW.

#### 6.7.4.1.7. Pre-final Construction Inspection

CMI shall schedule and conduct a pre-final construction inspection of the Group 1 Waste Rock Pile pilot project with EPA, NMED, and MMD. CMI shall develop a punch list of any deficiencies as part of the pre-final construction inspection.

Within 30 days after conducting the pre-final construction inspection, CMI shall prepare and submit to EPA a pre-final construction inspection report which includes the list of deficiencies and completion dates for outstanding items, and the proposed date for a final construction inspection. The date for final construction inspection shall be scheduled within 14 days after completion of the corrective measures.

#### 6.7.4.1.8. Corrective Measures to Address Deficiencies

CMI shall perform corrective measures to adequately address all deficiencies identified on the punch list in accordance with the EPA-approved schedules included with the pre-final construction inspection report.

#### 6.7.4.1.9. Final Construction Inspection

CMI shall conduct a final construction inspection for the pilot project with EPA, NMED, and MMD. The final construction inspection shall consist of a walk-through of the project to determine the completeness of the pilot project construction and its consistency with the EPA-approved Group 1 Waste Rock Pile Final Design Report and Pilot Project Work Plan, the ROD, the Agreement, and this SOW. The inspection will also be used to determine if all punch list items have been adequately addressed. Based on the final construction inspection, CMI shall provide written notification that all field construction activities have been completed in accordance with the EPA-approved work plan and the date such work was completed. The written notification shall be submitted to EPA within 14 days of the final construction inspection, unless otherwise agreed to in writing.

#### 6.7.4.1.10. Final Pilot Project Construction Completion Report

Within 60 days after the final construction inspection, CMI shall prepare and submit to EPA for approval a draft "Final Pilot Project Construction Completion Report." The final construction completion report shall include without limitation the following elements:

- Background;
- Chronology of the pilot project construction;
- Pertinent Performance Standards and construction quality control;

- Pertinent ARARs and TBC material;
- Construction activities;
- As-built drawings that are certified by professional engineer licensed in the State of New Mexico;
- Final inspection documentation and date;
- Summary of project costs;
- Evaluation of construction methodology;
- Observations and lessons learned; and
- Contact information for key CMI and contractor personnel.

CMI shall make revisions to the pilot project construction completion report consistent with EPA's comments. The revised report shall be submitted to EPA for approval within 30 days after receipt of EPA comments or the time period determined by EPA.

#### 6.7.4.2. Monitoring Phase

The monitoring phase includes tasks covering the period of monitoring subsequent to the completion of major construction. Activities which shall be conducted by CMI during this phase of the Early Design Actions include without limitation the following:

##### 6.7.4.2.1. Data Acquisition, Analysis, Validation and Evaluation

CMI shall perform all sample acquisition, field testing and performance monitoring for the pilot project in conformance with the updated SAP, QAPP, FSP and EPA-approved work plan required under the Agreement and this SOW.

##### 6.7.4.2.2. Performance Monitoring

Within 60 days after receiving EPA's written approval of the Group 1 Waste Rock Pile Final Design Report and Pilot Project Work Plan, CMI shall prepare and submit to EPA for approval a draft "Pilot Project Performance Monitoring Plan." The monitoring plan shall be designed to measure the amount of infiltration into and net percolation through the non-acid generating pilot cover systems as well as erosion and sediment production from covered surfaces. The plan shall also be designed to assess the degree of metals uptake in plant tissue and vigor of plant growth. The plan also may include measurements of geotechnical performance and other performance measures proposed by CMI. Collectively, these assessments of hydraulic properties, erosion and vegetation will serve to verify the attainment of the Performance

Standards and ARARs for the portion of the pilot project that includes store and release/ET cover systems.

CMI shall revise the draft monitoring plan to address all EPA comments. The revised monitoring plan shall be submitted to EPA for approval within 30 days after receipt of EPA comments or the time period determined by EPA.

Within 30 day after receiving EPA's written approval of the monitoring plan, CMI shall monitor the performance of the Group 1 Waste Rock Pile pilot project, in accordance with the plan.

#### 6.7.4.2.3. Operation and Maintenance of Pilot Project

After construction is completed, CMI shall perform O&M of the pilot project pursuant to the O&M Plan until the date ten years after EPA approval of the Final Pilot Project Construction Completion Report or until the date of EPA approval of the Pilot Project Completion Report described in Section 6.7.4.2.8 of this SOW, whichever is earlier. EPA may require additional O&M of the pilot project as part of a Remedial Action outside of this SOW.

If EPA, the State, and CMI execute and the Court enters a Consent Decree for remedial design and remedial action at the Site, the O&M requirements set forth in the Consent Decree shall supersede the O&M requirements in Section 6.7.4.2.3 of this SOW.

#### 6.7.4.2.4. Quarterly Inspections

CMI shall conduct quarterly inspections of the constructed pilot project with EPA, NMED, and MMD, subject to refinement of this schedule in the Pilot Project Performance Monitoring Plan. CMI may propose to reduce the inspection frequency over time based on the data collected. CMI shall develop a punch list of deficiencies or recommended modifications or adjustments to the pilot project as part of the quarterly inspections. CMI shall prepare and submit to EPA an inspection report which documents the inspection, the participants, all observations and list of deficiencies or modifications which require corrective measures. The quarterly inspection report shall be submitted within 14 days after each inspection. Any significant modifications which are recommended by CMI in the inspection reports, or directed by EPA, which requires additional planning, shall also be documented in the annual assessment reports described in the following section of this SOW.

#### 6.7.4.2.5. Annual Monitoring and Assessment Reports for Pilot Project

CMI shall prepare and submit to EPA an "Annual Monitoring and Assessment Report for the Group 1 Waste Rock Pile Pilot Project" one year following CMI's notification pursuant to Section 6.7.4.1.9 and annually thereafter for each year that the pilot project is ongoing. The annual assessment reports shall document all testing and monitoring of the constructability and effectiveness of the designs, as well as the performance of the cover with regards to erosion, fate of applied amendments and vegetation elements of the store and release/ET cover system. As stated above, the time period for conducting the Pilot Project is approximately 5 – 10 years, which is the estimated amount of time necessary to adequately evaluate vegetation performance. The annual assessment reports shall assess whether the pilot project is performing as designed. The data collected from the pilot project monitoring shall be utilized to verify system performance.

The annual assessment reports shall also include plans for any recommended modifications or adjustments made by CMI or required by EPA based on performance monitoring and testing (*e.g.*, additional application of organic amendments following cover placement) and a schedule for implementing the modification or adjustments.

CMI shall revise the annual assessment report to address all EPA comments. The revised annual report shall be submitted to EPA for approval within 30 days after receipt of EPA comments or the time period determined by EPA.

#### 6.7.4.2.6. Modifications to Pilot Project

Upon receiving EPA's acceptance of any recommended modification or adjustment to the ongoing pilot project or EPA's direction for modification, CMI shall implement the modifications in accordance with the EPA-approved schedules contained in the annual assessment reports required in the previous section of this SOW.

#### 6.7.4.2.7. Provide Site Access

CMI shall provide EPA, NMED, MMD and other regulatory officials and their designated representatives with access to the Site, including all property owned or controlled by CMI and utilized by CMI in carrying out the Work, as provided in Section X of the Agreement (Access to the Site and Other Property).

#### 6.7.4.2.8. Pilot Project Completion Report

Ten years after EPA's approval of the Final Pilot Project Construction Completion Report, or at such earlier time that CMI and EPA agree that CMI has collected enough data from the pilot project to adequately evaluate the performance of the pilot project, CMI shall prepare and submit to EPA for approval a draft "Pilot Project Completion Report" summarizing and evaluating the data collected during the pilot project and evaluating the performance of the elements of the pilot project. The completion report shall include without limitation the following elements:

- Summary of monitoring results;
- Pertinent ARARs and TBC material;
- Evaluation of water management systems;
- Evaluation of long term stability;
- Evaluation of erosion;
- Evaluation of cover performance;
- Operations and maintenance requirements;
- Evaluation of vegetation design performance;
- Summary of lessons learned; and
- Identification of optimal design specifications and performance criteria to be utilized in subsequent waste rock pile designs.

CMI shall make revisions to the pilot project completion report consistent with EPA's comments. The revised report shall be submitted to EPA for approval within 30 days after receipt of EPA comments. EPA approval of the Pilot Project Completion Report shall not be unreasonably delayed.

### 6.8. Pre-Design Treatability Studies for Water Treatment

CMI shall conduct treatability studies as Early Design Actions to test and evaluate the performance of water treatment technologies outlined in the ROD. Such testing shall provide verification that the chosen treatment technologies selected in the ROD are appropriate for the waste streams to be generated at the Site. The studies shall test the treatability of contaminated water from the mine site and the tailing facility. The testing shall be in a manner that provides accurate and reliable information regarding chemical reagent consumption and sludge volume generation. The testing shall be precise, accurate and scalable to provide design specifications for properly sizing the waste water treatment plant, including without limitation chemical feeding systems, primary and secondary reaction tank sizes, flocculation and thickener tank sizes, sludge holding tanks and filter press or other sludge dewatering device specifications.



Laboratory screening is used to establish the validity of a technology to treat waste. Bench-scale testing is used to identify the performance of the technology specific to the type of waste or waste water being treated. Pilot-scale testing is used to provide quantitative performance, cost, and design information for remediation. See EPA Fact Sheet, *Guide for Conducting Treatability Studies under CERCLA*, November, 1993.

CMI shall perform the following treatability study activities:

6.8.1. Summary of Existing Data and Testing, and Literature Search

Within 60 days after the Effective Date of the Agreement, CMI shall prepare and submit to EPA a "Summary of Existing Data and Testing," containing a summary of existing water treatability testing data and evaluations, and incorporating the results of a comprehensive literature search, not limited to peer-reviewed articles, which support proposed designs and treatments in treatability studies at bench-scale and pilot-scale testing.

6.8.2. Prepare Treatability Study Work Plan

Within 90 days after EPA approval of the Summary of Existing Data and Testing, CMI shall prepare and submit to EPA for approval a "Treatability Study Work Plan for Water Treatment." The treatability study work plan shall include those elements specified in Section 6.2.4.1 of this SOW. The treatability study work plan shall describe the water treatment technologies and design parameters to be tested, test objectives, test equipment and systems, experimental procedures, treatability conditions to be tested, measurements of performance, analytical methods, data management and analysis, health and safety procedures, and residual waste management. The DQOs for the treatability studies shall also be documented.

The treatability study work plan shall describe in detail the treatment processes and how the proposed technologies will achieve Performance Standards and ARARs. The treatability study work plan shall address how CMI would meet all discharge or disposal requirements for any and all treated material, air, water, and expected effluents, including NPDES permitting requirements for treated effluent discharges to the Red River. Additionally, the work plan shall include a proposal for final treatment and disposal of all waste material generated by the proposed treatment system.

The Final FS Report (Revision 3) provides a conceptual evaluation of water treatment through use of two different technology systems: (1) a lime high-density sludge (HDS) primary treatment process, including reverse osmosis as a secondary polishing step (if needed) for the Mine Site Area, and (2) an ion exchange primary treatment process with a secondary reverse osmosis polishing step (if needed) for the Tailing Facility Area to meet the Performance Standards at the locations where treated effluent is discharged.

The work plan shall address both treatment systems, among other technologies. The work plan shall address water flow and chemistry of all water sources collected as part of the Selected Remedy. The work plan shall also address long-term performance of the water treatment systems, the need for and scope of treated effluent polishing steps to meet Performance Standards, and disposal of treatment residuals (including without limitations lime sludge, depleted resin, scale, and brine).

The work plan shall address, among other technologies, treatment systems that consist of conventional (off-the-shelf) and readily available components that are proven capable of treating the COCs within the influent water stream and that can be designed and constructed within the timeframes set forth in the ROD or as established through the NPDES permitting process.

A proposed schedule for performing treatability studies shall be included with the work plan. The schedule shall include specific dates for each task and subtask, including the expected review times for EPA.

CMI shall revise the draft work plan to address all EPA comments. The revised work plan shall be submitted to EPA for approval within 45 days after receipt of EPA comments.

Upon EPA approval of the work plan and schedule, they shall become enforceable parts of the Agreement.

### 6.8.3. Bench Tests, Pilot-Scale Tests, Field Tests

Within 30 days after receiving EPA's approval of the treatability study work plan, CMI shall commence bench tests, pilot-scale tests and/or field tests for water treatment as provided in the work plan. The Work shall be performed in accordance with the Agreement, this SOW, and the final EPA-approved work plan and schedule. CMI shall conduct such tests to determine whether the remediation technologies can achieve the Performance Standards.

Activities which shall be conducted by CMI during this phase of the Early Design Actions include without limitation the following:

- Procure or construct test facility and procure equipment;
- Identify vendor(s) and analytical services;
- Test equipment to ensure operation, then start up and operate equipment;
- Obtain samples for testing as specified in the EPA-approved treatability study work plan;
- Establish a laboratory to facilitate fast-turnaround analysis of test samples; and
- Characterize and dispose of residuals (e.g., sludge, spent resin, scale and brine), in accordance with law.

#### 6.8.4. Data Acquisition, Analysis, Validation and Evaluation

CMI shall perform all sample acquisition and field testing for the treatability studies in conformance with the updated SAP, QAPP, FSP and EPA-approved work plan required under the Agreement and this SOW.

#### 6.8.5. Treatability Study Evaluation Report

Within 60 days of completion of all bench-scale, pilot-scale and field testing, CMI shall prepare and submit to EPA for approval a draft "Treatability Study Evaluation Report for Water Treatment" that describes the performance of the water treatment technologies tested. The report shall clearly indicate the performance of the technologies compared with the Performance Standards and ARARs established in the ROD, the Agreement and this SOW. The report shall evaluate the effectiveness of the treatment technologies, implementability, cost, and final results compared with the predicted results. The report shall also evaluate full-scale application of the technologies, including sensitivity analysis identifying the key parameters affecting full-scale operation.

CMI shall revise the draft report to address all EPA comments. The revised report shall be submitted to EPA for approval within 30 days after receipt of EPA comments.

The report shall include without limitation the following elements:

- Background;
- Chronology of treatability study activities;
- Performance Standards and construction quality control;
- Pertinent ARARs and TBC material;
- Summary of bench tests, pilot tests and field tests results;
- Identification of optimal design specifications and performance criteria to be utilized in design of water treatment plants;
- Certification of completion of treatability studies;
- Observations and lessons learned; and
- Contact information for key CMI and contractor personnel.

### **6.9. Design of Ground Water Extraction System in the Lower Sulphur Gulch Waste Rock Pile Drainage**

The design process for the ground water extraction system for the Lower Sulphur Gulch Waste Rock Pile drainage as described in Section 4.7 of this SOW shall consist of two stages, as described below: pre-final design, and final design.

#### 6.9.1. Pre-Final Design

Within 120 days after the Effective Date of the First Amendment to the Early Design AOC, CMI shall develop and submit a draft "Lower Sulphur Gulch Waste Rock Pile Drainage Extraction System Pre-Final Design Report," which will provide for a design at a level sufficient for preparation of bid documents.

The pre-final design report shall include or discuss, at a minimum, the following:

- Pre-final drawings, detail drawings, list of materials and quantities;
- Pre-final design calculations;
- Design assumptions and parameters;
- Pre-final technical specifications;
- A pre-final/final O&M Plan and O&M Manual for the groundwater extraction system; The O&M Manual and O&M Plan shall be developed in accordance with *Operation and Maintenance in the Superfund Program*, OSWER 9200.1 37FS, EPA/540/F-01/004 (May 2001).
- Pre-final CQAPP in accordance with Section 6.2.7.4.

CMI shall address all EPA comments on the draft Pre-Final Design Report in the draft Final Design Report.

#### 6.9.2. Final Design

Within 30 days after receipt of EPA's comments on the Pre-Final Design Report, CMI shall submit a draft "Lower Sulphur Gulch Waste Rock Pile Drainage Groundwater Extraction System Final Design Report." The design documents included in this report will be at a level considered suitable to issue for construction.

CMI shall address all EPA comments on the draft Final Design Report within 30 days after receipt of EPA comments.

### **6.10. Design of Groundwater Extraction Systems To Enhance Lower 002 Seepage Barrier and Upper 003 Seepage Barrier at Tailing Facility**

The design process for the groundwater extraction system to enhance the Lower 002 Seepage Barrier and the Upper 003 Seepage Barrier at the Tailing Facility as described in Section 4.8 of this SOW shall consist of two stages, as described below: pre-final design, and final design.

#### 6.10.1. Pre-Final Design

Within 120 days after EPA approval of the “Pre-Design Investigations to Upgrade Seepage Barriers and Well Extraction Systems – Tailing Facility Report” under Section 6.4.3 of this SOW, CMI shall develop and submit a draft “Tailing Facility Seepage Barrier Upgrade Pre-Final Design Report,” which will provide a design at a level sufficient for preparation of bid documents.

The pre-final design report shall include or discuss, at a minimum, the following:

- Pre-final drawings, detail drawings, list of materials and quantities;
- Pre-final design calculations;
- Design assumptions and parameters;
- Pre-final technical specifications;
- A pre-final/final O&M Plan and O&M Manual for the groundwater extraction system; The O&M Manual and O&M Plan shall be developed in accordance with *Operation and Maintenance in the Superfund Program*, OSWER 9200.1 37FS, EPA/540/F-01/004 (May 2001).
- Pre-final CQAPP in accordance with Section 6.2.7.4

CMI shall address all EPA comments on the draft Pre-Final Design Report in the draft Final Design Report.

#### 6.10.2. Final Design

Within 30 days after receipt of EPA’s comments on the Pre-Final Design Report, CMI shall submit a draft “Tailing Facility Seepage Barrier Upgrade Final Design Report.” The design documents included in this report will be at a level considered suitable to issue for construction.

CMI shall address all EPA comments on the draft Final Design Report within 30 days after receipt of EPA comments.

### **6.11. Design and Construction of Pilot Surface Based Mine Dewatering System**

As detailed below, CMI shall design the pilot dewatering system as described in Section 4.9 of this SOW and then implement the design.

#### 6.11.1. Surface Based Mine Dewatering System Design

The design process for the Surface Based Mine Dewatering System pilot project shall consist of three stages, as described below: intermediate design, pre-final design, and final design. The final design shall provide sufficient detail to support invitation-to-bid

packages for pilot project construction. In addition to the Scoping Meeting for the Surface Based Mine Dewatering System Design, CMI, EPA, NMED, and MMD shall meet periodically during each stage of the design process to discuss key design elements.

#### 6.11.1.1. Intermediate Design

Within 90 days after the Effective Date of the First Amendment, CMI shall submit to EPA a draft "Mine Dewatering System Intermediate Design Report." The intermediate design report shall include or discuss, at a minimum, the following:

- Draft plans and drawings;
- Draft design calculations;
- Design basis memorandum;
- Draft technical specifications;
- Draft anticipated pilot project performance monitoring and operation and maintenance ("O&M") requirements; and
- Draft project schedule for construction and implementation.

CMI shall address all EPA comments on the draft Intermediate Design Report in the draft Pre-Final Design Report.

#### 6.11.1.2. Pre-Final Design

Within 60 days after receipt of EPA's comments on the draft Mine Dewatering System Intermediate Design Report, CMI shall develop a draft "Mine Dewatering System Pre-Final Design Report," which will provide the design effort at a level sufficient for preparation of bid documents.

The pre-final design report shall include or discuss, at a minimum, the following:

- Pre-final drawings, detail drawings, list of materials and quantities;
- Pre-final design calculations;
- Design assumptions and parameters;
- Pre-final technical specifications;
- A Pre-final/final O&M Plan and O&M Manual for the dewatering system, including contingencies to address system failures; The O&M Manual and O&M Plan shall be developed in accordance with *Operation and Maintenance in the Superfund Program*, OSWER 9200.1 37FS, EPA/540/F-01/004 (May 2001).
- Pre-final/final performance monitoring plan, developed to evaluate the effectiveness of the system to maintain the water level in the underground workings below the elevation of the Red River, thereby maintaining a hydraulic gradient in bedrock towards the mine;
- Pre-final CQAPP in accordance with Section 6.2.7.4
- Pre-final schedule for the construction and implementation of the pilot project, identifying timing for initiation and completion of all critical path tasks;

- Pre-final pilot project contracting strategy;
- Potential work zone transportation and management strategies;
- Potential work zone impacts; and
- A description of how the pilot project will be constructed and operated in a manner that mitigates environmental impacts in accordance with EPA's *Principles for Greener Cleanups* (Aug. 2009).

CMI shall address all EPA comments on the draft Pre-Final Design Report in the draft Final Design Report.

#### 6.11.1.3. Final Design

Within 30 days after receipt of EPA's comments on the draft Mine Dewatering System Pre-Final Design Report, CMI shall submit a draft "Mine Dewatering System Final Design Report." The design documents included in this report will be at a level considered suitable to issue for construction.

The draft Final Design Report shall describe all the tasks to be performed for the pilot project and include an updated schedule for completing the tasks, including the expected review times for EPA.

CMI shall address all EPA comments on the draft Final Design Report within 30 days after receipt of EPA comments.

#### 6.11.2. Update Overall Site Plan

CMI shall update and maintain the necessary plans within the Overall Site Plan and the HASP for conducting the pilot project. Within 60 days after receipt of EPA's written acceptance of the Mine Dewatering System Final Design Report, CMI shall review the existing plans and submit to EPA updated plans or addenda to plans, as necessary, to conduct the pilot project. The updated plans shall include an updated SAP, QAPP and FSP as appropriate. Since CMI contractors or subcontractors may prepare their own plans, CMI shall incorporate any plans or procedures received from any of its contractors or subcontractors into the Overall Site Plan. CMI shall revise and update the appropriate plans, as necessary, throughout the pilot project.

#### 6.11.3. Conduct Pilot Dewatering System Project

CMI shall conduct the pilot dewatering system project by performing the Work set forth in the Agreement, this SOW, and the EPA-approved Mine Dewatering System Final Design Report. CMI shall perform the Work in accordance with the EPA-approved

schedule. The pilot dewatering system project implementation will be broken into two major phases:

- Construction; and
- Monitoring.

#### 6.11.3.1. Construction Phase

The construction phase includes tasks covering the period of major construction activities. Activities which shall be conducted by CMI during this phase of the Early Design Actions include without limitation the following:

##### 6.11.3.1.1. Attend Pre-Construction Meeting

Within 30 days after receipt of EPA's written approval of the Mine Dewatering System Final Design Report, CMI shall hold a pre-construction meeting with EPA, NMED, and MMD. Participants at the meetings shall include CMI's Project Coordinator, QA Official(s), and a representative of each of CMI's contractors and subcontractors that will perform the Work.

##### 6.11.3.1.2. Advance Notice of Start of Construction

CMI shall provide a 10-day advanced notification of the start of the pilot project field activities to EPA, NMED, MMD and all other participants at the pre-construction meeting.

##### 6.11.3.1.3. Construct Pilot Dewatering System

Within 30 days after conducting the pre-construction meeting, or as otherwise provided in the approved schedule, CMI shall commence field construction activities in accordance with the CQAPP.

##### 6.11.3.1.4. Mobilization and Demobilization

CMI shall provide the necessary personnel, equipment, and materials for mobilization and demobilization to and from the Site for the purpose of performing the pilot project, including all required field testing, confirmatory sampling and performance and environmental monitoring. The following mobilization and demobilization Work shall be performed:

- identify field support equipment, supplies and facilities;
- mobilization;
- site preparation;
- installation of utilities;
- construction of temporary utilities; and



- demobilization.

#### 6.11.3.1.5. Provide Site Access

CMI shall provide EPA, NMED, MMD and other regulatory officials and their designated representatives with access to the Site, including all property owned or controlled by CMI and utilized by CMI in carrying out the Work, as provided in Section X of the Agreement (Access to the Site and Other Property).

#### 6.11.3.1.6. Maintain Field Logs and Daily Records

CMI shall maintain field logs and daily records documenting activities occurring in the field during construction as specified in Section 6.2.7.2.4 of this SOW.

#### 6.11.3.1.7. Pre-final Construction Inspection

CMI shall schedule and conduct a pre-final construction inspection of the pilot dewatering system with EPA, NMED, and MMD. CMI shall develop a punch list of any deficiencies as part of the pre-final construction inspection.

Within 30 days after conducting the pre-final construction inspection, CMI shall prepare and submit to EPA a pre-final construction inspection report which includes the list of deficiencies and completion dates for outstanding items, and the proposed date for a final construction inspection. The date for final construction inspection shall be scheduled within 14 days after completion of the corrective measures.

#### 6.11.3.1.8. Corrective Measures to Address Deficiencies

CMI shall perform corrective measures to adequately address all deficiencies identified on the punch list in accordance with the EPA-approved schedules included with the pre-final construction inspection report.

#### 6.11.3.1.9. Final Construction Inspection

CMI shall conduct a final construction inspection for the pilot dewatering system with EPA, NMED, and MMD. The final construction inspection shall consist of a walk-through of the project to determine the completeness of the pilot dewatering system construction and its consistency with the EPA-approved Mine Dewatering System Final Design Report, the ROD, the Agreement, and this SOW. The inspection will also be used to determine if all punch list items have been adequately

addressed. Based on the final construction inspection, CMI shall provide written notification that all field construction activities have been completed in accordance with the EPA-approved design and the date such work was completed. The written notification shall be submitted to EPA within 14 days of the final construction inspection, unless otherwise agreed to in writing.

#### 6.11.3.1.10. Final Pilot Surface-Based Mine Dewatering System Construction Completion Report

Within 60 days after the final construction inspection, CMI shall prepare and submit to EPA for approval a draft "Final Pilot Project Construction Completion Report." The final construction completion report shall include without limitation the following elements:

- Background;
- Chronology of the pilot project construction;
- Pertinent Performance Standards and construction quality control;
- Pertinent ARARs and TBC material;
- Construction activities;
- As-built drawings that are certified by professional engineer licensed in the State of New Mexico;
- Final inspection documentation and date;
- Summary of project costs;
- Evaluation of construction methodology;
- Observations and lessons learned; and
- Contact information for key CMI and contractor personnel.

CMI shall make revisions to the Final Pilot Project Construction Completion Report consistent with EPA's comments. The revised report shall be submitted to EPA for approval within 30 days after receipt of EPA comments or the time period determined by EPA.

#### 6.11.3.2. Monitoring Phase

The monitoring phase includes tasks covering the period of monitoring subsequent to the completion of major construction. Activities which shall be conducted by CMI during this phase of the Early Design Actions include without limitation the following:

##### 6.11.3.2.1. Data Acquisition, Analysis, Validation and Evaluation

CMI shall perform all sample acquisition, field testing and performance monitoring for the pilot project in conformance with the updated SAP, QAPP, FSP and EPA-approved design required under the Agreement and this SOW.

#### 6.11.3.2.2. Operation and Maintenance of Pilot Dewatering System

CMI shall perform O&M of the pilot dewatering system pursuant to the O&M Plan until the date two years following CMI's notification pursuant to Section 6.11.3.1.9. EPA may require additional O&M of the pilot project as part of a Remedial Action outside of this SOW.

If EPA, the State, and CMI execute and the Court enters a Consent Decree for remedial design and remedial action at the Site that includes O&M requirements relating to the underground mine dewatering system, the O&M requirements set forth in the Consent Decree shall supersede the O&M requirements in Section 6.11.3.2.2 of this SOW.

#### 6.11.3.2.3. Annual Monitoring and Assessment Reports for Pilot Dewatering System

CMI shall prepare and submit to EPA an "Annual Monitoring and Assessment Report for the Pilot Surface-Based Mine Dewatering System" one year following CMI's notification pursuant to Section 6.11.3.1.9 and annually thereafter for each year that the pilot project is ongoing until EPA approval of the Pilot Surface-Based Mine Dewatering System Completion Report in Section 6.11.3.2.6. The annual assessment reports shall document and assess whether the pilot project is performing as designed. The data collected from the pilot project monitoring shall be utilized to verify system performance.

The annual assessment reports shall also include plans for any recommended modifications or adjustments made by CMI or required by EPA based on performance monitoring and testing and a schedule for implementing the modification or adjustments.

CMI shall revise the annual assessment report to address all EPA comments. The revised annual report shall be submitted to EPA for approval within 30 days after receipt of EPA comments or the time period determined by EPA.

#### 6.11.3.2.4. Modifications to Pilot Dewatering System

Upon receiving EPA's acceptance of any recommended modification or adjustment to the ongoing pilot project or EPA's direction for modification, CMI shall implement the modifications in accordance with

the EPA-approved schedules contained in the annual assessment reports required in the previous section of this SOW.

#### 6.11.3.2.5. Provide Site Access

CMI shall provide EPA, NMED, MMD and other regulatory officials and their designated representatives with access to the Site, including all property owned or controlled by CMI and utilized by CMI in carrying out the Work, as provided in Section X of the Agreement (Access to the Site and Other Property).

#### 6.11.3.2.6. Pilot Surface-Based Mine Dewatering System Completion Report

Two years after EPA's approval of the Final Pilot Surface-Based Mine Dewatering System Construction Completion Report, or at such earlier time that CMI and EPA agree that CMI has collected enough data from the pilot dewatering system to adequately evaluate the performance of the pilot dewatering system, CMI shall prepare and submit to EPA for approval a draft "Pilot Surface-Based Mine Dewatering System Completion Report" summarizing and evaluating the data collected during the pilot dewatering system project and evaluating the performance of the elements of the pilot dewatering system project. The completion report shall include without limitation the following elements:

- Summary of monitoring results;
- Pertinent ARARs and TBC material;
- Evaluation of the effectiveness of the pilot dewatering system in maintaining the water level in the underground workings below the elevation of the Red River, thereby maintaining a hydraulic gradient in bedrock towards the mine;
- Operation and maintenance requirements;
- Summary of lessons learned; and
- Recommendations for long term operation or any design modifications that may be required.

CMI shall make revisions to the Surface-Based Mine Dewatering System Completion Report consistent with EPA's comments. The revised report shall be submitted to EPA for written approval within 30 days after receipt of EPA comments. EPA approval of the Surface-Based Mine Dewatering System Completion Report shall not be unreasonably delayed.

#### 6.11.4. Pilot Dewatering System Design Modification

If design modifications are required, CMI shall submit a pre-final design report for those modifications consistent with Section 6.11.1.2 within 60 days after receipt of EPA's written approval of the Surface-Based Mine Dewatering System Completion Report. CMI shall submit a final design report for those modifications consistent with Section 6.11.1.3 within 30 days after receipt of EPA's comments on the pre-final design report for those modifications.

### **6.12. Tailing Facility Grading Plan**

Preparation of the plan for the final grading of the Tailing Facility as described in Section 4.10 of this SOW shall consist of four stages, as described below: pre-design investigation; intermediate design; pre-final design; and final design. For consistency with the remainder of this SOW, the term "design" is used in Section 6.12 to refer to the grading plan required by this section.

#### 6.12.1. Pre-Design Investigation Work Plan

Within 120 days after the Effective Date of the Second Amendment, CMI shall prepare and submit to EPA for approval a "Pre-Design Investigation Work Plan for Tailing Facility Grading." The work plan shall include those elements specified in Section 6.2.4.1 of this SOW. The work plan shall include a description of all tasks to be conducted for obtaining the information necessary to prepare the Tailing Facility Grading Plan. The work plan shall also include a schedule for completing the tasks and submitting the "Intermediate Design for Tailing Facility Grading". The schedule shall include specific dates for each task and subtask, including the expected review times for EPA.

The pre-design investigation shall be designed to provide, at a minimum, the following information:

- a summary of existing data relevant to preparation of the Tailing Facility Grading Plan;
- current design-level topography;
- estimates of tailing draindown and settlement due to consolidation;
- borrow source characterization and availability of suitable borrow material for fill and cover options;
- information needed to satisfy Office of the State Engineer substantive requirements for tailing facility closure, 19.25.12.19 NMAC;
- other applicable regulatory criteria; and
- design criteria for the grading plan.

CMI shall revise the draft work plan to address all EPA comments. A revised work plan shall be submitted to EPA for approval within 30 days after receipt of EPA comments.

Upon EPA approval of the work plan and schedule, they shall become enforceable parts of the Agreement.

6.12.2. Pre-Design Investigation for Tailing Facility Grading

Upon receipt of EPA's written approval of the Pre-Design Investigation Work Plan for Tailing Facility Grading, CMI shall commence the investigation in accordance with the approved work plan and schedule. CMI shall provide EPA, NMED, and MMD a minimum 10-day advance notice of the start of field activities.

6.12.3. Intermediate Design for Tailing Facility Grading

CMI shall submit a draft "Intermediate Design Report for Tailing Facility Grading" in accordance with the approved work plan and schedule that includes the following elements:

- report of the results of the pre-design investigation, including the elements required under Section 6.12.2;
- evaluation of grading alternatives;
- draft grading plan for recommended alternative at intermediate level of detail, with proposed construction phasing;
- draft drawings, detail drawings, list of materials and quantities, including estimates of borrow needs for fill and cover options;
- draft design assumptions, parameters, and calculations; and
- draft technical specifications.

CMI shall address all EPA comments on the draft Intermediate Design Report in the draft Pre-Final Design Report.

6.12.4. Pre-Final Design for Tailing Facility Grading

Within 90 days after receipt of EPA's comments on the Intermediate Design Report for Tailing Facility Grading, CMI shall develop and submit a draft "Tailing Facility Grading Pre-Final Design Report," which will provide for a design at a level sufficient for preparation of bid documents.

The pre-final design report shall include the following:

- Pre-final drawings, detail drawings, list of materials and quantities;
- Pre-final design assumptions, parameters, and calculations;
- Pre-final technical specifications;
- Pre-final CQAPP in accordance with Section 6.2.7.4; and
- Pre-final schedule for construction.

CMI shall address all EPA comments on the draft Pre-Final Design Report in the draft Final Design Report.

#### 6.12.5. Final Design

Within 60 days after receipt of EPA's comments on the Pre-Final Design Report, CMI shall submit a draft "Tailing Facility Grading Final Design Report." The design documents included in this report will be at a level considered suitable to issue for construction.

CMI shall address all EPA comments on the draft Final Design Report within 30 days after receipt of EPA comments.

### **6.13. Spring Gulch Waste Rock Cover Field Trials**

CMI shall conduct field trials of Spring Gulch waste rock cover material ("Spring Gulch Cover") as described in Section 4.11 of this SOW, utilizing the results of the work performed under Section 4.3 of this SOW. The field trials are being designed to evaluate various methods and techniques for material handling, amendment incorporation, and cover placement and revegetation at various slope gradients at a field scale.

#### 6.13.1. Pre-Design Work Plan for Field Trials

Within 60 days after the Effective Date of the Second Amendment, CMI shall submit a "Pre-Design Work Plan for Spring Gulch Cover Field Trials." The work plan shall include those elements specified in Section 6.2.4.1 of this SOW and describe how the field trials will evaluate various methods and techniques for material handling, amendment incorporation, cover placement, and revegetation at a field scale. This work plan shall include a summary of the objectives of the field trials, relevant data quality objectives, a description of all tasks to be conducted during the field trials, a construction completion inspection, and a monitoring plan. The work plan shall also include a schedule for completing the tasks. The schedule shall include specific dates for each task and subtask, including the expected review times for EPA.

CMI shall revise the draft work plan to address all EPA comments. A revised work plan shall be submitted to EPA for approval within 30 days after receipt of EPA comments.

Upon EPA approval of the work plan and schedule, they shall become enforceable parts of the Agreement.

#### 6.13.2. Pre-Design Spring Gulch Cover Field Trials

Upon receipt of EPA's written approval of the Pre-Design Work Plan for Spring Gulch Cover Field Trials, CMI shall commence the work in accordance with the approved work plan and schedule. CMI shall provide EPA, NMED, and MMD a minimum 10-day advance notice of the start of field activities.

#### 6.13.3. Notice of Completion of Field Trial Construction

CMI shall provide notice to EPA, NMED, and MMD upon completion of initial revegetation activities (e.g., planting, seeding, mulching) pursuant to the work plan.

#### 6.13.4. Construction Completion Report for Spring Gulch Cover Field Trials

Within 90 days after provision of notice pursuant to Section 6.13.3, CMI shall prepare and submit to EPA a draft "Construction Completion Report for Spring Gulch Cover Field Trials." The report shall provide a chronology of construction of the field trial areas, construction quality control methods, a summary of the construction activities, and the initial observations and lessons learned from the field trials, for use in the Group 1 Waste Rock Pile Design under Section 6.7.2 of this SOW.

#### 6.13.5. Annual and Final Monitoring Reports for Spring Gulch Cover Field Trials

CMI shall prepare and submit to EPA an "Annual Monitoring Report for Spring Gulch Cover Field Trials" one year and two years following provision of notice pursuant to Section 6.13.3. The monitoring report shall include those elements presented in the monitoring plan described in the "Pre-Design Work Plan for Spring Gulch Cover Field Trials" as well as any other relevant observations and lessons learned by CMI, and any plans for recommended modifications or adjustments to better achieve the objectives of the field trials.

CMI shall prepare and submit to EPA a "Final Report on Spring Gulch Cover Field Trials" three years following completion of initial revegetation activities. The Final Report shall include a summary of activities since the Construction Completion Report for Spring Gulch Cover Field Trials, revegetation status, and any other relevant observations and lessons learned by CMI not included in the Annual Monitoring Reports.

CMI shall revise each Annual Monitoring Report and the Final Report, as applicable, to address all EPA comments. The revised Annual Monitoring Report and Final Report, as applicable, shall be submitted to EPA for approval within 30 days after receipt of EPA comments or such other time period as agreed by the Project Coordinators.

### **6.14. Tailing Facility Vegetation and Wildlife Studies**

CMI shall conduct Tailing Facility vegetation and wildlife studies as described in Section 4.12 of this SOW. The field studies are designed to assist in the identification of plant species to be considered for tailing facility revegetation, provide information on exposure of large herbivorous wildlife to molybdenum at the Tailing Facility and any associated risks, analyze the impact small burrowing mammals may have on cover integrity, and support the development of the Tailing Facility cover design, revegetation and monitoring requirements, and operation and maintenance plans.



#### 6.14.1. Design Work Plan for Vegetation and Wildlife Studies

Within 60 days after the Effective Date of the Third Amendment, CMI shall prepare and submit to EPA for approval a “Design Work Plan for Tailing Facility Vegetation and Wildlife Studies.” The work plan shall include those elements specified in Section 6.2.4.1 of this SOW. The work plan shall include a description of all tasks to be performed for the studies and include a schedule for completing the tasks. The schedule shall include specific dates for each task and subtask, including expected review times for EPA. The tasks will include:

- Vegetation survey – CMI shall survey vegetation cover, density, species frequency, and root distribution across the interim cover areas of the Tailing Facility.
- Cover thickness – CMI shall measure the interim cover thickness at the plant survey locations.
- Plant DNA analysis – CMI shall conduct sampling of representative species of vegetation identified during the plant survey and conduct DNA analysis of the above-ground plant tissue. These data will be used in combination with the scat sample collection described below to evaluate potential forage species for large herbivorous wildlife.
- Collocated plant and soil samples from interim cover areas at the Tailing Facility CMI shall use the data collected as part of the vegetation survey to select sample locations for collecting representative vegetation and soil samples for each of the plant species represented at the tailing facility in each interim cover area. At each location, above-ground plant tissue and collocated root-zone soil samples will be collected and analyzed for molybdenum and copper to develop species-specific bioaccumulation models. Based on the results of the root depth survey, if interim cover vegetation is rooting in tailings the work plan shall include collection of tailing samples for analysis of agronomic parameters that may influence plant growth (e.g. pH, , electrical conductivity, grain size, available nutrients, etc.) in the vicinity of a set of root zone soil samples.
- Baseline elk data – CMI shall cooperate and coordinate with the New Mexico Department of Game and Fish to stage bait stations and corrals to capture elk on the Tailing Facility, electronically tag the elk, and collect samples of blood, hair, and feces for analysis of molybdenum, copper, and other clinical parameters. A herd present in another area of New Mexico, and approved by EPA, shall be selected as a baseline for comparison of Tailing Facility elk health data. CMI shall use data obtained from the elk on the Tailing Facility to assess the general health of the elk and to compare these health data with the baseline herd. CMI shall monitor the electronically tagged elk for a period of approximately one year and process the electronic data to assess the home range of the elk found on the tailing facility, seasonal movement patterns, areas of foraging, and general forage types.

- Elk and deer molecular scatology study – CMI shall collect elk and mule deer scat from different locations across the Tailing Facility and in different seasons and analyze for plant DNA. CMI shall compare the plant DNA detected in the scat to the plant DNA collected for different vegetation species as described above. These data are intended to provide information on what species of vegetation elk and deer have been consuming.
- Gopher studies – CMI shall assess the number, spatial distribution, and to the extent practicable, average burrow depths near each mound, volume of soil and tailings displaced to the interim cover surface, and the interim cover thickness near each gopher mound sampled on the Tailing Facility interim cover areas to evaluate impact to cover integrity. These data are intended to provide information about the impacts of gopher activity on cover integrity so it can be considered as part of the design, implementation, and Operation and Maintenance Plans for the final cover.

#### 6.14.2. Design Studies for Tailing Facility Vegetation and Wildlife

Upon receipt of EPA’s written approval of the Design Work Plan for Tailing Facility Vegetation and Wildlife Studies, CMI shall commence the vegetation and wildlife studies outlined in Section 6.14.1 of this SOW in accordance with the approved work plan and schedule. CMI shall provide EPA, NMED, and MMD 10-day advance notice of the start of field activities. A detailed field schedule will also be provided 10 days in advance of field activities.

#### 6.14.3. Design Reports for Tailing Facility Vegetation and Wildlife Studies

CMI shall prepare and submit to EPA for approval a draft “Design Tailing Facility Vegetation Survey and Cover Thickness Study Report” (Vegetation Survey Report), a draft “Design Tailing Facility Vegetation and Wildlife Studies Report” (Vegetation and Wildlife report) and draft “Design Tailing Facility Elk Health and Tracking Study Report” (Elk report) in accordance with the approved schedule (Attachment 1). The results of the vegetation survey and cover depth analysis for interim cover areas shall be included in the “Pre-Design Tailing Facility Vegetation Survey and Cover Thickness Study Report.” The results of the collocated sampling assessment, molecular scatology survey and gopher studies shall be included in the “Pre-Design Tailing Facility Vegetation and Wildlife Studies Report” and the results of the baseline elk health and tracking Study will be included in the “Pre-Design Tailing Facility Elk Baseline Health and Tracking Study Report.” The individual reports will be submitted within 60 days after receipt of final data for each respective set of studies, except that the Draft Pre-Design Tailing Facility Elk Baseline Health and Tracking Study Report will be submitted within 150 days after the tracking collars are collected and the tracking data are downloaded.

The draft reports shall, at a minimum, include all methods, analytical results, and an evaluation and interpretation of the data. As appropriate, the draft reports shall include the following:

- Summary of the study objectives and requirements established in the approved work plan;
- Methods used to conduct study and analyze data;
- Summary of study results and interpretation;
- Recommendations for vegetation species to be considered for tailing cover revegetation;
- Ramifications of study results for long term operation and maintenance;
- Description of problems or unusual occurrences encountered during the field sampling effort, testing of samples or evaluation of data; and
- Documentation of completion of the Vegetation Survey Report and Vegetation and Wildlife Report and the dates of completion.

CMI shall revise the draft Reports, to address all EPA comments. The revised reports shall be submitted to EPA for approval within 45 days after receipt of EPA comments.

**ATTACHMENT 1**  
**SUMMARY OF MAJOR DELIVERABLES FOR EARLY DESIGN ACTIONS**  
**CHEVRON QUESTA MINE SUPERFUND SITE**

<b>SOW Section</b>	<b>Deliverable</b>	<b>Due Date</b>
	Notification of Project Coordinator Designation	5 days after Effective Date of Agreement
	Notification of Names and Qualifications of Contractor(s) and Subcontractors Retained to Perform the Work	10 days after Effective Date of Agreement
6.1.4	Weekly Communication Report	5 workings days from meeting/conversation
6.1.5	Monthly Progress Report	Beginning on the 10th day in the month following entry of the Agreement and ending with the month following EPA approval of the Final Pilot Project Completion Report
6.1.6	Meeting Results	5 working days following meeting
6.2.6	Early Design Actions Project Schedule	30 days after Effective Date of Agreement
6.2.7	Overall Site Plan – Draft	90 days after Effective Date of Agreement
	Overall Site Plan – Final	30 days after receipt of EPA comments
6.2.7.1	Site Management Plan – Draft	90 days after Effective Date of Agreement
	Site Management Plan – Final	30 days after receipt of EPA comments
6.2.7.2	Sampling and Analysis Plan – Draft	90 days after Effective Date of Agreement
	Sampling and Analysis Plan – Final	30 days after receipt of EPA comments
6.2.7.3	Contingency Plan – Draft	90 days after Effective Date of Agreement
	Contingency Plan – Final	30 days after receipt of EPA comments
6.2.7.4	Construction Quality Assurance Plan – Draft	90 days after Effective Date of Agreement
	Construction Quality Assurance Plan – Final	30 days after receipt of EPA comments
6.2.8	Health and Safety Plan	30 days after Effective Date of Agreement
6.3.1	Pre-Design Work Plan for the Ground Water Investigation at the Tailing Facility Area – Draft	90 days after Effective Date of Agreement

<b>SOW Section</b>	<b>Deliverable</b>	<b>Due Date</b>
	Pre-Design Work Plan for the Ground Water Investigation at the Tailing Facility Area – Final	30 days after receipt of EPA comments
6.3.3	Pre-Design Ground Water Investigation at the Tailing Facility Area Report – Draft	Per project schedule
	Pre-Design Ground Water Investigation at the Tailing Facility Area Report – Final	30 days after receipt of EPA comments
6.4.1	Pre-Design Work Plan for Investigations to Upgrade Seepage Barriers and Well Extraction Systems – Draft	90 days after effective date of Agreement
	Pre-Design Work Plan for Investigations to Upgrade Seepage Barriers and Well Extraction Systems – Final	30 days after receipt of EPA comments
6.4.3	Pre-Design Investigations to Upgrade Seepage Barriers and Well Extraction Systems Report – Draft	Per project schedule
	Pre-Design Investigations to Upgrade Seepage Barriers and Well Extraction Systems Report – Final	30 days after receipt of EPA comments
6.5.1	Pre-Design Work Plan for Borrow Characterization of Spring Gulch Waste Rock – Draft	90 days after effective date of Agreement
	Pre-Design Work Plan for Borrow Characterization of Spring Gulch Waste Rock – Final	45 days after receipt of EPA comments
6.5.3	Pre-Design Spring Gulch Waste Rock Pile Borrow Characterization Study Report – Draft	Per project schedule
	Pre-Design Spring Gulch Waste Rock Pile Borrow Characterization Study Report – Final	45 days after receipt of EPA comments
6.5.3	Pre-Design Spring Gulch Waste Rock Greenhouse Study Report – Draft	Per project schedule
	Pre-Design Spring Gulch Waste Rock Greenhouse Study Report – Final	45 days after receipt of EPA comments
6.6.2	General Design Guidelines and Options Report – Draft	90 days after submission to TWG
6.6.3	Roadside Waste Rock Piles Design Options Report – Draft	120 days after submission to TWG

<b>SOW Section</b>	<b>Deliverable</b>	<b>Due Date</b>
6.6.4	Integrated Waste Rock Pile Conceptual Design Options Report – Draft	120 days after submission to TWG
6.7.1	Goathill North Stability Evaluation Report	90 days after Effective Date of Agreement
6.7.1	If Pre-Design Investigation Work Is Required:	
	Group 1 Waste Rock Pile Pre-Design Investigation Work Plan – Draft	60 days after EPA approval of Goathill North Stability Evaluation Report
	Group 1 Waste Rock Pile Pre-Design Investigation Work Plan – Final	30 days after receipt of EPA comments
	Group 1 Waste Rock Pile Pre-Design Investigation Report – Draft	Per project schedule
	Group 1 Waste Rock Pile Pre-Design Investigation Report – Final	30 days after receipt of EPA comments
6.7.2.1	Group 1 Waste Rock Pile Preliminary Design Report – Draft	120 days after receipt of EPA’s written acceptance of the Roadside Waste Rock Piles Design Options Report, Pre-Design Spring Gulch Waste Rock Pile Borrow Characterization Study Report, or Group 1 Waste Rock Pile Pre-Design Investigation Report (if performed), whichever is latest
	Group 1 Waste Rock Pile Preliminary Design Report – Revised (unless CMI requests and EPA approves addressing EPA comments in draft Intermediate Design Report)	30 days after receipt of EPA comments
6.7.2.2	Group 1 Waste Rock Pile Intermediate Design Report – Draft	120 days after receipt of EPA’s written acceptance of Group 1 Waste Rock Pile Preliminary Design Report or EPA’s approval of CMI’s request to address EPA comments in the draft Intermediate Design Report
6.7.2.3	Group 1 Waste Rock Pile Pre-Final Design Report – Draft	90 days after receipt of EPA’s comments on the Group 1 Waste Rock Pile Intermediate Design Report
6.7.2.4	Group 1 Waste Rock Pile Final Design Report and Pilot Project Work Plan – Draft	30 days after receipt of EPA’s comments on the Group 1 Waste Rock Pile Pre-Final Design Report
	Group 1 Waste Rock Pile Final Design Report and Pilot Project Work Plan – Final	30 days after receipt of EPA comments

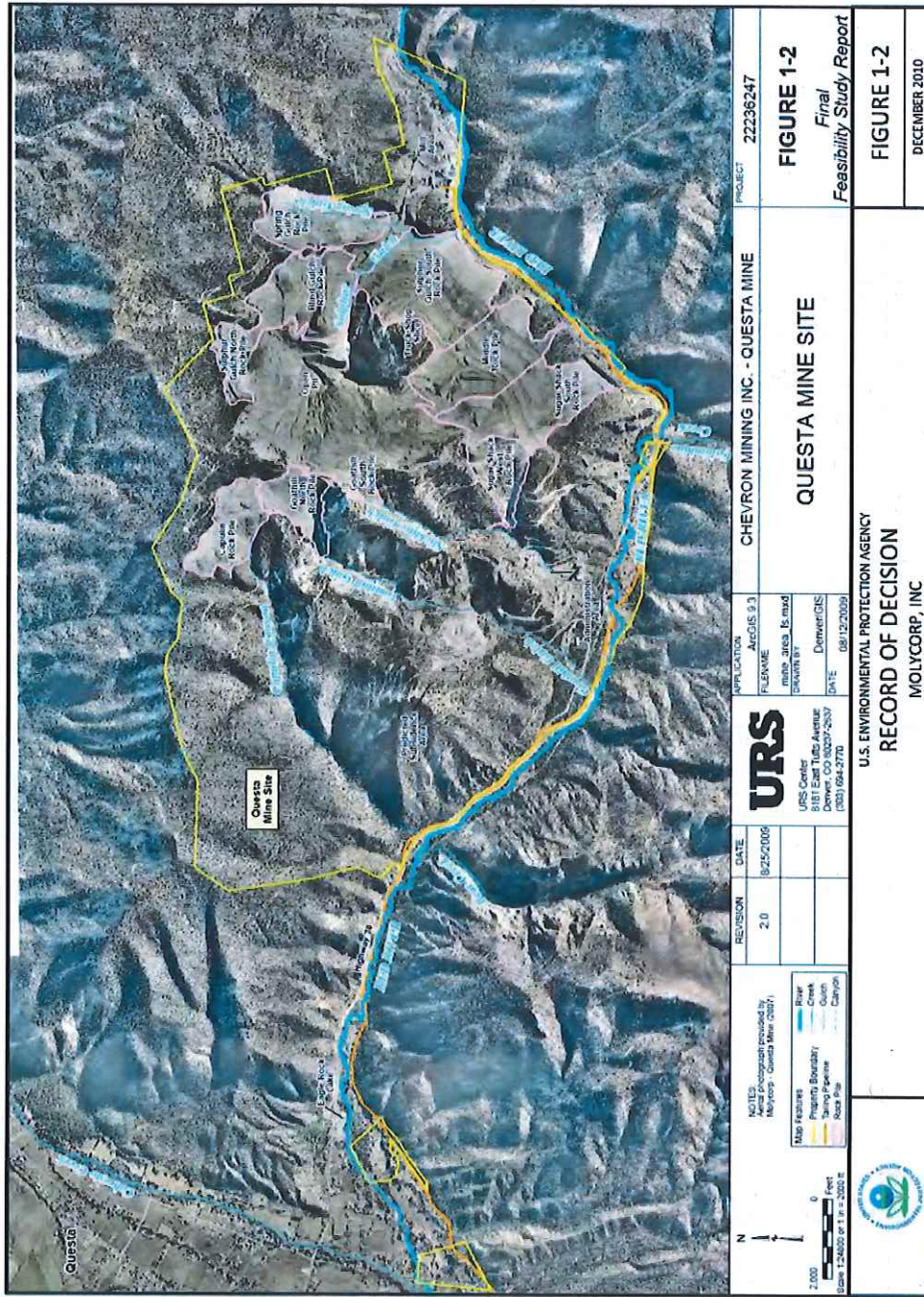
<b>SOW Section</b>	<b>Deliverable</b>	<b>Due Date</b>
6.7.3	Updated Overall Site Plan (including updated SAP, QAPP, FSP) and HASP	90 days after receipt of EPA's written acceptance of Group 1 Waste Rock Pile Final Design Report and Pilot Project Work Plan
6.7.4.1.7	Pre-Final Construction Inspection Report	30 days after conducting pre-final construction inspection
6.7.4.1.9	Notification that all field construction activities have been completed in accordance with the EPA-approved work plan	14 days after the final construction inspection, unless otherwise agreed to in writing
6.7.4.1.10	Final Pilot Project Construction Completion Report – Draft	60 days after final construction inspection
	Final Pilot Project Construction Completion Report – Final	30 days after receipt of EPA comments
6.7.4.2.2	Pilot Project Performance Monitoring Plan – Draft	60 days after receiving EPA's written approval of Group 1 Waste Rock Pile Final Design Report and Pilot Project Work Plan
	Pilot Project Performance Monitoring Plan – Final	30 days after receipt of EPA comments
6.7.4.2.4	Pilot Project Quarterly Inspection Reports	14 days after each inspection
6.7.4.2.5	Annual Monitoring and Assessment Report for the Group 1 Waste Rock Pile Pilot Project – Draft	One year following CMI's notification pursuant to Section 6.7.4.1.9 and annually thereafter
	Annual Monitoring and Assessment Report for the Group 1 Waste Rock Pile Pilot Project – Final	30 days after receipt of EPA comments
6.7.4.2.8	Pilot Project Completion Report – Draft	10 years after EPA approval of Final Pilot Project Construction Completion Report, or such earlier time that CMI and EPA agree
	Pilot Project Completion Report – Final	30 days after receipt of EPA comments
6.8.1	Summary of Existing Data and Testing	60 days after Effective date of Agreement
6.8.2	Treatability Study Work Plan for Water Treatment – Draft	90 days after EPA approval of Summary of Existing Data and Testing
	Treatability Study Work Plan for Water Treatment – Final	45 days after receipt of EPA comments
6.8.5	Treatability Study Evaluation Report for Water Treatment – Draft	60 days after completion of all bench-scale, pilot-scale and field testing
	Treatability Study Evaluation Report for Water Treatment – Final	30 days after receipt of EPA comments

<b>SOW Section</b>	<b>Deliverable</b>	<b>Due Date</b>
6.9.1	Lower Sulphur Gulch Waste Rock Pile Drainage Extraction System Pre-Final Design Report	Within 120 days after the Effective Date of the First Amendment to the Early Design AOC
6.9.2	Lower Sulphur Gulch Waste Rock Pile Drainage Groundwater Extraction System Final Design Report	Within 30 days after receipt of EPA's comments on the Pre-Final Design Report
6.10.1	Tailing Facility Seepage Barrier Upgrade Pre-Final Design Report	Within 120 days after EPA approval of the "Pre-Design Investigations to Upgrade Seepage Barriers and Well Extraction Systems – Tailing Facility Report" under Section 6.4.3
6.10.2	Tailing Facility Seepage Barrier Upgrade Final Design Report	Within 30 days after receipt of EPA's comments on the Pre-Final Design Report
6.11.1.1	Mine Dewatering System Intermediate Design Report	Within 90 days after the Effective Date of the First Amendment
6.11.1.2	Mine Dewatering System Pre-Final Design Report	Within 60 days after receipt of EPA's comments on the draft Mine Dewatering System Intermediate Design Report
6.11.1.3	Mine Dewatering System Final Design Report	Within 30 days after receipt of EPA's comments on the draft Mine Dewatering System Pre-Final Design Report
6.11.2	Update and maintain the necessary plans within the Overall Site Plan and the HASP for conducting the pilot project (as necessary)	Within 60 days after receipt of EPA's written acceptance of the Mine Dewatering System Final Design Report
6.11.3.1.7	Pre-final construction inspection report	Within 30 days after conducting the pre-final construction inspection
6.11.3.1.9	Notification that all field construction activities have been completed in accordance with the EPA-approved design and the date such work was completed	Within 14 days of the final construction inspection
6.11.3.1.10	Draft - Final Pilot Project Construction Completion Report.  Final Pilot Project Construction Completion Report	Within 60 days after the final construction inspection  Within 30 days after receipt of EPA comments or the time period determined by EPA
6.11.3.2.3	Annual Monitoring and Assessment Report for the Pilot Surface-Based Mine Dewatering System	One year following CMI's notification pursuant to Section 6.11.3.1.9 and annually thereafter for each year that the pilot project is ongoing until EPA approval of the Pilot Surface-Based Mine Dewatering System Completion Report in Section 6.11.3.2.6



SOW Section	Deliverable	Due Date
6.11.3.2.6	Pilot Surface-Based Mine Dewatering System Completion Report	Two years after EPA's approval of the Final Pilot Surface-Based Mine Dewatering System Construction Completion Report, or at such earlier time that CMI and EPA agree that CMI has collected enough data from the pilot dewatering system to adequately evaluate the performance of the pilot dewatering system
6.12.1	Pre-Design Investigation Work Plan for Tailing Facility Grading	Within 120 days after the Effective Date of the Second Amendment
6.12.3	Intermediate Design Report for Tailing Facility Grading	In accordance with the approved work plan and schedule
6.12.4	Tailing Facility Grading Pre-Final Design Report	Within 90 days after receipt of EPA's comments on the Intermediate Design Report for Tailing Facility Grading
6.12.5	Tailing Facility Grading Final Design Report	Within 60 days after receipt of EPA's comments on the Pre-Final Design Report
6.13.1	Pre-Design Work Plan for Spring Gulch Cover Field Trials	Within 60 days after the Effective Date of the Second Amendment
6.13.3	Notice to EPA, NMED, and MMD of completion of initial revegetation activities	Upon completion of initial revegetation activities (e.g., planting, seeding, mulching) pursuant to the Pre-Design Work Plan for Spring Gulch Cover Field Trials
6.13.4	Construction Completion Report for Spring Gulch Cover Field Trials	Within 90 days after provision of notice pursuant to Section 6.13.3
6.13.5	Annual Monitoring Report for Spring Gulch Cover Field Trials	One year and two years following provision of notice pursuant to Section 6.13.3
6.14.1	Pre-Design Work Plan for Vegetation and Wildlife Studies	Within 60 days after the Effective Date of the Third Amendment
6.14.2	Commencement of vegetation and wildlife studies	In accordance with the approved work plan and schedule
6.14.3	Draft Pre-Design Tailing Facility Vegetation Survey and Cover Depth Study Report	Within 60 days after receipt of final data
6.14.3	Draft Pre-Design Tailing Facility Vegetation and Wildlife Studies Report	Within 60 days after receipt of final data
6.14.3	Draft Pre-Design Tailing Facility Elk Baseline Health and Tracking Study Report	Within 150 days after collars are collected and tracking data are downloaded

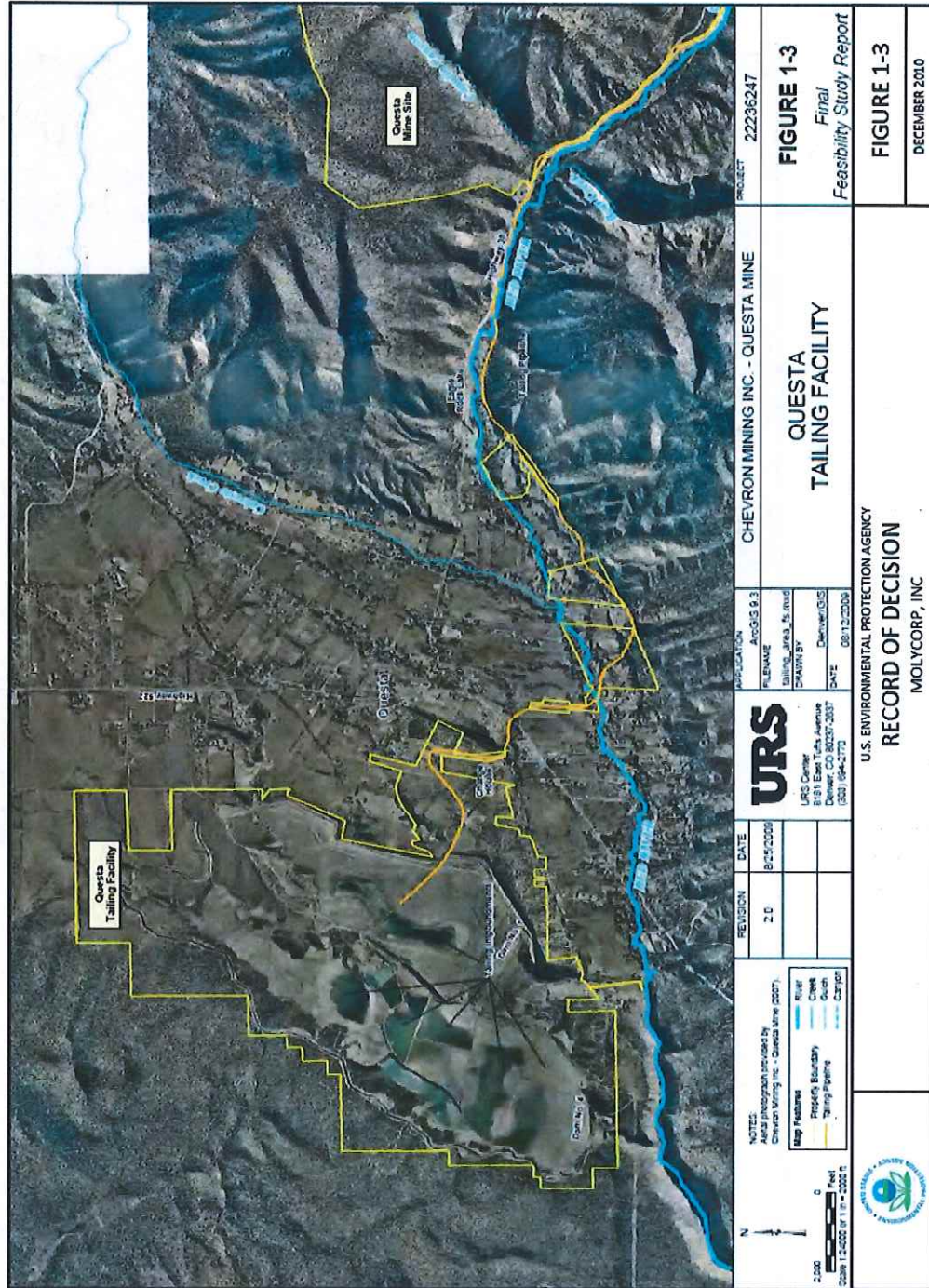
ATTACHMENT 2



<p>NOTES: Aerial photographs provided by MolyCorp, Questa Mine (2011)</p>		<p>REVISION: 2.0</p>	<p>DATE: 8/25/2006</p>	<p><b>URS</b> URS Corp. 8181 East Teller Avenue Denver, CO 80231-2537 (303) 694-2770</p>	<p>APPLICATION: FILENAME: ArcGIS 9.3 map_area_16.mxd DRAWN BY: Demetrius DATE: 08/12/2009</p>	<p>CHEVRON MINING INC. - QUESTA MINE</p>	<p>PROJECT: 22236247</p>
<p>Map Features: Flow Creek Gully Canyon</p> <p>Program Boundary Training Pipeline Race Run</p>		<p>Scale: 1:24,000 or 1 in. = 2000 ft.</p>		<p>U.S. ENVIRONMENTAL PROTECTION AGENCY RECORD OF DECISION MOLYCORP, INC</p>		<p>QUESTA MINE SITE</p>	<p>FIGURE 1-2 Final Feasibility Study Report</p>
<p>U.S. ENVIRONMENTAL PROTECTION AGENCY RECORD OF DECISION MOLYCORP, INC</p>		<p>FIGURE 1-2 DECEMBER 2010</p>		<p>FIGURE 1-2 DECEMBER 2010</p>		<p>FIGURE 1-2 DECEMBER 2010</p>	



ATTACHMENT 3



ATTACHMENT 4





ATTACHMENT 5

