September 25, 2019

Ms. Laura Stankosky
United States Environmental Protection Agency, Region 6
1445 Ross Avenue, Suite 1200
Dallas, TX 75020-2733

RE: Response to Agency Comments, Questa Tailings Pipeline Removal, Addendum to: Historic Tailing Spills Removal Action Work Plan and Stage 8 Removal Work Plan, dated June 26, 2019; Chevron Environmental Management Company, Chevron Questa Mine Superfund Site

Dear Ms. Stankosky:

Thank you for providing comments to the Addendum to: Historic Tailing Spills Removal Action Work Plan and Stage 8 Pipeline Removal Workplan. Please see below a list of your requested information or modifications and Chevron's responses. Also included is an updated version of the work plan which encompasses the comments.

Comments

1. The response to comment No. 5 indicates that the shape files will be included with the upload submission of the modified Stage 8, June 2019 work plan. EPA has checked the SharePoint site and was not able to find the shape files. Please provide the shape files or identify where on the SharePoint site they are located.

   Response

   The test pit shapefiles, including grids with coding and identification of test pit locations were created, but were omitted from the upload to the SharePoint site. The shapefiles will be included with the updated submission of the Stage 8 Workplan.

2. Based on the changes in the locations where CMI has proposed to leave tailing in place and with the recent identification of tailing at "Site 6," the proposed groundwater monitoring network may not be adequate. Please modify the "Tailing Facility Monitoring Plan" to keep LS-2 and LS-4 in the groundwater monitoring network, in addition to LS-3 and the well to be installed identified as LS-5. Please update the text in Section 4.3 to indicate that LS-2 and LS-4 will remain in service to evaluate groundwater quality and ensure protectiveness.

   Response

   Section 4.3 of the *Addendum to: Historic Tailings Spills Removal Action Work Plan and Stage 8 Pipeline Removal Work Plan* was updated to reflect the change of status for wells LS-2 and LS-4. The "Tailings Facility Performance Monitoring Plan" (TFPMP) will be updated to reflect the change in status of well LS-4. LS-2 will not be removed from the TFPMP as originally noted in Section 4.3. Appendix D-2, Site 4 New Monitoring Well (LS-5) Installation and Monitoring Plan was updated to reflect the change in status of wells LS-2 and LS-4.

Appendix D-3, Evaluation of Groundwater Monitoring at the Lower Dump Sump, was updated to reflect the change in Status of Well LS-2. Figure 4-3 was updated to show that LS-1 is the only well location within the Lower Dump Sump area proposed for abandonment.

3. The response to comment No. 7 describes that "Borrow areas within the LDS will be continually evaluated to ensure that borrow materials are free of tailing." Section 5.3, page 5-2 describes, "Borrow areas within the LDS area will be continually evaluated to ensure that borrow materials are free of tailing. If tailing materials are discovered, the agencies will be notified and the area will be evaluated and addressed in accordance with the workplan." Please clarify that the NMED on-site representative, Dr. Joseph Marcoline, will be notified for coordination to evaluate tailing potentially identified in borrow areas. Please also indicate that use of a borrow area where tailing has potentially been identified will cease until the material identified is confirmed not to be tailing.

Response

Sections 5.3, 5.3.3, and 5.4.1 of the *Addendum to: Historic Tailings Spills Removal Action Work Plan and Stage 8 Pipeline Removal Work Plan* were updated to include the requested guidelines concerning the identification of potential tailing in proposed borrow sources.

4. In Section 5.4.2, use of Moly Mine Road as a borrow area is described. Please provide a characterization of the Moly Mine Road borrow area for EPA review and approval prior to this area being as a borrow source.

Response

A borrow source characterization report for the Moly Mine Road proposed material borrow area will be provided to EPA via a separate letter before excavation work begins.

5. The location of RG-67516 in Figure 4-3 and Figure 1 in Appendix D-2 may not be correct. The actual location may correctly be located approximately 300 feet west of the location identified in the figures. Please confirm the location of RG-67516 and correct the figures, as needed.

Response

The location of RG-67516 was updated in figure 4-3 and Figure 1 of Appendix D-2.

6. Figure 4-5; Figure 4.6 and Appendix E-3 do not show a clean test pit north of Site 6 test pits 111 and 113. Please clarify if tailing may continue north of the Site 6 Area. Any tailing located outside of the area identified as the Lower Dump Sump area must be removed to the visible extent of tailing.

Response

Additional test pitting was not done to the north of test pits 111 and 113 due to Old Red River Road being immediately adjacent to Site 6. Upon further review of the historical imagery, it appears that the Old Red River road alignment has been static since at least 1965. According to historical imagery, the first disturbance to the Lower Dump Sump area occurred sometime

between 1965 and 1974. It would be highly unlikely that tailing material would be found within the Old Red River Road embankment or on the opposite side of the road between the road embankment and the Red River. From visual inspection, it appears that tailing material was pushed from higher elevation (south) up to the shoulder of the road.

On September 11, 2019, MMD, New Mexico Environmental Department (NMED) and CMI personnel inspected the road shoulder immediately adjacent to Site 6 as well as the section of ground between the road embankment and the Red River north of Site 6. They group used a shovel to excavate small holes on each side of the pavement. No tailing was identified in the shallow excavations. On September 18, 2019, EPA, MMD, NMED, and CMI inspected the area and verified that tailing was absent from the area. Please note that there is one clean test pit in the immediate area, TP-112. The point lies east-north-east of TP-111 and TP-113.

7. Figures 5-3 and 5-4 indicate 3,546 square feet (343 cubic yards) of tailing that will be left in place in Site 1 under the road area. The tailing left in place in these figures differ from the tailing to be left in place in Sheet 2 of 2, "Lower Dump Sump Preliminary Grading and Embankment Removal," from the September 28, 2018 work plan version; and from Figure 5-1 "Lower Dump Sump Tailing Identification" and Sheet 2 of 6 "Lower Dump Sump Final Grading and Embankment Sources," from the November 8, 2018 work plan version. Please clarify the volume and square footage of tailing to be left in place in Site 1 under the road area.

Response

The 343 cubic yards noted in the comment is the volume of additional tailing material proposed for removal from the Site 1 area and not the amount of tailing to remain in place. The total amount of tailing material proposed to be left in place within the Site 1 area is unknown as the total depth of tailing is unknown. The total known tailing to be left in place has been added to the table on Figure 5-3. The discrepancies in the boundaries for tailing left in place within Site 1 between Sheet 2 – "Lower Dump Sump Preliminary Grading and Embankment Removal"; Figure 5-1 "Lower Dump Sump Tailing Identification"; Sheet 2 – "Lower Dump Sump Final Grading and Embankment Sources"; and Figures 5-3 and 5-4 can be attributed to design iterations and the progression of work at the Lower Dump Sump.

The area shown on Sheet 2 – "Lower Dump Sump Preliminary Grading and Embankment Removal" was in reference to the proposed repository zone for placement of visible tailing removed from Sites 2 and 4 in the original September 28, 2019 work plan. The area shown on Figure 5-1 – "Lower Dump Sump Tailing Identification" is an estimated area of where tailing material may be located within the Site 1 area in the November 8, 2018 work plan. The area shown in Sheet 2 – "Lower Dump Sump Final Grading and Embankment Sources" is the potential extent of tailing left in place under the grading design iteration for the November 8, 2018 work plan.

The sump structure and a large amount of tailing material has been removed from the Site 1 north area. The only area of known tailing material is shown on figures 5-3 and 5-4 of the June 26, 2019 work plan submittal. Tailing material may be located outside of that boundary. The extents and depth are not known. If tailing material is encountered during the final grading work at the Site 1 north area, the tailing will be mapped and then removed in accordance with the guidelines set forth in Section 5.3 of the Workplan.

8. Figure 5-4:

   A. Figure 5-4 shows proposed final grading of the Lower Dump Sump. This figure is somewhat confusing. It is difficult to determine what final grade will be because isopachs are shown overlain by black contours. To follow the black contours into the white contours shown outside of graded boundaries, this figure in the electronic version of the document must be greatly enlarged. Please consider if two maps, one showing the pre-grade contours and the second showing the final grade contours without the isopachs, might be clearer. Consider including the isopachs in a third figure.

      Response

      Figure 5-4 was updated to make following the proposed grading less confusing. The transparency on the cut/fill isomaps was increased to better show the proposed grading contours. In the previous version of Figure 5-4, the existing ground contours were drawn in at 2ft intervals to limit the amount of information displayed on the figure. This was confusing as the proposed contours were drawn in at a 1ft interval, and it appeared that the grading contours did not tie into the existing ground contours. The existing ground contours have been updated to 1ft interval. Trihydro feels that these changes have made the proposed grading on Figure 5-4 much easier to follow. Please note that the grading in the Site 1 South area is mainly flat with only a minor positive grade for drainage to limit the amount of backfill needed in the area.

   B. Figure 5-4 is missing elevation labels on the contour lines for the final grade. Figure 5-3 has contours labeled every 5 feet. Without the labels it is difficult to interpret the final grade. Please update Figure 5-4 to add the elevation labels.

      Response

      Contour labels for both proposed grading contours and existing ground contours have been added to Figure 5-4.

   C. Based on a review of Figures 5-2, 5-3, and 5-4, it is unclear how Site 3 and the auxiliary borrow areas will be graded after cover placement. Please clarify how borrow areas will be graded to create positive drainage. Additionally, please clarify that the borrow areas will be seeded as part of the reclamation of the mine disturbance.

Response

Proposed grading contours were developed for the borrow areas to estimate available borrow quantities in the original submittal. However, the grading contours were omitted from Figure 5-4 to decrease the complexity of the figure. Proposed grading contours for the Site 3 borrow area and the auxiliary borrow area were added to Figure 5-4. As noted in Chapter 6.0 - Reclamation, all disturbed areas, including borrow areas, will be reclaimed according to the procedures outlined in Chapter 6.0 and in Section 4.2.10 of the removal Workplan, May 2017.

D. It is unclear how the south tailing boundary in Site 1 will be graded and what the final topography will be. Based on Figure 5-4, three feet of cover material will be placed within Site 1 South, but it is not clear how this area will be graded. This area appears to be a significant depression with what appears to be a berm running north-south (light area). Please clarify how this area will be graded and how positive drainage will be achieved.

Response

The grading in the Site 1 South area is mainly flat with only a minor positive grade for drainage to limit the amount of backfill required in the area. The north south line in the cut/fill isomap denotes an area of no fill as the area is already at proposed grade. The areas immediately adjacent to the existing berm are to be filled to facilitate drainage from the area.

Please feel free to contact me at (307) 745-7474 with any questions.

Sincerely,
Trihydro Corporation

Tyrel Hulet
Project Engineer

476-027-003

ADDENDUM TO:

HISTORIC TAILING SPILLS REMOVAL ACTION WORK PLAN AND STAGE 8 PIPELINE REMOVAL WORK PLAN CHEVRON QUESTA MINE SUPERFUND SITE CHEVRON MINING, INC.

September 25, 2019

Project #: 476-027-003

SUBMITTED BY: Trihydro Corporation

707 West 1st Street, Casper, WY 82601

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1.0 INTRODUCTION

Chevron Mining Inc. (CMI) is in the process of closing its former underground and open pit molybdenum mine and mill operation located east of the Village of Questa, in Taos County, New Mexico (Figure 1-1). Decommissioning and demolition activities are being completed under various work plans written to meet the requirements of CMI's Mine Permit (TA001RE, Revision 96-1) issued by the New Mexico Energy, Minerals and Natural Resources Department (EMNRD), Mining and Minerals Division (MMD) and resource-specific permits for air and water discharges issued by the New Mexico Environmental Department (NMED). Cleanup of historic contamination at the mine is being addressed under various additional work plans written to address removal actions required in the U.S. Environmental Protection Agency (EPA) Record of Decision (ROD) (USEPA 2010). In 2012 EPA issued Administrative Order on Consent (AOC) for Removal Actions (RA), CERCLA Docket No. 06-09-12, (USEPA 2012) specifically addressing historic tailing spills (HTS) along CMIs former tailing pipeline.

This document is being submitted to the EPA as an addendum to the "Final Historic Tailing Spills, Removal Action Work Plan, Chevron Questa Mine, Superfund Site" (HTS RA Work Plan) submitted by CMI in May 2012 (URS 2012a) to describe tasks and activities necessary to conduct HTS removal actions required in the 2012 AOC for RA. Tasks completed under the HTS RA Work Plan are described in the "Final Historic Tailings Spills, Removal Action Completion Report, Chevron Questa Mine Superfund Site, Revision 1" (HTS RA Completion Report) (URS 2014). The organizational structure for the activities reported in the HTS RA Completion Report were described in detail in the "Overall Site Plan, For Removal Actions, Chevron Questa Mine Superfund Site" (Overall RA Site Plan) (URS 2012b).

1.1 PURPOSE

The purpose of this addendum is to describe activities for the removal of structures at the Lower Dump Sump (LDS), referred to in the HTS RA Completion Report as Site 24, and to identify, remove, and cap HTS, as well as to provide an overall site grading plan for the Lower Dump Sump area.

In 2017, Chevron Environmental Management Company (CEMC) submitted the "Questa Tailings Pipeline Removal MMD/NMED Work Plan, Chevron Environmental Management Company, Questa Mine" (Pipeline Removal Work Plan) to MMD, NMED Groundwater Quality Bureau, and to the EPA Region 6 (Trihydro 2017). The Pipeline Removal Work Plan was written to describe the overall process for decommissioning and demolition of the former tailing pipeline, including the Lower Dump Sump (i.e., HTS RA Completion Report Site 24). The Pipeline Removal Work Plan was approved by MMD, NMED, and EPA in letters dated June 5, 2017 and June 14, 2017 (MMD and NMED 2017, USEPA 2017). The Pipeline Removal Work Plan provides an overarching plan for the removal of the

Questa tailings pipeline, including structures at the Lower Dump Sump. The Pipeline Removal Work Plan was written to meet the requirements of CMI's Mine Permit (TA0001RE) and Condition 45 of NMED Discharge Permit 933. The Pipeline Removal Work Plan also described covering HTS in the pipeline corridor pursuant to the RA AOC, Docket No. 06-09-12. In accordance with the Pipeline Removal Work Plan, segment-specific work plans will be submitted to NMED and MMD and any other agency where approval may be required for a specific segment of pipeline 60 days prior to commencement of demolition activities. A draft work plan was submitted for agency review and approval on July 18, 2018. This final work plan and grading design incorporates comments received from the agencies in December 2018, February 2019, and May 2019. This addendum/work plan will be submitted to NMED, MMD, and EPA for approval 60 days prior to beginning work.

The Pipeline Removal Work Plan divided the project into eight stages for planning and implementation purposes. Pipeline segments for each stage are listed in Table 1-1. Stage 8 activities will be performed at the Lower Dump Sump under the processes described in the following documents:

- Final HTS RA Work Plan (URS 2012a)
- Overall RA Site Plan (URS 2012b)
- Pipeline Removal Work Plan (Trihydro 2017)
- This addendum

The scope of work includes removal of pipeline, support buildings, the Lower Dump Sump facility, electrical infrastructure, removal of specified tailing, and regrading the areas around and adjacent to the Lower Dump Sump facility. In addition to the removal of the pipeline and associated structures, removal of tailing or where approved, containment of tailing in place with appropriate cover will be conducted in accordance with this Plan. The work conducted under this plan will be on Chevron owned property, thereby limiting the number of additional permits and access agreements required.

1.2 SCOPE OF WORK

The Lower Dump Sump as defined in this document includes an area delineated by using historic and current tailing deposits. The footprint of the Lower Dump Sump has been expanded since the submittal of the Pipeline Removal Work Plan. The process used to derive the current footprint is described in Section 4.4.

The following items will be addressed during demolition of the Lower Dump Sump:

- Provision of a means to demonstrate that HTS left in place at the Lower Dump Sump will not negatively impact groundwater in the area
- Identify and if necessary mitigate any soil in the vicinity of on-site electrical transformers containing Polychlorinated Biphenyls (PCBs) by:
  - Following PCB sampling and analysis plan for potentially impacted areas
  - Delineating PCB levels in soil exceeding 25 mg/kg
  - Removal of PCB contaminated soil exceeding 25 mg/kg
  - Transport of PCB contaminated soil to off-site treatment/disposal facility
- Remove all structures from the site
- Waste management (per Pipeline Removal Work Plan [Trihydro 2017])
- Removal of specific tailing
- Regrade and reclaim the site

TABLE 1-1. PIPELINE SEGMENT PRIORITIZATION AND STAGE IDENTIFICATION

Pipeline Segment Description	Approximate Length of Segment (feet)	Stage
Tailing Facility	10,000	1
Columbine Wells Area	4,000	2
Tailing Facility Entrance	2,800	2
Corny's Corner hillside	1,200	2
Singleton's Cut	2,900	2
Robinson's Property	850	2
East of Molycorp baseball field	1,400	2
Upstream of the Lower Dump Sump	1,600	2
Pressure vessels to underground	500	3
East of Middle Pile	1,000	3
Goat Hill Entrance Area	2,350	3
Bear Cut	2,500	3
USFS Office Area	3,200	4
Forest Service Property west of Molycorp field	950	4

Pipeline Segment Description	Approximate Length of Segment (feet)	Stage
East of Sulphur gulch	1,000	5
West of Sulphur gulch	1,100	5
Sugar Shack South	4,000	5
1st Road Crossing (East Hwy 38 road)	200	5
Columbine Curve	1,400	5
Columbine Park Entrance-Downstream of 1st River Crossing	600	5
2nd Road Crossing	400	5
Admin Section	1,700	5
Between Goat Hill and Bear Cut	2,700	5
3rd Road Crossing	700	5
Rock Wall (Between Bear Cut and Forest Service) (aka "Rock and Hard Place")	2,600	5
Lower Embargo Road Crossing and Embargo Road	1,100	5
Mill Raw Water Line	200	5
1st River Crossing (by Columbine Park)	120	6
2nd River Crossing (aka Thunder Bridge)	210	6
3rd River Crossing	190	6
Rael Property	550	6
Elevated Trestle	2,160	7
Lower Dump Sump	**100**	**8**

2.0 AGENCY PERMITS AND NOTIFICATIONS

Stage 8 (Lower Dump Sump [LDS]) activities relating to HTS will be performed under the requirements specified under the RA AOC, Docket No. 06-09-12, as described in the HTS RA Work Plan (URS 2012a), Overall RA Site Plan (URS 2012b) and this addendum to the HTS Work Plan. In addition, Stage 8 activities relating to demolition and removal of structures will also be covered by the MMD Mining Act Permit (TA001RE, Revision 96-1) and NMED Discharge Permit (DP-933), as described in the Pipeline Removal Work Plan (Trihydro 2017). Additional agency requirements for this work include:

- The New Mexico Historic Preservation Division will be consulted regarding their need for and completion of additional survey of historic properties before beginning Stage 8 demolition activities. Two surveys have been completed and submitted to NMHPD.
- U. S. Army Corp of Engineers (USACE) pre-construction notification (PCN) has been submitted to the USACE. Based on recent aquatic resources field survey results, no wetlands or emergent wetlands are present on-site at Stage 8. Adjacent wetlands near Stage 8 should not be impacted during the Stage 8 field activities.

3.0 LOWER DUMP SUMP (STAGE 8) AREA

The Stage 8 pipeline removal focuses on an approximately 18.4 acre area surrounding the LDS structures. Included in this stage is the removal of approximately 100 feet of pipe (Table 3-1), the infrastructure listed in Table 3-2, tailing to a depth of three feet below ground surface (BGS) and capping of remaining tailing with a minimum of three feet of borrow material. Figure 3-1 illustrates the location of the LDS in relation to the Village of Questa and the balance of the pipeline removal project. A detailed view of the Stage 8 LDS is included in Figure 3-2. Site photographs are shown in Appendix A.

TABLE 3-1. AREAS INCLUDED IN STAGE 8 PIPELINE REMOVAL PLAN

Pipeline Segment Description	Approximate Length of Segment (feet)	Seasonal Considerations or Preferred Months (Alternative 1)	Above (A) or Underground (U)?	CMI Ownership?	Figure
Lower Dump Sump	100	July-September Preferred	A	Y	3-2

TABLE 3-2. LOWER DUMP SUMP STRUCTURE AND EQUIPMENT INVENTORY

Structures and Equipment
All Buildings within the delineated area and their contents
Concrete sump impoundment
Sump fencing
Transformers
Power poles
Tailing pipeline within delineated area
Foundations
Pumps
Ancillary Piping and Valves
Piping supports
Monitoring Wells LS-1, LS-2, LS-3, LS-4
Catwalks, ladders, and structural supports
All Electrical Equipment including all overhead or buried powerlines owned by Chevron
All buried utilities including septic systems, sewer lines, leach fields, etc.
Tailing material designated for removal

3.1 SITE SETTING

The LDS is located on CMI property. The site can be accessed via Moly Mine Road and Old Red River Road. The Red River borders the LDS to the north. The majority of the site is located outside of the flood plain and wetlands

associated with the Red River. Figure 3-3 shows the Federal Emergency Management Agency (FEMA) flood hazard map (FEMA 2018) for the site. Figure 3-4 shows the wetlands in the vicinity of the LDS. Reclamation and grading activities are not expected to disturb wetlands near the site.

4.0 SAMPLING AND ANALYSIS ACTIVITIES

The potential for PCB, asbestos containing materials (ACM) and lead-based paint (LBP) contamination and discovery of tailing was identified in the early stages of project planning. Directives included sampling suspect areas for these substances. Details of these investigations are provided in the sections below. Field activities, described below, will be performed in general accordance with the standard operating procedures (SOPs) presented in the overall site plan and QAPP. Best Management Practices will be followed to control the quality of field work performed. Field activities will be documented daily as the work proceeds.

4.1 POLYCHLORINATED BIPHENYLS (PCBS)

A total of five electrical transformers are located within the LDS removal boundary (Appendix A, Photo 1). Four of the electrical transformers are located on a platform adjacent to and south of one of the steel support buildings (Appendix A, Photo 2). The fifth transformer is located individually on a power pole on the south side of the site (Appendix A, Photo 1).

4.1.1 PCB SAMPLING

Samples were collected on September 5, 2018 from four locations in the LDS adjacent to and below the on-site electrical transformers (Figure 4-1) and analyzed for PCB Aroclors. A memorandum detailing the sampling procedure is included as Appendix B. The samples were collected from the 0- to 1-foot (ft) interval. A sampling hole was dug using a clean shovel. Soil was loosened from the wall of the sampling holes using the clean shovel. A clean trowel or other appropriate clean sampling device was used to collect the loosened soil and place the soil into a clean sampling jar provided by the laboratory for that purpose. The soil jar was packed completely with soil to insure sufficient volume. The jar was sealed immediately and labeled. The jar was then submitted to TestAmerica Laboratories Inc., under a CoC protocol for analysis of PCB Aroclors by EPA Method SOM01.2 (or the most recent version). Sampling trowels and shovels were decontaminated between sampling locations using a three-stage decontamination procedure consisting of an Alconox wash and two rinses of deionized water.

4.1.2 PCB ANALYSIS

The four samples collected within the LDS were non-detect for PCBs. Details of sampling locations can be found on Figure 4-1 and a summary of the analytical results can be found in Table 4-1. Further details and analytical data can be found in Appendix B.

TABLE 4-1. PCB ANALYTICAL RESULTS

Sample Identification	Location Description	Sample Depth (in.)	Collection Date	Collection Time	Lab Analysis Result
SS-12-LDSWT-180905	Westernmost pad-mounted transformer	0-12	9/5/2018	8:30	No Detection
SS-12-LDSMT-180905	Middle pad-mounted transformer	0-12	9/5/2018	8:45	No Detection
SS-12-LDSET-180905	Easternmost pad-mounted transformer	0-12	9/5/2018	9:00	No Detection
SS-12-LDSST-180905	Southern pole-mounted transformer	0-12	9/5/2018	9:20	No Detection

4.2 ACM AND LBP

In August 2017, CEMC completed a lead and asbestos investigation along the length of the former tailing pipeline, including the LDS (Stage 8) area (Trihydro 2018). The intent of this sampling and analysis was to verify the presence or absence of ACM and LBP and quantify the levels present in materials scheduled for demolition.

4.2.1 ACM AND LBP SAMPLING

Seven samples were collected from the LDS structures. Six of the seven samples were tested for asbestos; all seven samples were tested for lead. The seven sample locations included one (A183017) from pipe coating wrap, one (L183017) from pipe surface coating, two (INS183017 and INS283017) from pipe insulation, and three from pipe victualic gaskets.

4.2.2 ACM AND LBP ANALYTICAL RESULTS

Asbestos was non-detectable in the six samples tested. Six of the seven samples tested for lead did not contain detectable levels. One sample (L183017) contained 330 mg/kg lead. Sample L183017 was collected from pipe surface coating. Sample locations can be found on Figure 4-2 and a summary of the results are presented in Table 4-2. Analytical reports are included as Appendix C.

Based on these sampling results, structures and piping removed from the LDS (Stage 8) area will not require special handling due to asbestos. Pipe coated with LBP will be recycled with pipe from other removal stages in accordance with State and Federal regulations as well as Chevron's Third-Party Waste Stewardship (TWS) requirements. It is important to note that 40 CFR 261.4 excludes scrap metal that is being recycled from the definition of solid waste.

TABLE 4-2. ASBESTOS CONTAINING MATERIAL AND LEAD BASED PAINT ANALYTICAL RESULTS

Sample Location ID	Sample Date	Asbestos (mg/kg)	Lead (mg/kg)
A183017	8/30/2017	ND	ND
L183017	**8/30/2017**	**NS**	**330**
INS183017	8/30/2017	ND	ND
INS283017	8/30/2017	ND	ND
VG183017	8/30/2017	ND	ND
VG283017	8/30/2017	ND	ND
VG383017	8/30/2017	ND	ND

4.3 GROUNDWATER SAMPLING AND ANALYSIS PLAN

Chevron has installed and maintains four monitoring wells in the LDS area. Wells LS-1, LS-2, LS-3 and LS-4 are shown on Figure 4-3. Wells LS-1 and LS-2 reside upgradient of the LDS and HTS areas while LS-3 is cross gradient or down gradient from HTS. These three wells are part of the current groundwater monitoring effort in the LDS. Well LS-4 was installed as a temporary well on November 5, 2018. LS-4 was placed to represent groundwater down gradient of Site 1. Sampling has been performed one time on LS-4 following the procedures described in the "Tailing Facility Performance Monitoring Plan" (TFPMP) (Arcadis 2018). An analyte list is included as Table 4-3. The results of this sampling and analysis are presented in Appendix D-1. The analysis on LS-4 indicates that there are no impacts from tailing in its vicinity. LS-4 was originally planned to be abandoned per an agreement with the EPA and NMED. The agreement state that if the well was found be unimpacted it could be abandoned. At EPA's request, the LS-4 well will remain in service to evaluate groundwater quality and ensure protectiveness as directed by the TFPMP.

Per the comment letter received in May 2019, monitoring well LS-5 (Figure 4-3) will be installed on CMI property immediately downgradient of Site 4 and northeast of Site 3. LS-5 will initially be sampled quarterly for constituents in accordance with the "Site 4 Monitoring Well Installation and Monitoring Plan" included as Appendix D-2 and the TFPMP (Arcadis 2018). Following the collection of samples for eight consecutive quarters Chevron may request a decrease in sampling frequency. Per previous approval letters related to the LDS and the discussion during the February 2019 meeting with the agencies, Chevron intends to plug and abandon Well LS-1and update the TFPMP to include routine sampling of LS-4, LS-3 and LS-5. The rationale for abandonment of LS-1 is primarily due to the upgradient location of this well. A review of groundwater quality data collected since 1991 from these wells does not indicate any negative influence from historic tailing. Further details of this rationale can be found in the Arcadis April 16, 2018 "Evaluation of Groundwater Monitoring at the Lower Dump Sump" memo included in Appendix D-3.

Groundwater sampling and analysis has shown that the alluvial aquifer has not been impacted by the tailing spills at the LDS (Appendix D-3). Chevron will continue to closely monitor groundwater quality as the new wells are brought on line and additional data is collected.

TABLE 4-3. ANALYTE LIST

Group #	Analytes
Group 1 =	water level, temperature, pH, and electrical conductivity
Group 2 =	general chemistry analytes included calcium, magnesium, sodium, and potassium (USEPA Method 200.8); carbonate and bicarbonate (Standard Method 2320B); sulfate, chloride, and fluoride (USEPA Method 300.0); nitrate (USEPA Method 353.2); and total dissolved solids (Standard Method 2540C)
Group 3 =	metal analytes include aluminum, arsenic, barium, beryllium, cadmium, chromium, cobalt, copper, iron, lead, manganese, molybdenum, nickel, selenium, silver, thorium, uranium, vanadium, and zinc (USEPA Method 200.8) and mercury

4.4 TAILING TEST PIT INVESTIGATION

To delineate the footprint of historic tailing in the LDS, a multi-stage investigation was conducted. Historic aerial-imagery review, unmanned-aerial surveying and ground-based inspections were conducted on the Chevron property surrounding the LDS. Areas suspected to contain tailing were identified and inspected by excavating test pits. Figures 4-4 through 4-6 show test pit information from the investigations in April, September, and December 2018, as well as January and June 2019. Figure 4-4 depicts the test pit grid layout and initial site boundaries discussed below. Figure 4-5 shows the test pit locations and updated site boundaries, and Figure 4-6 contains a graphical representation of known tailing within the investigation area, including extent and depth. Table 4-4 contains the test pit information including identification, location, elevation, depth to tailing, total depth of tailing, total depth of test pit, and characterization method (visual or analytical). Appendix E contains test pit investigation reporting (including photos) from Entact, LLC for the December 2018, January 2019, and June 2019 events; Test pit photo logs from the April 2018 and June 2018 events; and test pit field form data for the January and June 2019 test pit investigations.

The initial test pit investigation of the LDS was conducted in April 2018. Investigation personnel assigned boundaries to tailing that could be visually detected at ground surface. Boundaries were also assigned to areas suspected of containing tailing through review of topographic survey data. The areas suspected of containing tailing had a distinct berm shape in the topographic contours. The initial boundaries of Sites 1, 2, 3, 4, and 5 can be found on Figure 4-4. The updated boundaries for the sites after the investigation are shown on Figure 4-5. Sites 1 and 2 were not a part of the test pit investigation. The extent of tailing at the Site 1 area was already documented in the ROD and the Early Removal AOC as a result of prior Remedial Investigations. The Site 2 area has a distinct berm shape, and full removal of the berm was recommended. Additional test pitting at the Site 1 and 2 areas was not needed. The presence of tailing

at the Site 6 area was not known until May of 2019, so it was not included in the initial test pitting work (e.g. test pits from April 2018 through January 2019).

Test pits were excavated within the approximate tailing boundaries. In total, 23 test pits were excavated during the April 2018 investigation (Appendix E-1). Site 4 had the highest concentration of test pitting as much of the area contained visual tailing at ground surface, and the excavations within the Site also contained visual evidence of tailing. Tailing depth ranged from 10 inches (") to 85" in the Site 4 area, with the 85" excavation (TP-13) not yet reaching clean material. Two test pits each were excavated in Site 3 and Site 5, with no visual sign of tailing. All test pits conducted during the April 2018 investigation were visually characterized.

Additional test pitting occurred in September 2018 (Appendix F). This investigation centered on borrow area characterization. Sites 3 and 5 were chosen for borrow material source as the April 2018 test pit investigation showed no tailing in the areas. Three test pits were excavated within the proposed borrow areas – one at Site 3, one at Site 5, and one in the auxiliary borrow area north of Site 5. Soil samples from the three test pits were sent to Energy Labs in Billings, Montana. The soil samples were free of tailing material. The borrow characterization soil sample locations area shown on Figure 4-5 and additional information about the soil sample locations can be found in Table 4-4. Additional discussion concerning the proposed borrow areas can be found in Section 5.4.

The next test pit investigation occurred in December 2018 (Appendix E-2). This investigation centered on the Site 5 proposed borrow area. The NMED and CEMC chose five test pit "trench" locations within the Site 5 area. Each of the test pit "trench" locations were characterized at each corner of the excavation. Two of the excavations, TP-34 and TP-35, contained visual signs of tailing. Test Pit 35 contained a 3" thick lens of tailing material that ranged from 108"+ BGS at the north edge of the pit to 12" BGS at the south edge of the pit. Test Pit 34 contained tailing material from very near the surface to 48" BGS. The remaining three test pit locations were visually clear of tailing material to depths of 60" for TP-33 and 96" for TP-36 and TP-37.

Further investigation at the LDS area was conducted in January 2019 (Appendix E-3). After encountering tailing material in the Site 5 area, it was clear that additional investigation was needed in the eastern half of the LDS. The project team applied a sample grid to the area adjacent to known tailing locations. The grids were put on a 1/10 acre spacing with the intent of bounding known tailing locations with clean test pits. The 1/10-acre spacing matches closely with existing test pit spacing. Test pit locations are based on the centroids of the grids. If the centroid location of the grid was unsuitable for excavation (large boulders, etc.), ground personnel were instructed to move the test pit out from the centroid. Actual locations for the test pits were mapped via survey grade GPS. A total of 31 test pits were excavated during the January 2019 investigation. Thirty of the test pits were marked as visually clear of tailing

material. TP-64 was the lone excavation where tailing material was visually noted. The tailing material in TP-64 was found near the surface to 21 inches in depth. The visually clean test pits encircled the test pits that had visual signs of tailing material.

An additional test pit investigation at the LDS area was conducted in June 2019 (Appendix E-4). After encountering visible signs of tailing deposits to the north of the Site 3 area in what is now known as the Site 6 area, CEMC and EPA deemed that additional investigation was necessary. The sample grids were held at the same 1/10-acre grid size used in the January 2019. However, due to the configuration of tailing material in the area, the density of test points was increased to approximately 2-3 test pits per grid location. Test pit locations were again based on the centroid of each grid. Actual locations for the test pits were mapped via survey grade GPS. A total of 43 test pits were excavated during the June 2019 investigation. Eleven of the 43 test pits were positively identified for containing tailing material. Tailing material thickness ranged from 4" at TP-70 to 114" at TP-110. TP-70, 89, 107, and 113 had 30" to 36" of clean material before encountering tailing material. The June 2019 test pits locations are shown on Figure 4-5, and the test pit information is found in Table 4-4.

4.5 TAILING DELINEATION

With information derived from historical site knowledge, visual characterization, and test pit investigations conducted at the LDS through June 2019, the extent and depth of tailing material was identified in Sites 1, 2, 4, 5, and 6. Figure 4-6 contains a graphical representation of known tailing within the LDS area. The test pit data was built into a Civil3D surface so it could be modeled and shown graphically on the figure. To ascertain the full extent of tailing material in the investigation area, it was assumed that the visually clean test pits would be the furthest extent of any possible tailing material. To create the tailing surface, the visually clean test pits were set at an overall tailing depth of 0". The test pits with visual tailing were set at the total depth of noted tailing for each excavation. The surface tied the points together linearly. The red shaded areas on Figure 4-6 represent known tailing, with the darker reds corresponding to greater depths of tailing. The white shaded areas correspond to areas with no known tailing, which are bounded by clean test pits.

The tailing cover a total surface area of approximately 7.2 acres. Total depth of tailing in the investigation area range from 4" to 114." The maximum depth of tailing is not known near TP-11, TP-13, and TP-35 as the test pits in those locations were not excavated to the full depth of tailing due to limited equipment capabilities. However, it is anticipated that tailing depth in the unknown areas are near the depth reported in the test pits due to existing ground configuration and adjacent test pit information. The estimated total tailing volume in the investigation area is approximately 14,650 cubic yards (CY). The surface extents of tailing have grown over that of the original estimates for the LDS area. The initial excavation boundaries for Sites 1, 2, 3, 4, and 5 area shown in Figure 4-4. The

boundaries of known tailing evolved as more tailing was found during subsequent investigations. The expanded boundaries for Sites 1 and 4 are shown on Figure 4-5 and 4-6 as well as the known tailing boundaries for Site 5 and Site 6. Proposed remediation plans for the investigation area can be found in Section 5.0 of this work plan. Please note that as of June 2019, some tailing material was removed from Sites 1, 2, and 4. This occurred during the fall 2018 LDS work. These areas are ready for the required placement of 3 ft of clean cover material. The previous removal of tailing material, and the current condition of the LDS area is discussed in Section 5.0.

5.0 REMEDIATION ACTIVITIES

5.1 PIPE REMOVAL

Pipe removal in the LDS was initiated during September 2018 removal activities conducted under the guidelines specified under Section 4.1 of the Pipeline Removal Work Plan (Trihydro 2017). The pipe in Stage 8 was on the surface or inside of support structures. This pipe was removed by separating the pipe joints at the Victaulic couplings. In areas where de-coupling is impractical, the pipe was cut using a hydraulic shear mounted on an excavator. The pipe was then loaded and trucked to a laydown area on the tailing facility.

Structures such as pipe couplings, anchor structures, pipe bend structures, and concrete thrust blocks were removed in accordance with Section 4.0 of the overarching Pipeline Removal Work Plan (Trihydro 2017). To date all the pipeline and associated structures have been removed from the LDS area.

5.2 SUPPORT STRUCTURE REMOVAL

In September 2018, water contained in the concrete sump consisted of stormwater. The water was pumped into tanker trucks and transported to the tailing facility for disposal in one of the evaporation ponds. Support buildings were emptied of their contents and demolished. The concrete bottom of the sump was broken up and the concrete wall and foundations were broken up and placed in the sump area. This broken concrete will be covered with a minimum of 3 ft of clean fill, as detailed in Chapter 6.0. Excess concrete was disposed of in the mine pit. All support structures have been demolished and removed.

5.3 TAILING REMOVAL

Initially, three principal areas of tailing deposits were identified within the LDS area. Figure 5-1 indicates the areas of known tailing as of September 2018 including the 2017 Lower LDS boundary (Site 1) and areas where tailing was discovered via visual investigation and test pitting in the Spring of 2018 (Site 2 and Site 4). The tailing identified in Sites 2 and 4 had not been documented in the ROD or previous historic tailing spill assessment. CEMC moved forward with removing tailing from the Site 1, 2, and 4 areas in early fall 2018. Tailing from the Site 1, 2, and 4 areas was removed from the site and sent to the tailing facility for disposal. Figure 5-2 shows the initial tailing removal from Sites 1, 2, and 4.

Test pit investigations in December of 2018, as well as January and June of 2019, expanded the area of known tailing at the LDS. Figure 5-2 shows expanded boundaries for Sites 2 and 4 and the newly discovered tailing boundaries for

Sites 5 and 6. The total known tailing at the LDS is estimated at approximately 23,800 CY. This estimate includes tailing that has already been removed from the site in fall of 2018.

A description of planned and completed tailing removal activities as well as the final grading plan for the LDS are presented below on a Site by Site basis. For reference, Sites 1, 2,4, 5, and 6 are areas of tailing deposits. Potential clean borrow sources are located in Site 3, the auxiliary borrow area north of Site 5, and from a section of Moly Mine Road east of the LDS area proposed for removal, pending agency approval (Section 5.4.2). Borrow areas within the LDS area will be continually evaluated to ensure that borrow materials are free of tailing. If potential tailing material is discovered, the NMED on-site representative, Dr. Joseph Marcoline will be notified for coordination to evaluate the tailing potentially identified in borrow areas. Use of the borrow area containing potential tailing material will cease until any identified tailing material is removed in accordance with the workplan and is confirmed by the agencies. Any encountered tailing material will be exported to the tailing facility area.

Figure 5-1 shows site conditions prior to removing any tailing from the area in fall 2018. Figure 5-2 shows the current condition of the site, after initial tailing removal work occurred in fall 2018, and shows the current locations of known tailing material. Proposed tailing removal information is depicted on Figure 5-3. Final grading design for the LDS tailing removal areas is shown on Figure 5-4. Various earthwork cross-sections for the site can be found on Figures 5-5 and 5-6.

Please note that with the highly variable nature of where the tailing is located in the LDS, the as-constructed tailing removal and final grading at the LDS may differ significantly from that shown in the earthwork figures (Figures 5-3 through 5-6). Some field fit of tailing removal areas and final grading may be required to address proper mitigation of the tailing material. Several guidelines will be followed throughout the removal and grading process at the LDS. A list of those guidelines can be found below.

- Mounded tailing material that is sitting above surrounding existing topography will be removed completely.
- Tailing material that is found below surrounding native topography will be removed to a depth of 3ft BGS or to full extent of tailing depth; whichever is less.
- Boundaries of areas where tailing material is to be left in place will be mapped using survey grade GPS, and documented in the site completion report.
- Areas where tailing material is to be left in place will be covered with a minimum of 3ft of clean backfill material. The grading plan has been developed with 3.3ft of clean cover material to allow for settling of the soil and variability in surveying and equipment control methods.

- The earthwork contractor will verify proper cover of tailing areas through a pre and post cover placement topographical survey (i.e. cover placement meets a minimum of 3ft of clean backfill).
- Tailing removal and grading sites will be graded for positive drainage.
- Site grading will be focused on sheet flow of run-off, but vegetated swales may be required for run-off conveyance depending on surrounding natural topography and excavation area configuration.
- Isolated berms associated with equipment safety, historic road alignments, etc. will be removed and graded to match existing surrounding topography. Isolated berms proposed for removal and grading are shown on Figure 5-4.
- Final tailing removal contours, final grading contours, and graphical representations of tailing cover thickness will be documented in the site completion report as-constructed figures.

5.3.1 SITE 1 TAILING REMOVAL AND REGRADING

Site 1 consisted primarily of a depression created during previous tailing removal activities. Approximately 3,735 CY of tailing was removed from areas directly adjacent to the sump facility during the initial tailing removal work done in fall of 2018. The tailing was exported to the tailing facility area, previously used for disposal during the 2013/2014 Historic Tailing Spill Activities. The initial tailing removal cut information is detailed on Figure 5-2 and subsequent earthwork cross-section is included on Figures 5-5 and 5-6. A small amount of tailing is to be removed from the Site 1 area to facilitate final grading there. The tailing proposed for removal at the Site 1 area is surface tailing that will be removed to full depth or 3ft BGS whichever is less.

Areas where tailing is to remain in place are shown on Figures 5-3 and 5-4. The total volume of tailing to remain in place at the Site 1 area is difficult to estimate. Using the boundaries of known visible tailing, it is estimated that upwards of approximately 500-1500 CY of tailing material is to remain in place within the Site 1 footprint. Site 1 will be regraded in accordance with proposed final grading contours detailed on Figure 5-4 and subsequent earthwork cross-section figures. Site 1 is to be bisected by an east-west trending ridge near the middle of the site. The north area drains north, and the south area drains towards the west. The site was bisected in this manner due to existing site conditions. Any areas of left in place tailing material will be covered with a minimum of 3.3ft of clean import material in accordance with the grading plan. Again, the additional approximately 0.3ft of cover material is to account for settling of the backfill.

Much of the revised grading requires import fill material to be placed within the grading footprint. The depression to the west of the Site 1 South area will be filled with clean import material to bring the elevation of the depression

upwards to facilitate positive drainage. The southern portion of the Site 1 area will be graded to positively drain to the irrigation ditch located west of the site. A small portion of surface tailing is present in one of the slopes of the southern Site 1 area. Additional cover fill will be placed over the visible tailing in this area. The fill will be field fit to tie into the proposed Site 1 South area depression fill and provide a minimum of 3ft of cover over visible tailing areas in the slope. Tailing removal and final grading information for the southern portion of Site 1 is found on Figures 5-3, 5-4, and subsequent earthwork cross-section figures. The total required fill material for the Site 1 south area is approximately 3,250 CY.

The northern portion of Site 1 will be graded to positively drain in a generally northwesterly direction. Discharge from the Site 1 north area will cross Old Red River Road and will ultimately flow into the Red River. Approximately 340 CY of tailing material will be removed from the Site 1 north area. Any areas of tailing material to be left in place will be covered with a minimum of 3ft of clean import material. Clean fill will be placed, graded and verified by GPS guided equipment to tie in with surrounding natural topography. Total borrow material volume to complete the revised grading at Site 1 north is approximately 2,800 CY, bringing the total backfill for Site 1 to approximately 6,050 CY. Clean borrow materials are available from two separate sources within the LDS area, Site 3 and an auxiliary borrow area north of Site 5. Borrow locations are shown on Figures 5-3 and 5-4 and in Appendix F.

5.3.2 SITE 2 TAILING REMOVAL AND REGRADING

Site 2 consisted of mounded tailing, as well as some subsurface tailing material. Tailing material from Site 2 was excavated and removed to the tailing facility area, previously used for disposal during the 2013/2014 Historic Tailing Spill Activities. Tailing removal information for Site 2 is found on Figure 5-3. Approximately 4,800 CY of tailing was removed from the Site 2 area. Additional tailing was found below ground surface and was excavated to 3ft BGS. Tailing materials from the Site 2 area were removed during the initial tailing removal work completed in fall 2018. There are pockets of tailing remaining in the Site 2 excavation area, but no large defined zones. The excavation footprint of the Site 2 will be backfilled with approximately 3ft of backfill material to remove the depression left from excavation, and the fill will be tied into the north slope of the Site 1 depression area. Approximately 1000 CY of clean borrow material is required for final grading at Site 2. Final grading information for Site 2 is found on Figure 5-4.

5.3.3 SITE 3 REGRADING

Site 3 consists of mounded material directly west of Site 4. Several test pits were excavated in the Site 3, and yielded no visible tailing material. Site 3 is a potential on-site borrow source for use in backfill of tailing removal areas. An estimated 3,600 CY of clean borrow material is available in the Site 3 area. If potential tailing material is discovered during excavation of Site 3, the NMED on-site representative, Dr. Joseph Marcoline will be notified for coordination to

evaluate the tailing potentially identified in borrow areas. Use of the borrow area containing potential tailing material will cease until any identified tailing material is removed in accordance with the workplan and is confirmed by the agencies. The tailing material will be exported to the tailing facility area, and any remaining clean material will be used to grade the area for positive drainage.

5.3.4 SITE 4 TAILING REMOVAL AND REGRADING

The Site 4 area originally consisted of visual signs of tailing material at the existing ground surface. The surface extent of the visible tailing material was mapped (Figure 5-1), and test pitting work within the visible tailing area was completed in April 2018. The initial test pitting work performed in April 2018 revealed that tailing material in Site 4 ranged in depth from 10" to 85"+. The initial remediation plan for the Site 4 area was to remove a uniform 3ft of material from the visible tailing boundary, and backfill the area with clean import material. Approximately 8,350 CY of tailing material was removed from the Site 4 area during fall of 2018 and exported to the tailing facility area, which was previously used for disposal during the 2013/2014 Historic Tailing Spill Activities. The depression created by the removal of the tailing material was not backfilled immediately. Additional test pitting work in the Site 4 and Site 5 areas in January 2019 revealed additional tailing material adjacent to the initial Site 4 boundary. The Site 4 boundary was expanded to capture the additional tailing material. The expanded Site 4 boundary is shown on Figure 5-2, as well as the initial tailing material cut information for the Site.

Additional tailing removal above that which has already been removed from the Site 4 area is required. The proposed additional tailing cut information can be found on Figure 5-3 and subsequent earthwork cross-section figures. Similar to the initial tailing material removal work during fall of 2018, the additional tailing material located along the boundary of Site 4 will be removed to a maximum depth of 3ft BGS. The approximate volume of additional tailing material to be removed from the Site 4 area is 394 CY. Tailing material 3ft below the pre-removal ground surface will be left in place and covered with a minimum of 3ft of clean borrow material. The total amount of tailing material left in place is approximately 900 CY. Areas of left in place tailing within the Site 4 area are shown on Figures 5-3 and 5-4.

Final grading of the Site 4 area consists of placing a minimum of 3ft of cover material over all left in place tailing material areas as well as grading for positive drainage. Site 4 will be graded to drain generally north and west. Approximately 8,300 CY of clean backfill material will be used to grade the area. Final grading information can be found on Figure 5-4 and subsequent earthwork cross-sections found on Figures 5-5 and 5-6. Clean fill will be placed, graded, and verified by GPS guided equipment to tie in with surrounding natural topography.

5.3.5 SITE 5 TAILING REMOVAL AND REGRADING

Site 5 was initially identified as a potential clean borrow source for backfill and grading use at the LDS. The original borrow source boundary is shown on Figure 5-1. Borrow source characterization soil sampling occurred at the Site in September 2018. The borrow characterization sample was clear of tailing material. Subsequent test pit investigations revealed tailing material in the Site 5 area. Using test pit information, the extent of tailing was identified. The known extent of tailing at Site 5 is shown on Figure 5-2.

Tailing material removal for Site 5 will consist of removing 3ft of material within the known tailing boundary. The tailing removal information can be found on Figure 5-3. Approximately 226 CY of mixed tailing material is proposed for removal from the updated Site 5 area with a total of approximately 100 CY of tailing to remain in place. Final grading of the Site 5 area will consist of backfilling the tailing excavation area with a minimum of 3ft of clean borrow material, and grading the area to tie in with the surrounding topography. Total fill to be placed at the Site 5 area is approximately 330 CY. As with previous sites, final grading will be accomplished with GPS guided equipment.

5.3.6 SITE 6 TAILING REMOVAL AND REGRADING

Site 6 consists of mounded tailing, as well as potential subsurface tailing material orientated in two large berms running in a generally north south direction as well as an area of buried tailing adjacent to Site 1. Tailing material from Site 6 will be excavated and exported to the tailing facility area, previously used for disposal during the 2013/2014 Historic Tailing Spill Activities. Tailing removal information for Site 6 is found on Figure 5-3. An estimated 2,100 CY of tailing is proposed to be removed from the Site 6 area. Additional tailing found below surrounding existing ground level will be excavated to a maximum depth of 3ft BGS or to complete removal, whichever is less. Final grading in the Site 6 area consists of bringing any depression areas associated with tailing removal up in elevation to match existing surrounding topography. Areas of buried tailing will be covered with a sufficient amount of backfill material to have the required 3ft of cover. The proposed backfill for Site 6 is approximately 3,250 CY. Final grading information for Site 6 is found on Figure 5-4.

5.4 BORROW MATERIAL

Borrow areas have been identified internally and externally to the LDS. The locations of borrow material and analytical data supporting the materials suitability are detailed below.

5.4.1 INTERNAL BORROW SOURCES

The source of borrow material internal to the LDS footprint are identified as Site 3 and an auxiliary borrow site on Figure 5-3, 5-4 and Figure F-2 in Appendix F. Sampling and analysis of the borrow materials has been conducted with

the results summarized in Appendix F. Results of the borrow source investigation are also included in Table 5-1, embedded below. Site 5 was originally planned for use as a potential borrow source, and was included in the borrow characterization study. The soil sample from the Site 5 area was below the action level for molybdenum. Visible tailing material was discovered in the Site 5 area during subsequent test pit investigation. The Site 5 area was then removed from borrow source consideration. There are several berms located throughout the site footprint. These berms are associated with roads and equipment work areas. These berms are to be removed, and have been identified as possible borrow material sources. As noted above, if potential tailing material is discovered during excavation of the internal borrow sources, the NMED on-site representative, Dr. Joseph Marcoline will be notified for coordination to evaluate the tailing potentially identified in borrow areas. Use of the borrow area containing potential tailing material will cease until any identified tailing material is removed in accordance with the workplan and is confirmed by the agencies. The tailing material will be exported to the tailing facility area, and any remaining clean material will be used to grade the area for positive drainage.

TABLE 5-1. LDS BORROW AREA SAMPLES

Sample Name	Area Description	Northing	Easting	Molybdenum Results (mg/kg)
LDS-TP-01	Aux Borrow Area	22 500.706	32 970.457	ND
LDS-TP-02	Site 5 Borrow Area	22 298.299	32 898.315	10
LDS-TP-03	Site 3 Borrow Area	22 012.766	32 547.888	1.3

Using the internal borrow sources will limit the need for off-site borrow materials. Currently, the final grading contours shown on Figure 5-4 produce a volume of approximately 15,700 CY of clean backfill material. Trihydro estimates that the possible auxiliary borrow area located north of Site 5 contains approximately 9,100 CY of potential borrow material. Site 3 contains an estimated 3,600 CY of potential borrow material. The total amount of potential borrow material available within the LDS footprint is 12,700 CY. A total of 3,000CY of import borrow material will be required to completed the final grading work at the LDS. The total disturbance for work at the LDS area will be approximately 8.0 acres. This disturbance includes all final grading areas and borrow areas. Ancillary construction disturbance is not included in the estimated disturbance.

5.4.2 EXTERNAL BORROW SOURCES

An external source of borrow material has been identified as the previously approved area adjacent to the tailing facility. The location of this source is shown in Appendix F. A nearby external borrow source located approximately 0.5 miles east of the LDS and associated with the removal of Moly Mine Road is also available. The Moly Mine Road

borrow source is pending agency approval. The Moly Mine Road borrow area can be found as Figure F-3 in Appendix F. Borrow characterization of the Moly Mine Road borrow area has not been completed. If the Moly Mine Road Borrow source is approved by the agencies CEMC will continually monitor the dirt for evidence of HTS to assure that the road material is clean prior to placement at LDS. If HTS is discovered along the road it will be managed per the standard cleanup procedure for historic spills, with verification by NMED. An estimated 6,000 - 9,000CY of clean borrow material is available at the Moly Mine Road removal.

5.5 EROSION CONTROL

Erosion control measures will be taken in final grading areas associated with the LDS. As mentioned above, final grading of sites will be focused on sheet flow of run-off, but vegetated swales may be required for run-off conveyance depending on surrounding natural topography and excavation area configuration. Erosion control measures such as straw wattles, rock check structures, rock grade control structures, etc. will be available for use in the grading areas. Erosion control types will be implemented on a case by case basis by project oversight. Typical construction details for different erosion control types are included in Figure 5-7.

5.6 WASTE MANAGEMENT

Waste will be disposed of according to the methods outlined in the Pipeline Removal Work Plan (Trihydro 2017) Section 2.3.3 and Section 5-1. Approximate quantities of material to be removed are detailed in Table 5-2.

TABLE 5-2. QUANTITIES OF DEMOLITION MATERIALS

Pipeline Segment Description	Approximate Quantity of Pipe to be Removed (feet)	Approximate Quantity of Concrete (tons)	Approximate Quantity of Steel (tons)
Lower Dump Sump	100	Unknown	0.035

6.0 RECLAMATION

Areas disturbed during pipe removal, tailing removal, borrow excavation, regrading and other demolition activities conducted under this work plan will be reclaimed according to the procedures outlined in Section 4.2.10 of the Removal Work Plan, May 2017 and in this chapter. Clean fill will be imported from approved borrow sources as discussed in Section 5.4. Maps indicating the locations of borrow material are included as Appendix F. Also included in Appendix F is analytical data which demonstrates the suitability of material from the Lower Dump Sump area for use as a borrow source. As part of the demolition, the lower dump sump concrete structures will be crushed and recycled as fill for the sump. Any excess concrete from the demolition of the sump will be disposed in the Questa Mine Open Pit as per the Removal Work Plan, May 2017. Steel rebar from the concrete fill pieces will not protrude more than 6 inches. Any protruding rebar from concrete structures will be cut to the appropriate length and recycled as per the work plan. Clean fill will be placed per Chapter 5 and graded to a minimum thickness of 3.3 feet, as verified by GPS guided equipment to match the designed topography for the Lower Dump Sump area. The grading plans were developed with 3.3ft of cover material to account for settling of clean backfill material as well as surveying discrepancies.

Once the grading has been completed disturbed areas will be reseeded using the mix detailed in Table 6-1. Alternate seed mixes may be used depending upon the anticipated land use or if availability of certain seed species is limited. The seed mix may be negotiated with the proper regulatory agencies based on the area of application.

TABLE 6-1. SEED MIXTURE

Grasses	Scientific Name	Drill Seeding lbs/acre	Hydroseeding lbs/acre
Western Wheatgrass, var. Arriba	*Pascopryum smithii*	4.1	8.2
Slender Wheatgrass, var. San Luis	*Elymus trachycaulus*	1.7	3.4
Bluebunch Wheatgrass, var. Goldar	*Pseudoroegneria spicata*	2.3	4.6
Blue Grama, var. Hachita	*Bouteloua gracilis*	0.5	1.0
Arizona Fescue, var. Redondo	*Festuca arizonica*	0.7	1.4
Forbs			
Western Yarrow	*Achillea millefolium*	0.15	0.3
Rocky Mountain Penstemon, var. Bandera	*Penstemon strictus*	1.2	2.4
Prairie Coneflower	*Ratibida columnifera*	0.8	1.6
Tufted Evening Primrose	*Oenothera speciosa*	0.15	0.3
Shrubs			
Mountain Big Sagebrush, var. Hobble Creek	*Artemisia tridentata var vaseyana*	0.3	0.6
Apache Plume	*Fallugia paradoxa*	0.3	0.6

Alternative Grasses	Scientific Name	Drill Seeding lbs/acre	Hydroseeding lbs/acre
Basin Wildrye, var. Magnar	*Leymus cinereus*	2.1	4.2
Sand Dropseed	*Sporobolus cryptandrus*	0.06	0.12
Prairie Junegrass	*Koeleria macrantha*	0.1	0.2
Alternative Forbs			
Scarlet Globemallow	*Sphaeralcea coccinea*	0.5	1.0
Hairy False Goldenaster	*Heterotheca villosa*	0.3	0.6
Alternative Shrubs			
Woods Rose	*Rosa woodsii*	1.5	3.0
Winterfat	*Krascheninnikovia lanata*	0.5	1.0
Rubber Rabbitbrush	*Ericameria nauseosa*	0.3	0.6

7.0 STAKEHOLDER ENGAGEMENT

The key stakeholders for this stage of pipeline removal include:

- USEPA
- NMED
- MMD
- NM Historic Preservation Division
- NM Department of Game and Fish
- USACE
- Village of Questa

Outreach to the key stakeholders has begun and will continue throughout the pipeline removal project.

8.0 SCHEDULE

The tentative schedule for Stage 8 of the Questa pipeline removal project is detailed below in Table 8-1.

TABLE 8-1. STAGE 8 PIPELINE REMOVAL SCHEDULE

Removal Description	Target Date of Commencement
Clearing and Grubbing	8/26/19 - 8/30/19
HTS Removal	9/4/19 - 11/1/19
Embankment Removal	9/4/19 - 11/15/19
Site Restoration	11/4/19 - 11/29/19
Demobilization	12/18/18 - 12/20/18
Turnover	1/11/20 - 1/11/20
Temporary Well Installation	TBD
Well Abandonment	TBD

9.0 HEALTH AND SAFETY

CMI, Entact and Trihydro put safety first and foremost in all operations. A project specific Health and Safety Plan has been developed for the pipeline removal activities. This plan will include:

- Emergency response procedures and reporting
- Project team organization and responsibilities
- Training, orientation, and medical monitoring requirements
- A site hazard analysis
- Analysis of chemical, physical, and biological hazards
- Required personal protective equipment
- Air monitoring requirements
- Site control measures
- Waste management
- Motor vehicle safety requirements

Other documents used to identify and mitigate hazards associated with the project include:

- Pre-fieldwork safety readiness reviews. This document provides project management an opportunity to interact with field personnel prior to commencement of field activities. An example is provided in Appendix G.
- Job Safety Analyses (JSA). JSAs are drafted for each task. Job steps, potential hazards and mitigation steps are identified and communicated to team members. The JSA form is included in Appendix G.
- Field observations. Observations will be conducted throughout the project to verify compliance with operational safety standards. The observation form is included in Appendix G.
- Near Miss investigations. Near misses identified by team members will be investigated to determine root causes and means to avoid similar incidents in future operations. The outcome of these investigations will be shared with all team members. The Near Miss reporting form is included in Appendix G.
- Daily tailgate safety meetings. Daily tailgate safety meeting will be conducted every day prior to commencement of operations. The meetings are an opportunity to review JSAs, discuss changing conditions, lessons learned and operational details.

- Weekly management safety meetings. This meeting is an opportunity for the project leadership to discuss upcoming operations, lessons learned, near loss investigations and other potential issues.
- Journey management plans (JMP). JMPs are used to identify hazards associated with transportation. These plans identify hazard and provide mitigation steps for enhancing vehicle operational safety. An example JMP is included in Appendix G.

The use of the documents create the foundation for hazard awareness and mitigation. Our companies have embedded their use into our respective corporate cultures and freely share best practices and lesson learned.

10.0 CONTRACTORS KEY PERSONNEL

Entact LLC will be the primary contractor for Stage 8 removal activities, waste management, and regrading of the Lower Dump Sump. Key Entact personnel include:

- **Michael Cinciripini.** Michael is the Project Manager and primary operations contact for Entact on the tailing pipeline removal project (Project). Michael holds a Bachelor of Science degree in Civil and Environmental Engineering, a Construction Management Certificate and is a Lean Sigma Green Belt. He has a significant level of experience at the Questa Mine facility. He can be reached at (412) 417-8460 or mcincirpini@entact.com.
- **Nicholas Cain**. Nicholas fills the role of Health and Safety Officer for Entact on the Project.

Trihydro Corporation will be responsible engineering, contractor oversight, environmental sampling, permitting and regulatory support. Key Trihydro personnel include:

- **Shaun Harshman.** Shaun is the Project Manager and primary contact for Trihydro on the Project. Shaun has a Bachelor of Science degree in Soil Science. He has over 30 years of experience in the environmental field, with over 18 years of experience on Chevron projects. He can be reached at (307) 259-5909 or sharshman@trihydro.com.
- **Tony Kupilik.** Tony will be Trihydro's primary construction oversight and health and safety manager. Tony has over 25 years of experience in heavy construction and mining. He is a certified MSHA instructor, New Mexico Surface Coal Foreman, Excavation Competent Person, 3D Driving instructor and has OSHA 40 hour HAZWOPER training. He is also certified in Red Cross CPR, AED, and First Aid. He can be reached at (307) 760-8082 or tkupilik@trihydro.com.
- **Loren Eldridge-Looker.** Loren will be Trihydro's primary onsite engineering support for the Project. Loren holds Professional Licenses in Wyoming, Texas, and New Mexico. He is a Civil Engineer with over 10 years of experience in project management, permitting, and design, regulatory coordination, construction management and oversight, design surveying, and construction staking. He can be reached at (720) 399-2019 or LEldridge-Looker@trihydro.com.

11.0 REFERENCES

New Mexico Energy, Minerals and Natural Resources Department (EMNRD) and the New Mexico Environment Department (NMED). 2017. Joint Agency Approval, Questa Tailings Pipeline Removal, NND/NMED Work Plan, Chevron Environmental Management Company, Questa Mine (TA001RE, Revision 96-1 and DP-933). June 5, 2017.

Trihydro Corporation (Trihydro). 2017. Questa Tailings Pipeline Removal, MMD/NMED Work Plan, Chevron Environmental Management Company, Questa Mine. May 19, 2017.

Trihydro. 2018. Draft for Review, Questa Tailings Pipeline Removal, Asbestos and Lead Removal Investigation, Chevron Environmental Management Company, Questa Mine. January 3, 2018.

URS Corporation (URS). 2012a. Historic Tailings Spills, Removal Action Work Plan, Chevron Questa Mine, Superfund Site. May 16, 2012.

URS. 2012b. Overall Site Plan for Removal Actions, Chevron Questa Mine, Superfund Site. June 29, 2012.

URS. 2014. Historic Tailings Spills, Removal Action, Completion Report, Chevron Questa Mine, Superfund Site, Revision 1. September 26, 2014.

U.S. Environmental Protection Agency (USEPA). 2010. Record of Decision, Molycorp, Inc., Questa, New Mexico. December 20, 2010.

USEPA. 2012. CERCLA Docket No. 06-09-12, Administrative settlement Agreement and Order on Consent for Removal Actions. Filed March 8, 2012.

USEPA. 2017. Revised Questa Tailings Pipeline Removal MMD/NMED Work Plan, Chevron Questa Mine Superfund Site, New Mexico. June 14, 2017.

U.S. Federal Emergency Management Agency (FEMA). 2018. Online Mapping Feature, https://msc.fema.gov/portal/search#searchresulsanchor. March 6, 2018.

FIGURES

TAILING FACILITY

STATE ROUTE 522

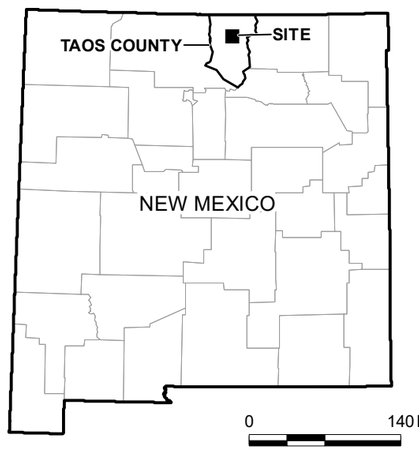
STATE ROUTE 38

QUESTA MINE

STATE ROUTE 38

STATE ROUTE 38

OVERVIEW MAP



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

EXPLANATION

- FORMER TAILINGS PIPELINE
- PRIMARY STATE HIGHWAY
- SECONDARY STATE HIGHWAY
- LOCAL, NEIGHBORHOOD, OR RURAL ROAD

N

0 2,500 '

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FIGURE 1-1

SITE LOCATION MAP

QUESTA MINE
QUESTA, NEW MEXICO

Drawn By: DH	Checked By: BAH	Scale: 1 " = 2,500 '	Date: 6/13/18	File: Fig1-1_QuestaPipelineLoc.mxd

M:\CHEVRON\CBMC_MINING\QUESTA\MINE\PIPELINES\GIS\MAPPING\STAGE\MXD\RPLANFIG1-1_QUESTAPIPELINELOC.MXD

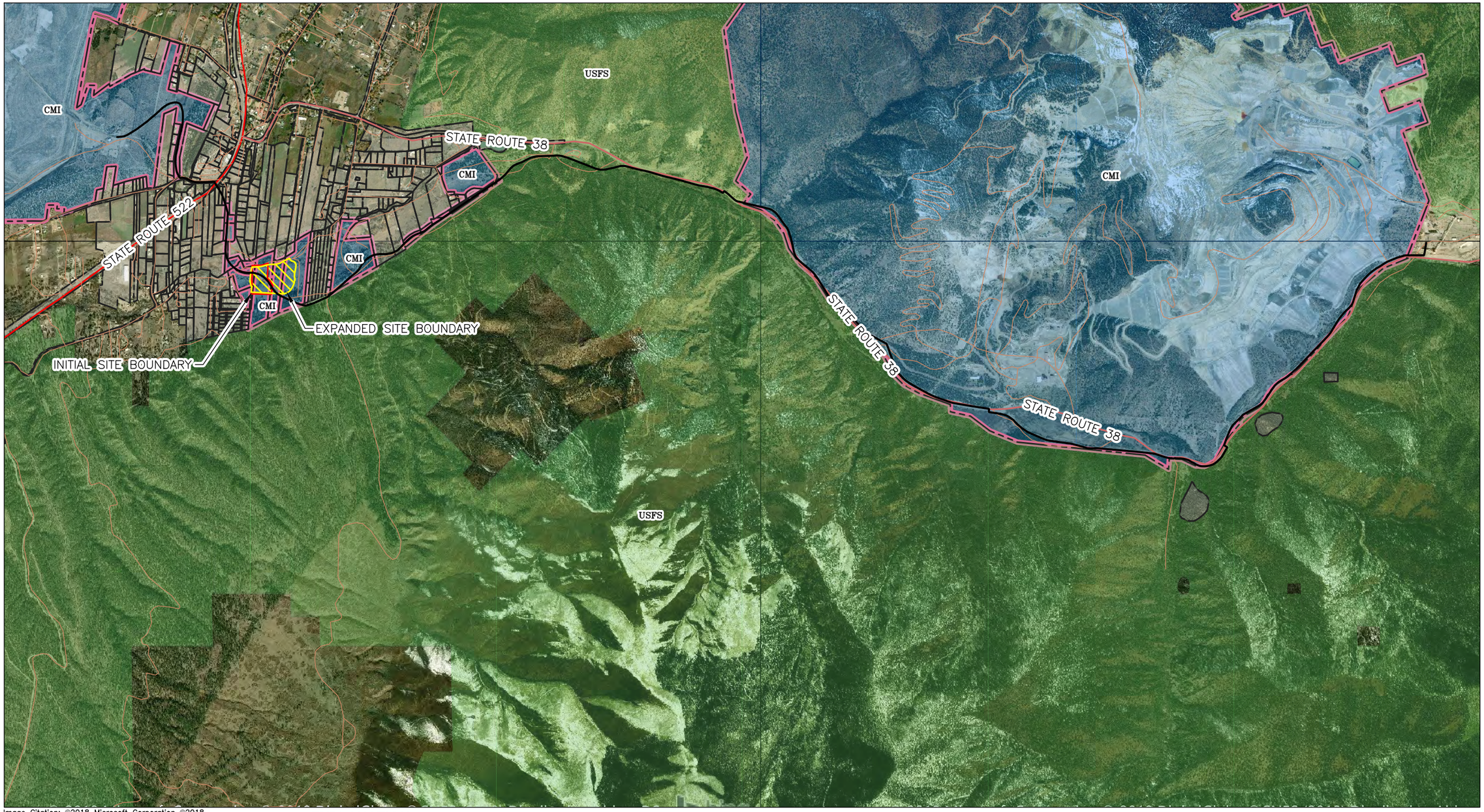

Image Citation: ©2018 Microsoft Corporation ©2018

EXPLANATION

- PIPELINE
- PRIMARY STATE HIGHWAY
- SECONDARY STATE HIGHWAY
- LOCAL, NEIGHBORHOOD, OR RURAL ROAD
- EXPANDED SITE BOUNDARY
- INITIAL SITE BOUNDARY

- LAST, FIRST — OTHER PRIVATE PROPERTY
- CMI — CMI PROPERTY
- USFS — CARSON NATIONAL FOREST

N

0 2,500'

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FIGURE 3-1

STAGE 8 PIPELINE REMOVAL LOCATION

QUESTA MINE
CHEVRON MINING
QUESTA, NEW MEXICO

Drawn By: KCW	Checked By: TH	Scale: SHOWN	Date: 1/3/19	File: 2_ST8_PL_LOC_FIG3-1

\\TRIHYDRO.COM\CLIENTS\CHEVRON\CEMC_MINING\QUESTAMINE\PIPELINE\CADD\REGULATORY\EPA\STAGE8-WORKPLAN\2_ST8_PL_LOC_FIG3-1

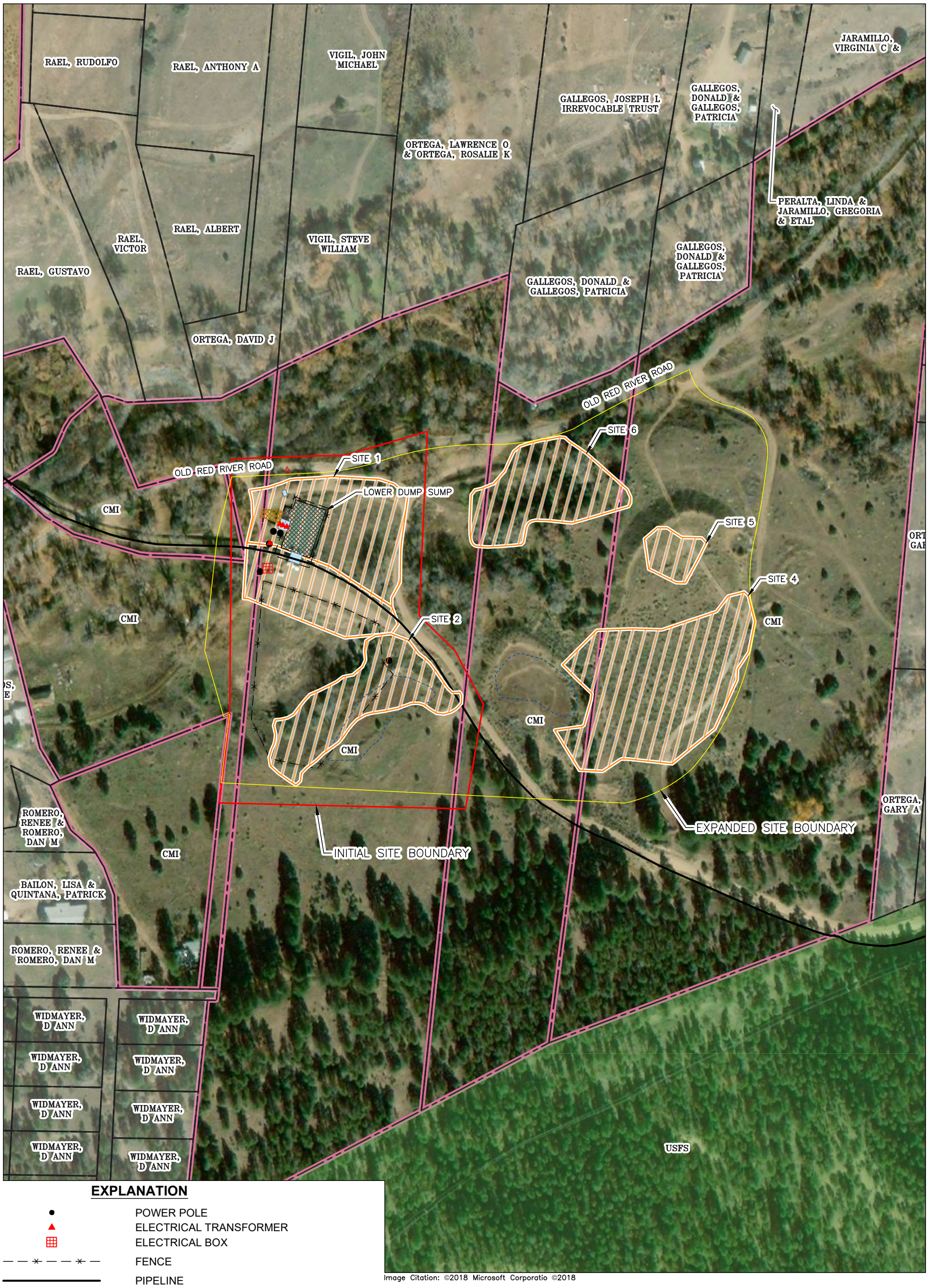

Image Citation: ©2018 Microsoft Corporatio ©2018

EXPLANATION

- POWER POLE
- ELECTRICAL TRANSFORMER
- ELECTRICAL BOX
- FENCE
- PIPELINE
- EXPANDED SITE BOUNDARY
- INITIAL SITE BOUNDARY
- AREA OF KNOWN TAILINGS
- CONCRETE SUMP
- FORMER TAILINGS RETENTION AREA (FIELD VERIFIED NON-WETLAND)
- LAST, FIRST — OTHER PRIVATE PROPERTY
- CMI — CMI PROPERTY
- USFS — CARSON NATIONAL FOREST

N

0 200'

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FIGURE 3-2

LOWER DUMP SUMP LAYOUT

QUESTA MINE
CHEVRON MINING
QUESTA, NEW MEXICO

Drawn By:KCW	Checked By: TH	Scale: 1" = 200'	Date: 6/18/19	File: 3_SITLOC_FIG3-2

\\TRIHYDRO.COM\CLIENTS\CHEVRON\CEMC_MINING\QUESTAMINE\PIPELINE\CADD\REGULATORY\EPA\STAGE8-WORKPLAN\3_SITLOC_FIG3-2

RAEL, JOHN PHILLIP

AREA OF MINIMAL FLOOD HAZARD

RAEL, GUSTAVO

RAEL, VICTOR

RAEL, ALBERT

VIGIL, STEVE WILLIAM

ORTEGA, LAWRENCE O & ORTEGA, ROSALIE K

GALLEGOS, DONALD & GALLEGOS, PATRICIA

GALLEGOS, DONALD & GALLEGOS, PATRICIA

IRWIN, JULES

VASQUEZ, DORIS O

ORTEGA, JOE D & LINDA

ORT RY

ORTEGA, LORENA

ORTEGA, DAVID J

ZONE A, FLOOD HAZARD

OLD RED RIVER ROAD

MARTINEZ, PAULINE & ETAL

SANDOVAL, ANDREA

MARTINEZ, ELVA

PADILLA, JAMES

SANCHEZ, STEVE

MARTINEZ, JOSE E

SANCHEZ, STEVE

CMI

RAEL, CARLOS

CMI

AREA OF MINIMAL FLOOD HAZARD

VIGIL, JAMES

ORTEGA, GARY A

CMI

CMI

LOWER DUMP SUMP

CMI

CMI

ORTEGA, NOREEN

ORTEGA, CHRIS A

ORTEGA, ALICE

GALLEGOS, DENNISE

AREA OF MINIMAL FLOOD HAZARD

LAFORE, ELMER T

ORTEGA, TAMMIE

ROMERO, RENEE & ROMERO, DAN M

ORTEGA, GARY A

DAWSON, DAVID T

CMI

INITIAL SITE BOUNDARY

EXPANDED SITE BOUNDARY

BAILON, LISA & QUINTANA, PATRICK

USFS

ROMERO, RENEE & ROMERO, DAN M

Image Citation: ©2018 Microsoft Corporation ©2018

NOTE:
FEMA ONLINE FLOOD MAP SERVICE CENTER, FLOODMAP 35055C0455E, EFFECTIVE 10/6/2010, QUESTA, NEW MEXICO (HTTPS://MISC.FEMA.GOV/PORTAL/SEARCH#SEARCHRESULTSANCHOR)

EXPLANATION

- PIPELINE
- EXPANDED SITE BOUNDARY
- INITIAL SITE BOUNDARY
- LAST, FIRST — OTHER PRIVATE PROPERTY
- CMI — CMI PROPERTY
- USFS — CARSON NATIONAL FOREST
- FLOOD ZONE BOUNDARY WITHOUT BASE FLOOD ELEVATION (BFE), ZONE A

N

0 200'

M:\CHEVRON\CEMC_MINING\QUESTAMINE\PIPELINE\CADD\REGULATORY\EPA\STAGE8--WORKPLAN\4_FLOODZONES_FIG3-3

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FIGURE 3-3

LOWER DUMP SUMP
FLOOD HAZARD BOUNDARY

QUESTA MINE
CHEVRON MINING
QUESTA, NEW MEXICO

Drawn By: KCW	Checked By: TH	Scale: 1" = 200'	Date: 6/26/19	File: 4_FLOODZONES_FIG3-3

NOTE:

STORMWATER SEDIMENT AND RUNOFF WILL BE CONTROLLED USING BEST MANAGEMENT PRACTICES DESCRIBED IN THE SITE SPECIFIC STORMWATER POLLUTION PREVENTION PLAN (SWPPP).

Image Citation: ©2018 Microsoft Corporation ©2018

EXPLANATION

- PIPELINE
- GROUND SURFACE ELEVATION CONTOUR (FEET)
- INITIAL SITE BOUNDARY
- APPROXIMATE GROUND WATER FLOW DIRECTION
- EXPANDED SITE BOUNDARY
- LAST, FIRST — OTHER PRIVATE PROPERTY
- CMI — CMI PROPERTY
- USFS — CARSON NATIONAL FOREST

NWI WETLANDS (2017 USFWS)

- FRESHWATER FORESTED/SHRUB WETLAND
- FRESHWATER POND
- RIVERINE
- FORMER TAILINGS RETENTION AREA (FIELD VERIFIED NON-WETLAND)

N

0 300'

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FIGURE 3-4

LOWER DUMP SUMP WETLANDS MAP

QUESTA MINE
CHEVRON MINING
QUESTA, NEW MEXICO

Drawn By: KCW	Checked By: TH	Scale: 1" = 300'	Date: 6/18/19	File: 5_WETLANDS_FIG3-4

M:\CHEVRON\CEMC_MINING\QUESTAMINE\PIPELINE\CADD\REGULATORY\EPA\STAGE8--WORKPLAN\5_WETLANDS_FIG3-4

EXPLANATION

●	POWER POLE		EXPANDED SITE BOUNDARY
▲	TRANSFORMER AND SOIL SAMPLE LOCATIONS		INITIAL SITE BOUNDARY
▦	ELECTRICAL BOX		CONCRETE SUMP
— — ✳ — — ✳ —	FENCE		ACCESS RAMP
———	PIPELINE		SUPPORT BUILDING

N

0 30'

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FIGURE 4-1

PCB SOIL SAMPLE LOCATIONS

QUESTA MINE
CHEVRON MINING
QUESTA, NEW MEXICO

Drawn By: KW	Checked By: TH	Date: 1/3/19	File: 6_SOILSALOCA_FIG-4-1

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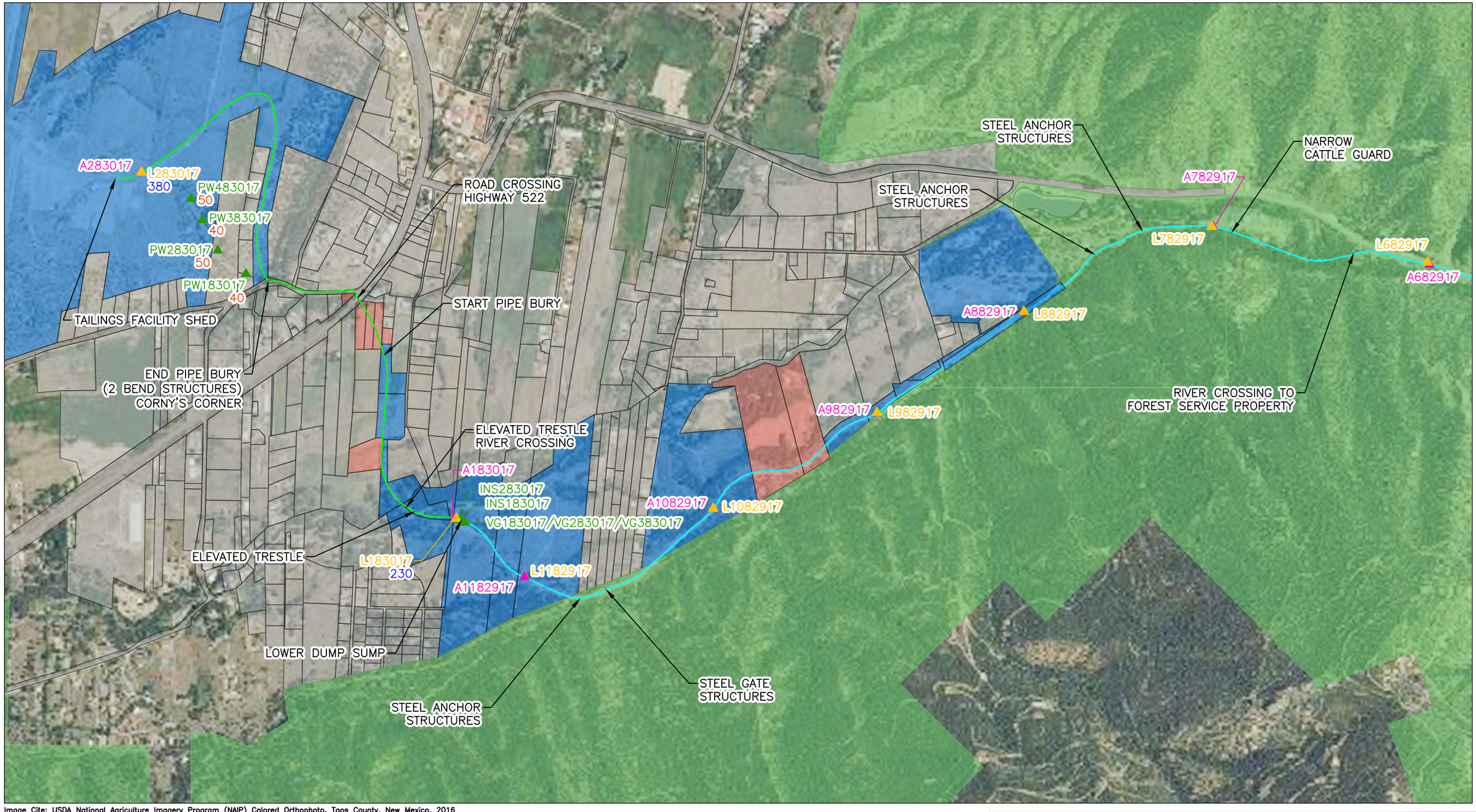

Image Cite: USDA National Agriculture Imagery Program (NAIP) Colored Orthophoto, Taos County, New Mexico, 2016

EXPLANATION

- ▲ ▲ ▲ SAMPLE POINT AND DESIGNATION
- 230 DETECTED LEAD, IN MILLIGRAMS PER KILOGRAM (mg/kg)
- 40 DETECTED ASBESTOS IN % CHRYSOTILE
- TAILINGS PIPELINE ALIGNMENT - EAST OF LOWER DUMP SUMP
- TAILINGS PIPELINE ALIGNMENT - WEST OF LOWER DUMP SUMP
- PRIVATE PROPERTY NEAR PIPELINE
- CMI PROPERTY
- CARSON NATIONAL FOREST
- OTHER PROPERTY

N

0 1000'

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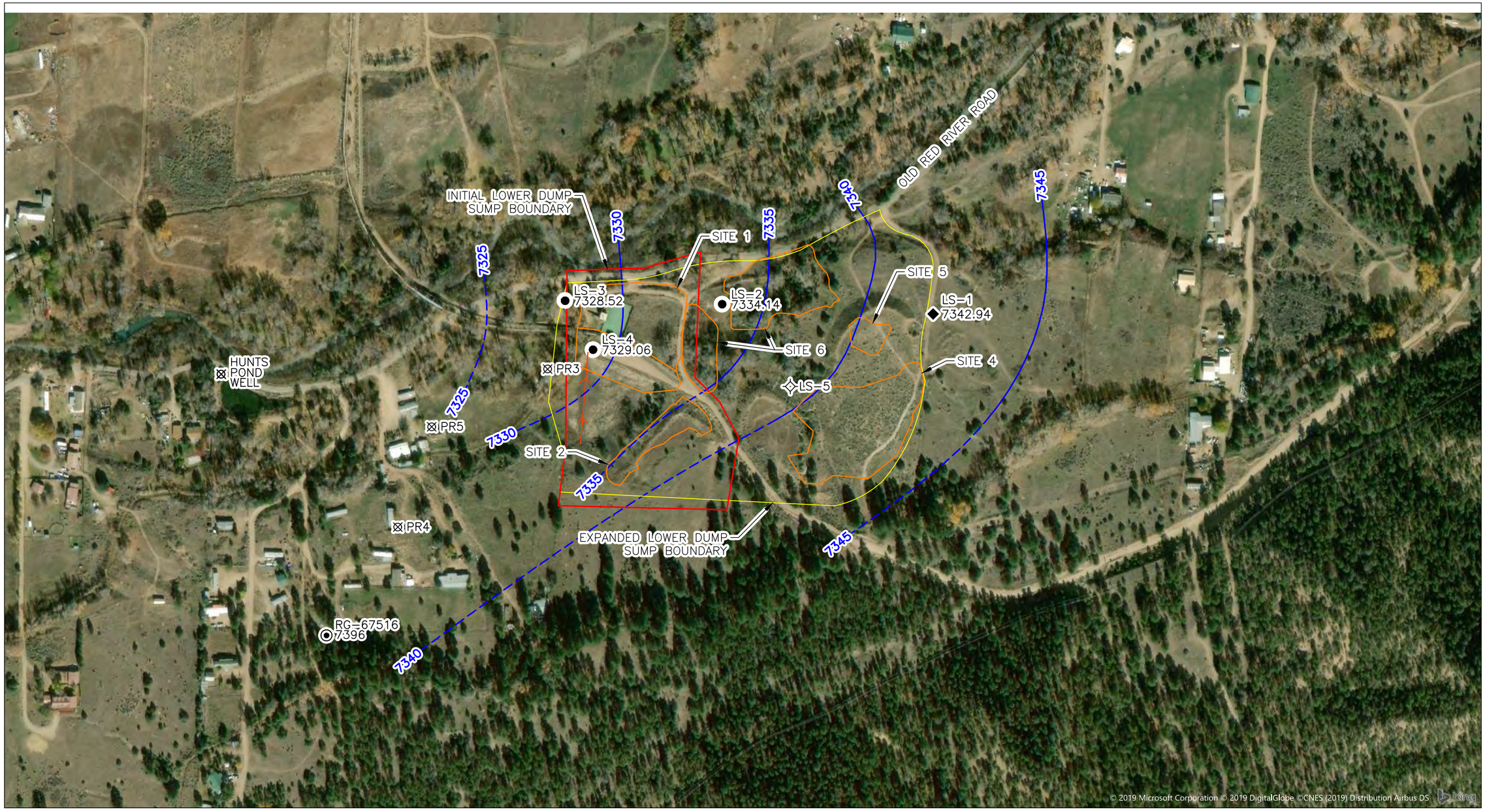
FIGURE 4-2
PIPELINE SAMPLING LOCATIONS
EXISTING SITE PLAN - WEST AREA DETAIL
LEAD AND ASBESTOS SAMPLING LOCATIONS
QUESTA MINE
CHEVRON MINING
QUESTA, NEW MEXICO

Drawn By: KW	Checked By: TH	Scale: 1" = 1000'	Date: 6/24/19	File: 7_LEADASBSAM_FIG4-2

\\TRIHYDRO.COM\CLIENTS\CHEVRON\CEMC_MINING\QUESTAMINE_PIPELINE_CADD\REGULATORY_EPA\STAGE8--WORKPLAN\7_LEADASBSAM_FIG4-2



EXPLANATION

- LS-2 7334.14 — EXISTING MONITORING WELLS
- PR1 — PRIVATE RESIDENTIAL WELLS
- RG-67516 7339 — RG-67516 (WATER LEVEL MEASURED BY MMD ON 4/9/19)
- AS-1 — PROPOSED MONITORING WELL LOCATION
- LS-1 — WELL TO BE PLUGGED AND ABANDONED
- SITE BOUNDARY
- GROUNDWATER ELEVATION - CONTOUR INTERVAL 5 FEET (DASHED WHERE INFERRED)
- EXPANDED LDS SITE BOUNDARY
- INITIAL LDS BOUNDARY
- WESTERN TRENCH

N

0 300'

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FIGURE 4-3

MONITORING LOCATIONS AT LOWER DUMP SUMP

QUESTA MINE
CHEVRON MINING
QUESTA, NEW MEXICO

Drawn By: KCW	Checked By: TH	Scale: 1" = 300'	Date: 9/24/19	File: 8_MONITORINGLOCATIONS_FIG4-3

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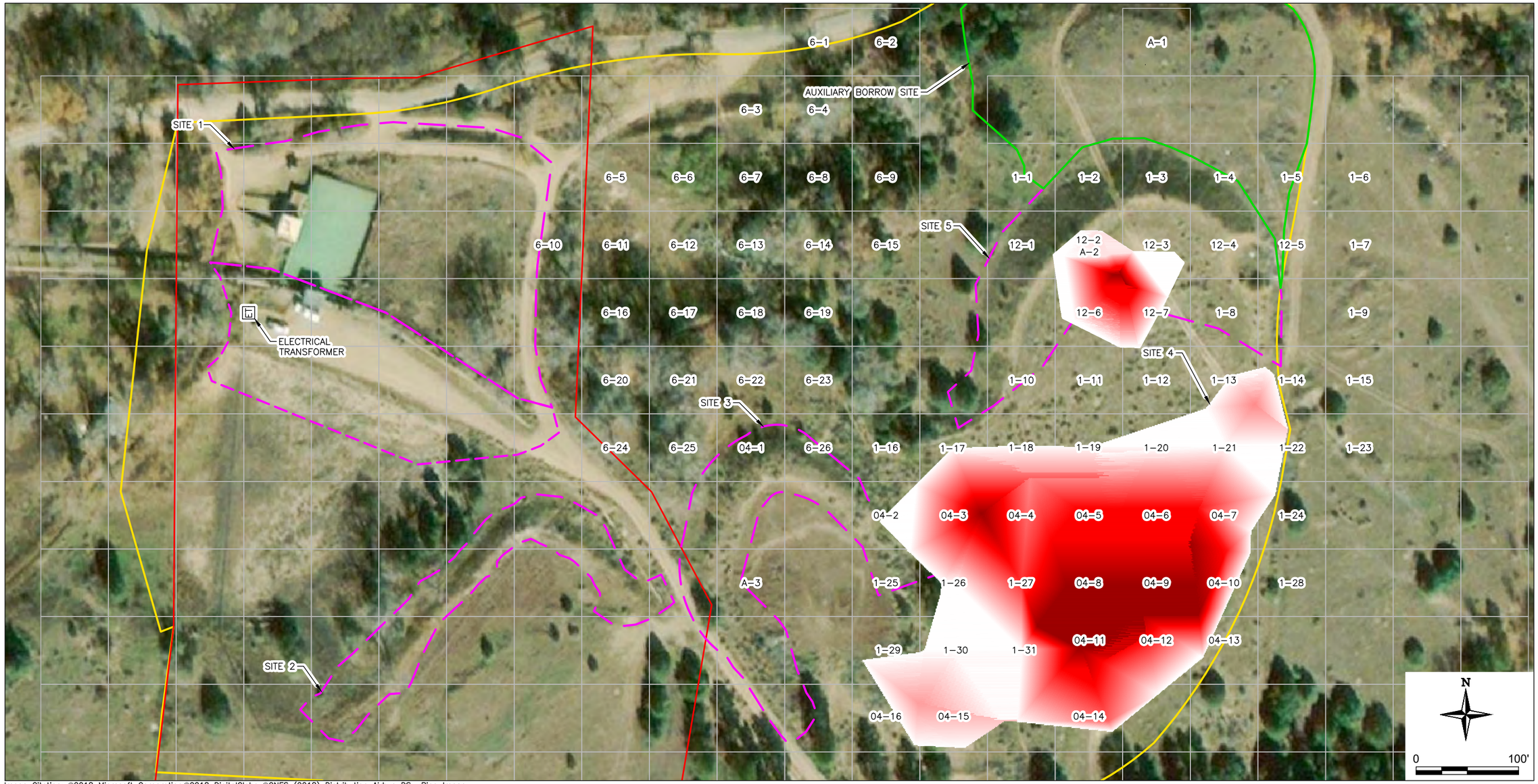

Image Citation: ©2018 Microsoft Corporation ©2018 DigitalGlobe ©CNES (2018) Distribution Airbus DS Bing Image

NOTES:

1. POINTS SAMPLED IN APRIL 2018 WERE FIELD SELECTED BASED ON VISUAL CUES AND STEP-OUTS FROM THOSE LOCATIONS.
2. POINTS SAMPLED IN DECEMBER 2018 WERE FIELD SELECTED BY NMED AND CEMC.
3. JANUARY 2019 JUNE 2019 TEST PIT LOCATIONS WERE BASED ON THE CENTROID OF EACH TEST PIT SAMPLING GRID. IF THE CENTROID LOCATION OF THE GRID WAS UNSUITABLE FOR EXCAVATION, GROUND PERSONNEL WERE INSTRUCTED TO STEP THE TEST PIT OUT OF THE CENTROID AND MAP THE UPDATED LOCATION.
4. ALL "CLEAN" TEST PITS WERE DETERMINED BASED ON A VISUAL INSPECTION.

COORDINATES: NAD83 New Mexico State Planes, Central Zone, US Foot

EXPLANATION

- INITIAL LDS BOUNDARY
- EXPANDED LDS BOUNDARY
- INITIAL SITE BOUNDARIES
- SOIL BORROW AREA

	0.1 ACRE GRID LOCATION	12-#	DECEMBER 18' TAILING SAMPLE GRID
04-#	APRIL 18' TAILING SAMPLE GRID	A-#	ANALYTICAL TAILING SAMPLE GRID
01-#	JANUARY 19' TAILING SAMPLE GRID	06-#	JUNE 19' TAILING SAMPLE GRID

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FIGURE 4-4

LOWER DUMP SUMP TAILING SAMPLE GRID LOCATIONS AND INITIAL SITE BOUNDARIES

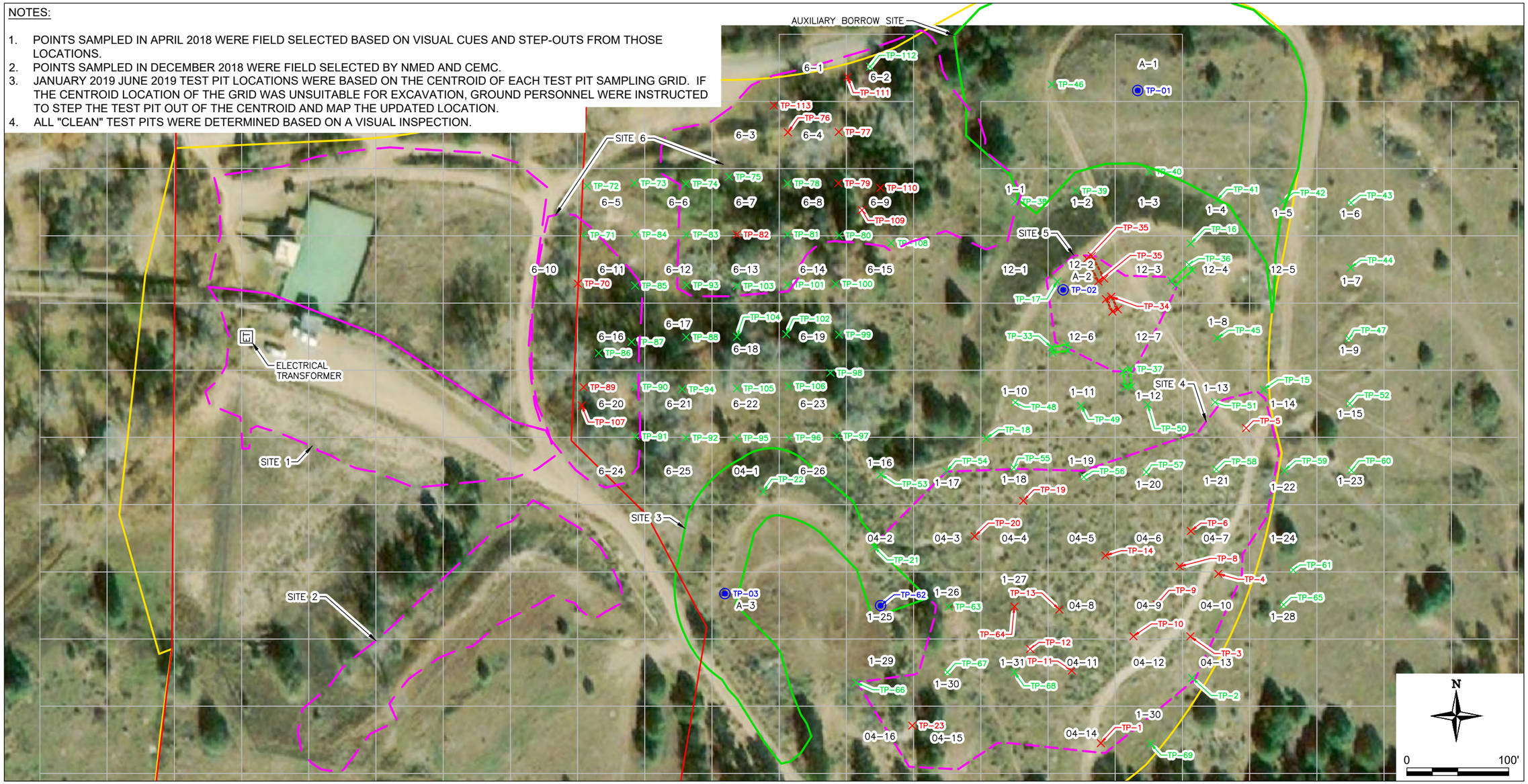
QUESTA MINE
CHEVRON MINING
QUESTA, NEW MEXICO

Drawn By: KW	Checked By: TH	Scale: 1" = 100'	Date: 6/25/19	File: LDS_TAILINGS_2019

\\TRIHYDRO.COM\CLIENTS\CHEVRON\CEMC_MINING\QUESTAMINE\PIPELINE\CADD\WORKING\LOWERDUMPSUMP\FIGURES\20190625_TAILINGSGRID\LDS_TAILINGS_2019

NOTES:

1. POINTS SAMPLED IN APRIL 2018 WERE FIELD SELECTED BASED ON VISUAL CUES AND STEP-OUTS FROM THOSE LOCATIONS.
2. POINTS SAMPLED IN DECEMBER 2018 WERE FIELD SELECTED BY NMED AND CEMC.
3. JANUARY 2019 JUNE 2019 TEST PIT LOCATIONS WERE BASED ON THE CENTROID OF EACH TEST PIT SAMPLING GRID. IF THE CENTROID LOCATION OF THE GRID WAS UNSUITABLE FOR EXCAVATION, GROUND PERSONNEL WERE INSTRUCTED TO STEP THE TEST PIT OUT OF THE CENTROID AND MAP THE UPDATED LOCATION.
4. ALL "CLEAN" TEST PITS WERE DETERMINED BASED ON A VISUAL INSPECTION.



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COORDINATES: NAD83 New Mexico State Planes, Central Zone, US Foot

EXPLANATION

- TP-# (DEPTH) — ENTACT TAILINGS TEST PIT - VISUAL TAILING
- TP-# (Clean) — ENTACT TAILINGS TEST PIT - VISUALLY CLEAN
- TP-# — ENTACT TAILINGS TEST PIT - ANALYTICAL
- EXPANDED LDS BOUNDARY
- INITIAL LDS BOUNDARY
- TEST PIT WITH NO VISUAL TAILING (SAMPLED AT EACH CORNER)
- TEST PIT WITH VISUAL TAILING (SAMPLED AT EACH CORNER)
- UPDATED SITE BOUNDARY
- SOIL BORROW AREA

- 0.1 ACRE GRID LOCATION
- 04-# — APRIL 18' TAILING SAMPLE GRID
- 01-# — JANUARY 19' TAILING SAMPLE GRID
- 12-# — DECEMBER 18' TAILING SAMPLE GRID
- A-# — ANALYTICAL TAILING SAMPLE GRID
- 06-# — JUNE 19' TAILING SAMPLE GRID

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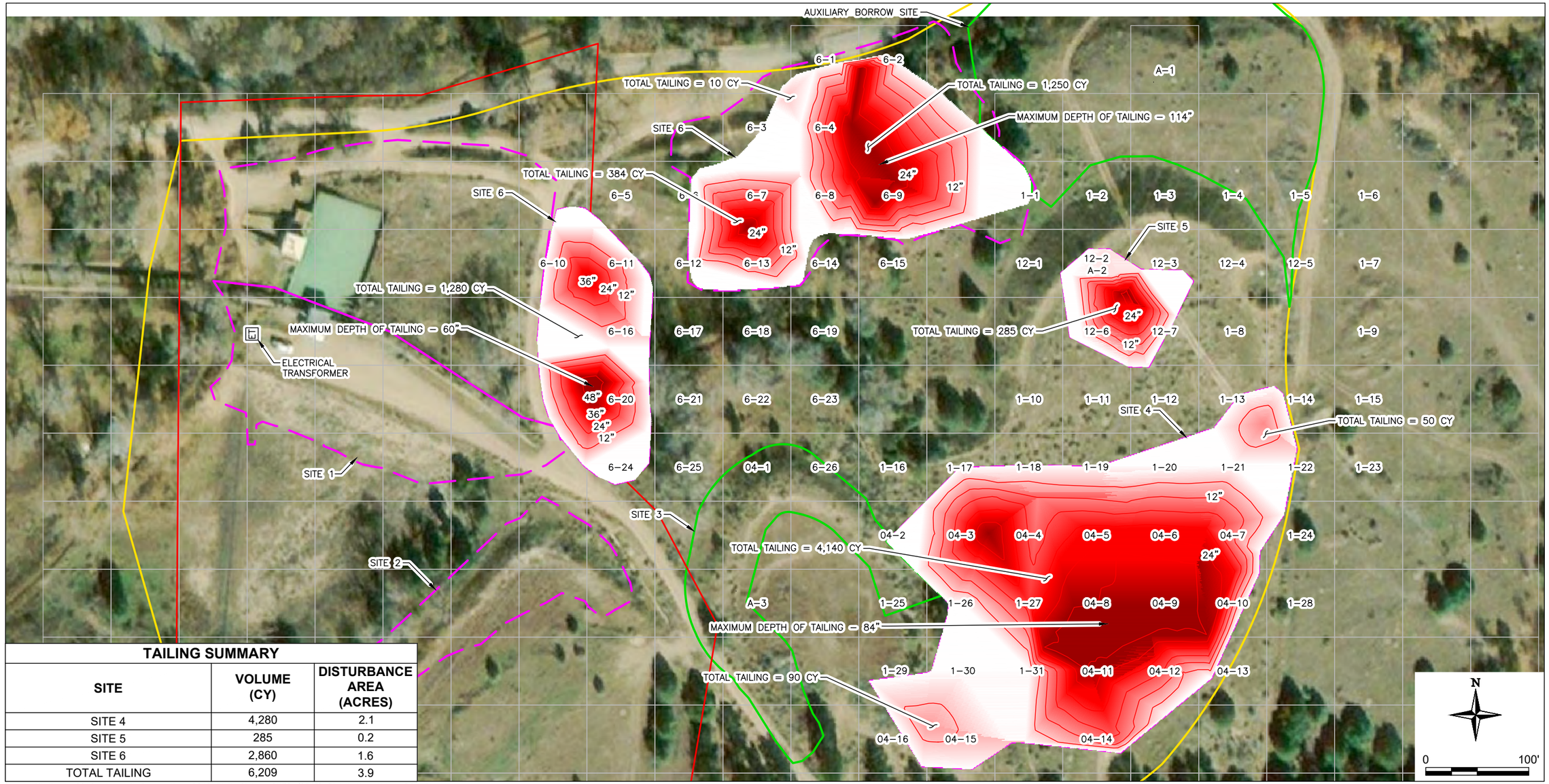
FIGURE 4-5

LOWER DUMP SUMP TAILING TEST PITS WITH SAMPLE GRIDS AND UPDATED SITE BOUNDARIES

QUESTA MINE
CHEVRON MINING
QUESTA, NEW MEXICO

Drawn By: KW	Checked By: TH	Scale: SHOWN	Date: 6/25/19	File: LDS_TAILINGS_2019

\\TRIHYDRO.COM\CLIENTS\CHEVRON\CEMC_MINING\QUESTAMINE\PIPELINE\CADD\WORKING\LOWERDUMPSUMP\FIGURES\201906_TAILINGSGRID\LDS_TAILINGS_2019



TAILING SUMMARY

SITE	VOLUME (CY)	DISTURBANCE AREA (ACRES)
SITE 4	4,280	2.1
SITE 5	285	0.2
SITE 6	2,860	1.6
TOTAL TAILING	6,209	3.9

NOTES:

1. POINTS SAMPLED IN APRIL 2018 WERE FIELD SELECTED BASED ON VISUAL CUES AND STEP-OUTS FROM THOSE LOCATIONS.
2. POINTS SAMPLED IN DECEMBER 2018 WERE FIELD SELECTED BY NMED AND CEMC.
3. JANUARY 2019 JUNE 2019 TEST PIT LOCATIONS WERE BASED ON THE CENTROID OF EACH TEST PIT SAMPLING GRID. IF THE CENTROID LOCATION OF THE GRID WAS UNSUITABLE FOR EXCAVATION, GROUND PERSONNEL WERE INSTRUCTED TO STEP THE TEST PIT OUT OF THE CENTROID AND MAP THE UPDATED LOCATION.
4. ALL "CLEAN" TEST PITS WERE DETERMINED BASED ON A VISUAL INSPECTION.
5. RED GRADIENT SHOWS TAILING DEPTH IN INCHES. WHITE GRADIENT INDICATES TAILING MATERIAL IS NOT PRESENT.

COORDINATES: NAD83 New Mexico State Planes, Central Zone, US Foot

EXPLANATION

- INITIAL LDS BOUNDARY
- EXPANDED LDS BOUNDARY
- UPDATED SITE BOUNDARY
- SOIL BORROW AREA

	0.1 ACRE GRID LOCATION	12–#	DECEMBER 18' TAILING SAMPLE GRID
04–#	APRIL 18' TAILING SAMPLE GRID	A–#	ANALYTICAL TAILING SAMPLE GRID
01–#	JANUARY 19' TAILING SAMPLE GRID	06–#	JUNE 19' TAILING SAMPLE GRID

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FIGURE 4-6

LOWER DUMP SUMP
TAILING DEPTH WITH SAMPLE GRIDS

QUESTA MINE
CHEVRON MINING
QUESTA, NEW MEXICO

Drawn By: KW	Checked By: TH	Scale: SHOWN	Date: 6/25/19	File: LDS_TAILINGS_2019

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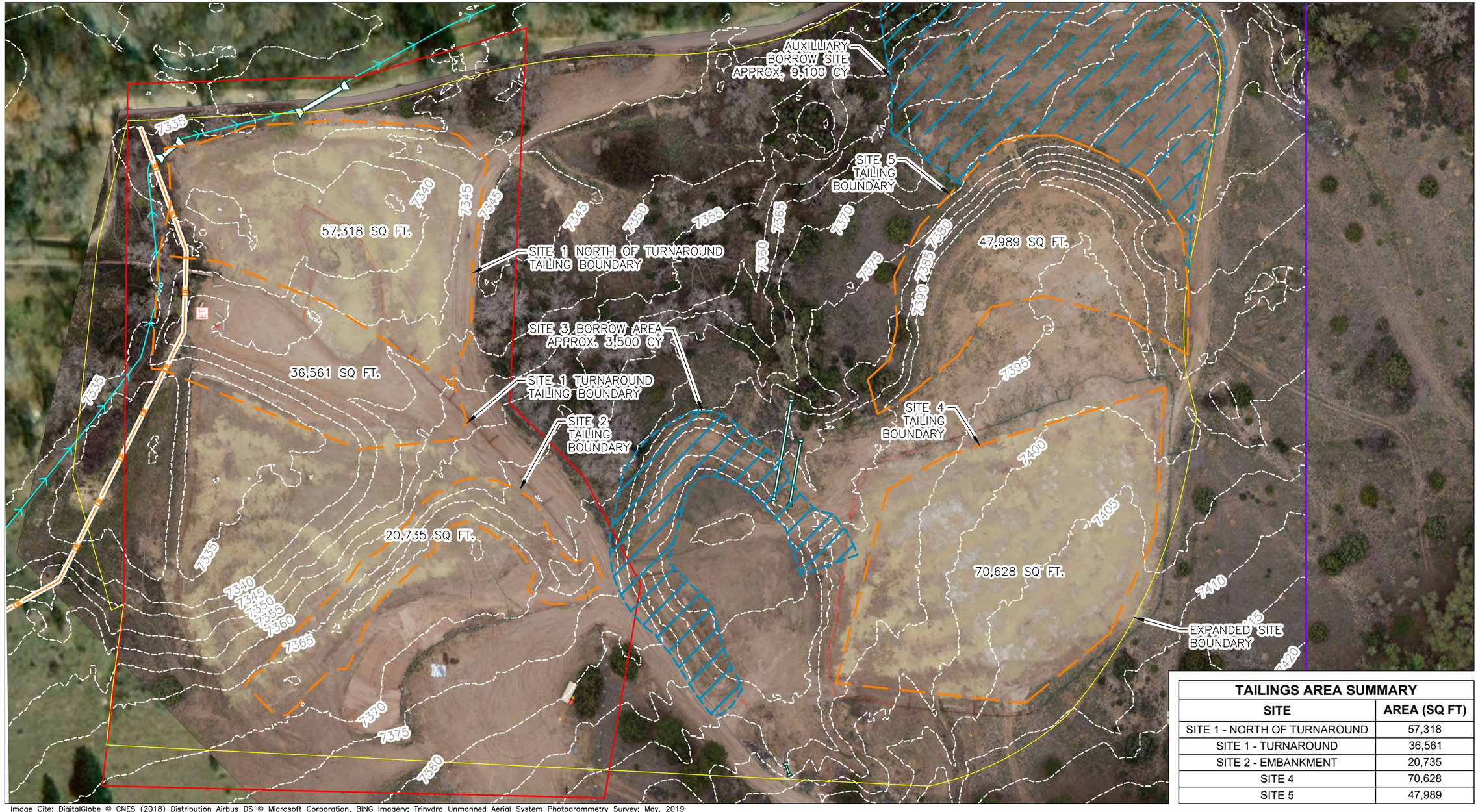

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TAILINGS AREA SUMMARY	
SITE	AREA (SQ FT)
SITE 1 - NORTH OF TURNAROUND	57,318
SITE 1 - TURNAROUND	36,561
SITE 2 - EMBANKMENT	20,735
SITE 4	70,628
SITE 5	47,989

EXPLANATION

- APPROXIMATE CULVERT LOCATION
- ELECTRICAL TRANSFORMER
- 7140 EXISTING GROUND (5-FT INTERVAL)
- OE OVERHEAD ELECTRICAL
- IRRIGATION DITCH
- INITIAL LDS BOUNDARY
- INITIAL TAILING BOUNDARY
- NO IDENTIFIED TAILING
- EXPANDED LDS BOUNDARY
- UAS SURVEY BOUNDARY (MAY 2019)
- BORROW AREA

COORDINATES: NAD83 New Mexico State Planes, Central Zone, US Foot

N

0 100'

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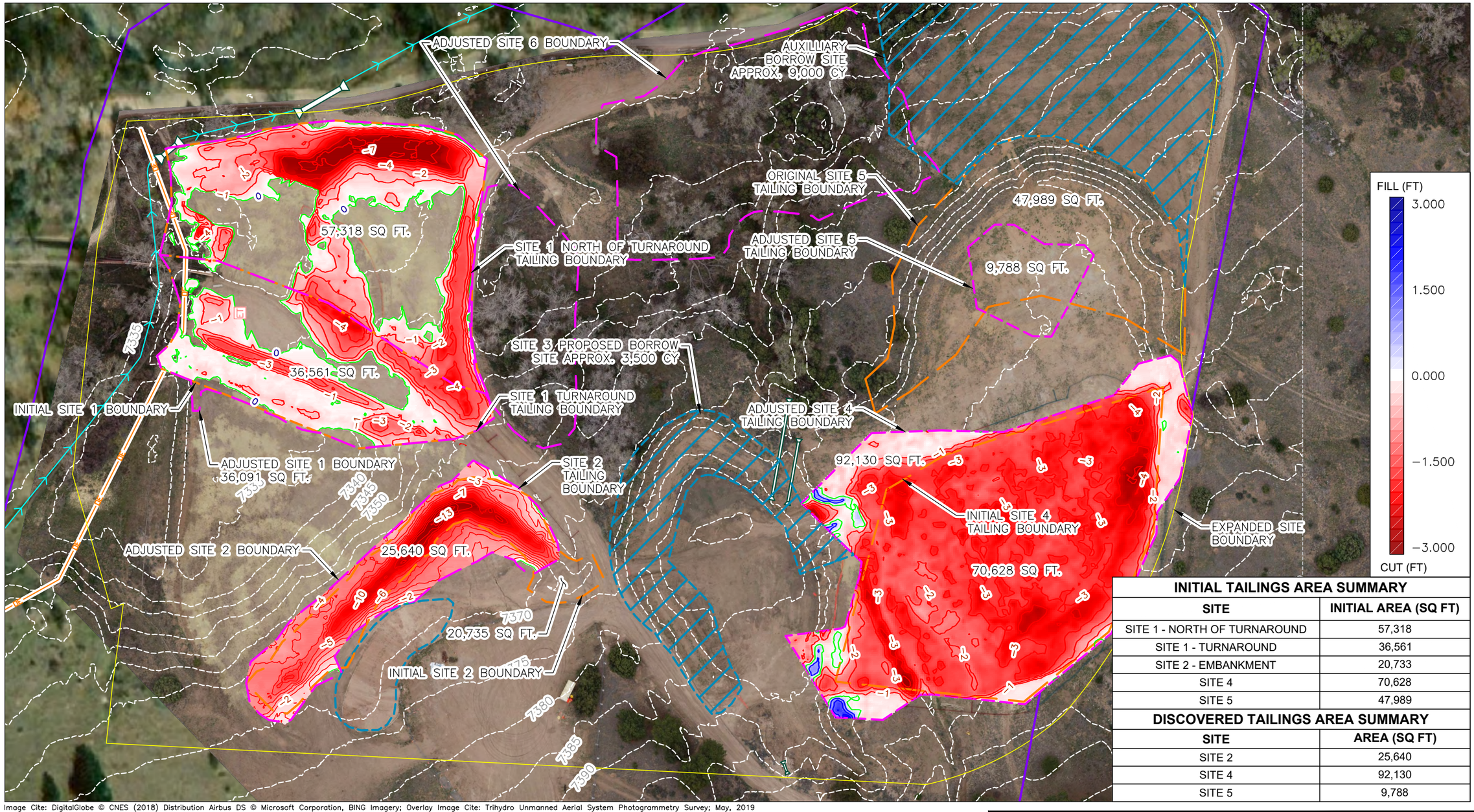
FIGURE 5-1

LOWER DUMP SUMP TAILING IDENTIFICATION

QUESTA MINE
CHEVRON MINING
QUESTA, NEW MEXICO

Drawn By: KCW	Checked By: TH	Scale: 1" = 100'	Date: 6/24/19	File: 9_TAILINGSIDENTIFICATION_FIG5-1

\\TRIHYDRO.COM\CLIENTS\CHEVRON\CEMC_MINING\QUESTAMINE\PIPELINE\CADD\REGULATORY\EPA\STAGE9 - WORKPLAN\9_TAILINGSIDENTIFICATION_FIG5-1



INITIAL TAILINGS AREA SUMMARY	
SITE	**INITIAL AREA (SQ FT)**
SITE 1 - NORTH OF TURNAROUND	57,318
SITE 1 - TURNAROUND	36,561
SITE 2 - EMBANKMENT	20,733
SITE 4	70,628
SITE 5	47,989

DISCOVERED TAILINGS AREA SUMMARY	
SITE	**AREA (SQ FT)**
SITE 2	25,640
SITE 4	92,130
SITE 5	9,788

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EXPLANATION

- APPROXIMATE CULVERT LOCATION
- ELECTRICAL TRANSFORMER
- EXISTING GROUND (5-FT INTERVAL)
- OVERHEAD ELECTRICAL
- IRRIGATION DITCH
- INITIAL SITE BOUNDARY
- INITIAL TAILING BOUNDARY
- NO IDENTIFIED TAILING
- DISCOVERED TAILING BOUNDARY
- EXPANDED SITE BOUNDARY
- BORROW AREA

COORDINATES: NAD83 New Mexico State Planes, Central Zone, US Foot

N

0 100'

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FIGURE 5-2

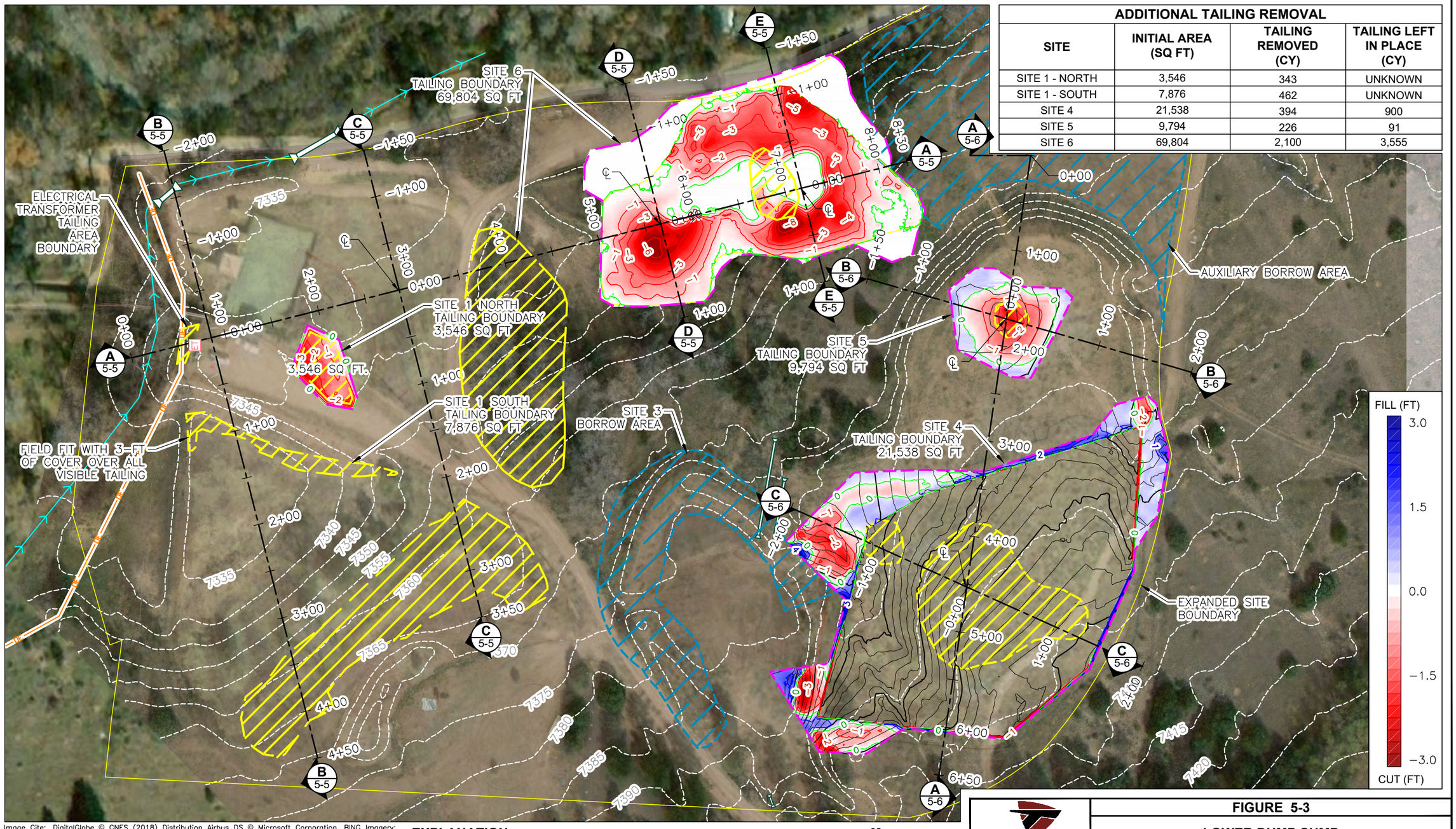
LOWER DUMP SUMP UPDATED TAILING IDENTIFICATION

QUESTA MINE
CHEVRON MINING
QUESTA, NEW MEXICO

Drawn By: KCW	Checked By: TH	Scale: 1" = 100'	Date: 6/24/19	File: 9_TAILINGSIDENTIFICATION_FIG5-2

M:\CHEVRON\CEMC_MINING\QUESTAMINE\PIPELINE\CADD\REGULATORY\EPA\STAGE8 - WORKPLAN\9_TAILINGSIDENTIFICATION_FIG5-2

ADDITIONAL TAILING REMOVAL			
SITE	INITIAL AREA (SQ FT)	TAILING REMOVED (CY)	TAILING LEFT IN PLACE (CY)
SITE 1 - NORTH	3,546	343	UNKNOWN
SITE 1 - SOUTH	7,876	462	UNKNOWN
SITE 4	21,538	394	900
SITE 5	9,794	226	91
SITE 6	69,804	2,100	3,555



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EXPLANATION

- APPROXIMATE CULVERT LOCATION
- ELECTRICAL TRANSFORMER
- EXISTING GROUND (10-FT INTERVAL)
- OVERHEAD ELECTRICAL
- IRRIGATION DITCH
- TAILING BOUNDARY
- EXPANDED LDS BOUNDARY
- TAILING LEFT IN PLACE
- PROPOSED BORROW AREA

N

0 100'

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FIGURE 5-3

LOWER DUMP SUMP
PROPOSED ADDITIONAL TAILING REMOVAL

QUESTA MINE
CHEVRON MINING
QUESTA, NEW MEXICO

Drawn By: KCW	Checked By: SL	Scale: SHOWN	Date: 9/19/19	File: 9_TAILINGSIDENTIFICATION_FIG5-3

M:\CHEVRON\CEMC_MINING\QUESTAMINE\PIPELINE\CADD\REGULATORY\EPA\STAGE8 - WORKPLAN\9_TAILINGSIDENTIFICATION_FIG5-3

SITE 6 GRADING BOUNDARY

SITE 5 TAILING BOUNDARY

AUXILIARY BORROW AREA

SITE 1 NORTH TAILING BOUNDARY

SITE 1 SOUTH TAILING BOUNDARY

FIELD FIT WITH 3-FT OF COVER OVER ALL VISIBLE TAILING

FIELD FIT WITH 3-FT OF COVER TAILING

SITE 2 TAILING BOUNDARY

SITE 2 BORROW AREA

SITE 3 BORROW AREA

SITE 4 TAILING BOUNDARY

FIELD FIT KNOCK DOWN BERM

9,788 SQ. FT.

FILL (FT)

3.00	14.00
1.50	7.00
0.00	0.00
−1.50	−7.00
−3.00	−14.00

CUT (FT)

GRADING AREA SUMMARY

SITE	FILL VOLUME (CY)	CUT VOLUME (CY)
SITE 1	2,600	365
SITE 2	1,000	0
BORROW AREA - SITE 2	0	1,535
BORROW AREA - SITE 3	0	3,575
SITE 4	8,290	10
SITE 5	525	0
SITE 6	3,250	870
AUXILIARY BORROW AREA	0	9,100

N

0 100'

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EXPLANATION

- APPROXIMATE CULVERT LOCATION
- ELECTRICAL TRANSFORMER
- EXISTING GROUND (1-FT INTERVAL)
- PROPOSED GROUND (1-FT INTERVAL)
- PROPOSED TAILING GRADING AREA
- IRRIGATION DITCH
- EXPANDED LDS BOUND
- OVERHEAD ELECTRICAL
- PROPOSED BORROW AREA
- TAILING LEFT IN PLACE
- BERM REMOVAL AREAS

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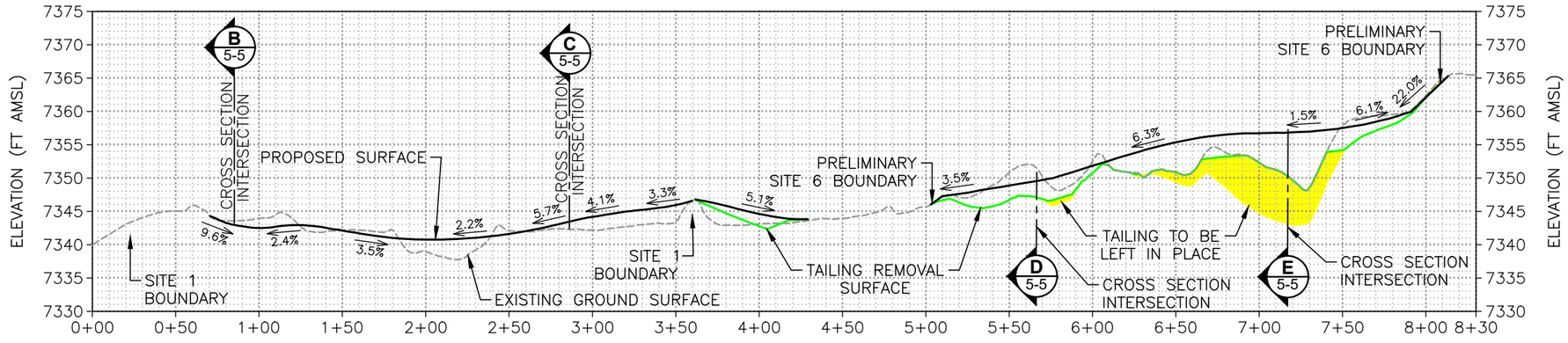
FIGURE 5-4

PROPOSED FINAL GRADING

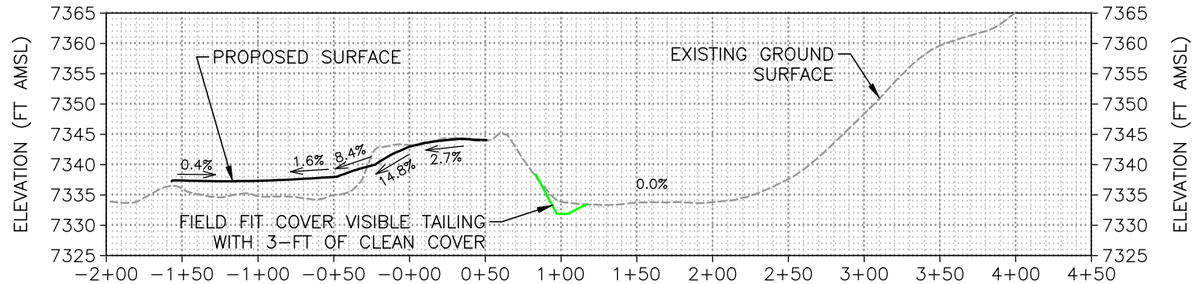
QUESTA MINE
CHEVRON MINING
QUESTA, NEW MEXICO

Drawn By: KCW	Checked By: TH	Scale: 1" = 100'	Date: 9/23/19	File: 9_TAILINGSIDENTIFICATION_FIG5-4

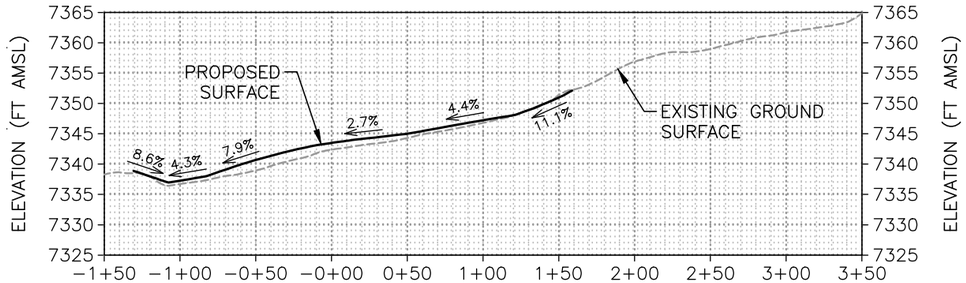
M:\CHEVRON\CEMC_MINING\QUESTAMINE\PIPELINE\CADD\REGULATORY\EPA\STAGE8 - WORKPLAN\9_TAILINGSIDENTIFICATION_FIG5-4



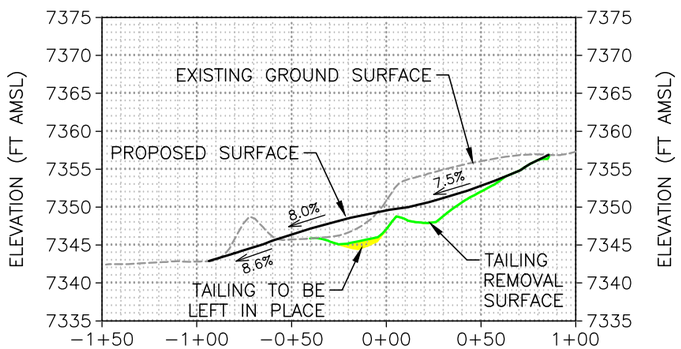
A EARTHWORK CROSS-SECTION
SCALE H: 1" = 80' V: 1" = 20'



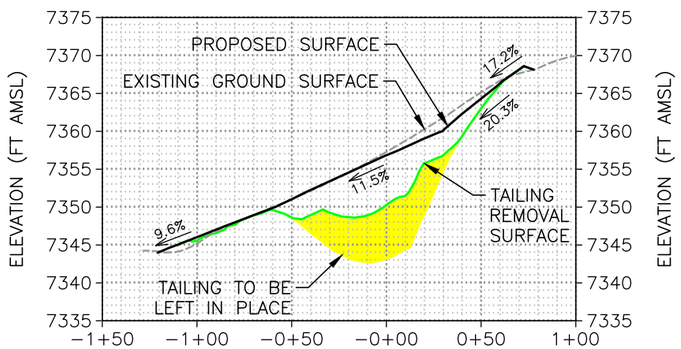
B EARTHWORK CROSS-SECTION
SCALE H: 1" = 80' V: 1" = 20'



C EARTHWORK CROSS-SECTION
SCALE H: 1" = 80' V: 1" = 20'



D EARTHWORK CROSS-SECTION
SCALE H: 1" = 80' V: 1" = 20'



E EARTHWORK CROSS-SECTION
SCALE H: 1" = 80' V: 1" = 20'

N

0 100'

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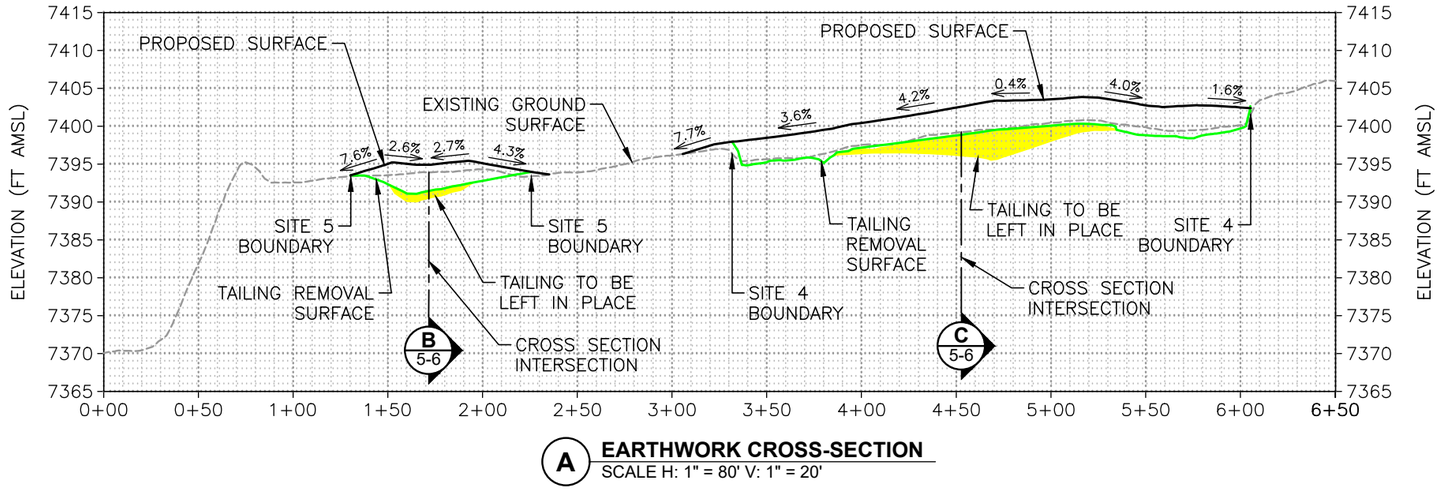
FIGURE 5-5

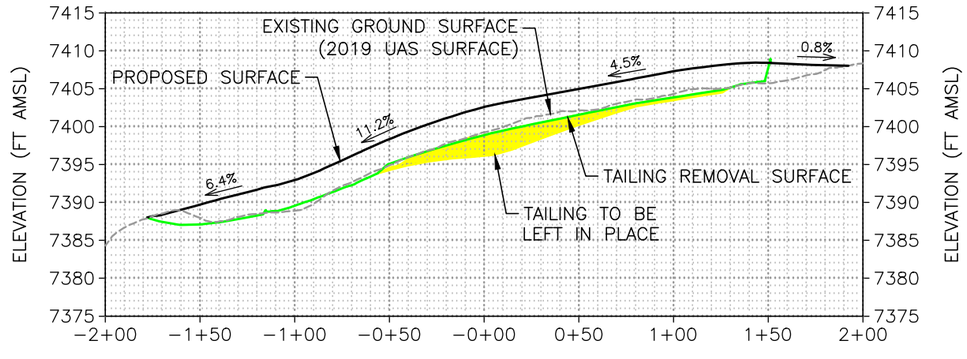
EARTHWORK CROSS-SECTIONS (1 OF 2)

QUESTA MINE
CHEVRON MINING
QUESTA, NEW MEXICO

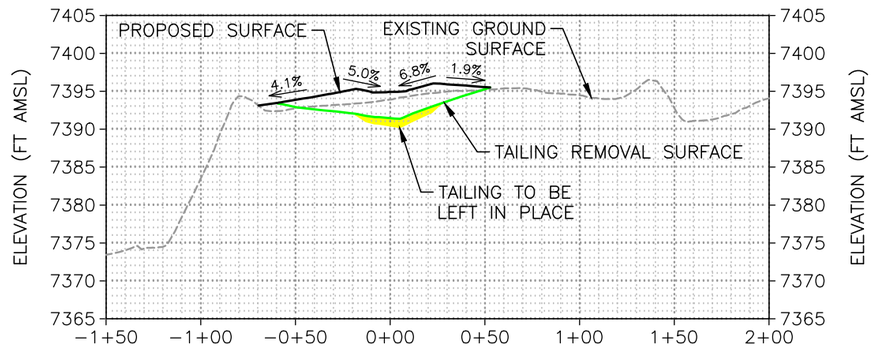
Drawn By: KCW	Checked By: SL	Scale: SHOWN	Date: 6/26/19	File: 11_TAILINGSIDENTIFICATION_FIG5-5_5-6



A **EARTHWORK CROSS-SECTION**
SCALE H: 1" = 80' V: 1" = 20'



B **EARTHWORK CROSS-SECTION**
SCALE H: 1" = 80' V: 1" = 20'



C **EARTHWORK CROSS-SECTION**
SCALE H: 1" = 80' V: 1" = 20'

0 80' HORIZONTAL

0 20' VERTICAL

VERTICAL EXAGGERATION = 4X

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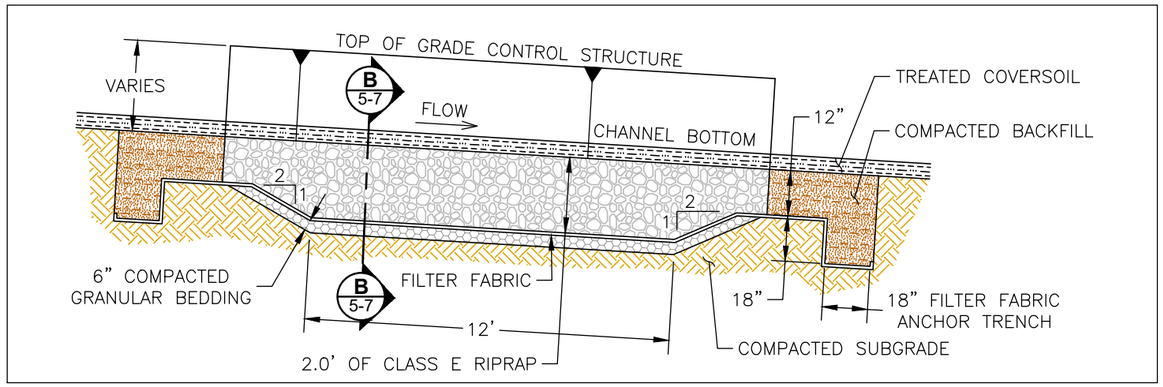
FIGURE 5-6

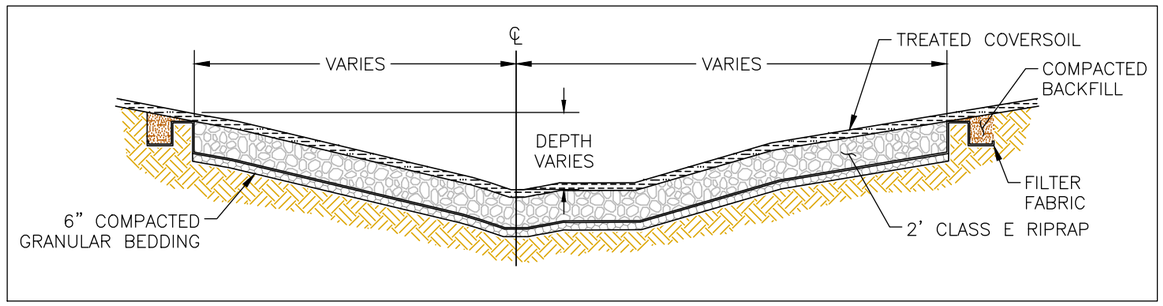
EARTHWORK CROSS-SECTIONS (2 OF 2)

QUESTA MINE
CHEVRON MINING
QUESTA, NEW MEXICO

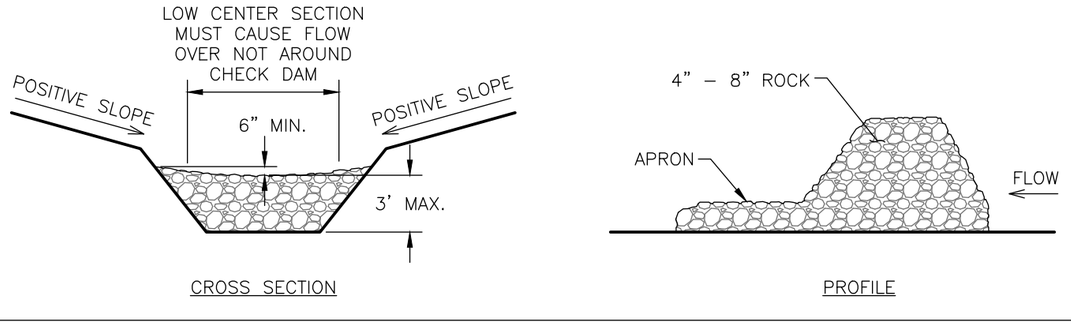
Drawn By: KCW	Checked By: SL	Scale: SHOWN	Date: 6/26/19	File: 11_TAILINGSIDENTIFICATION_FIG5-5_5-6



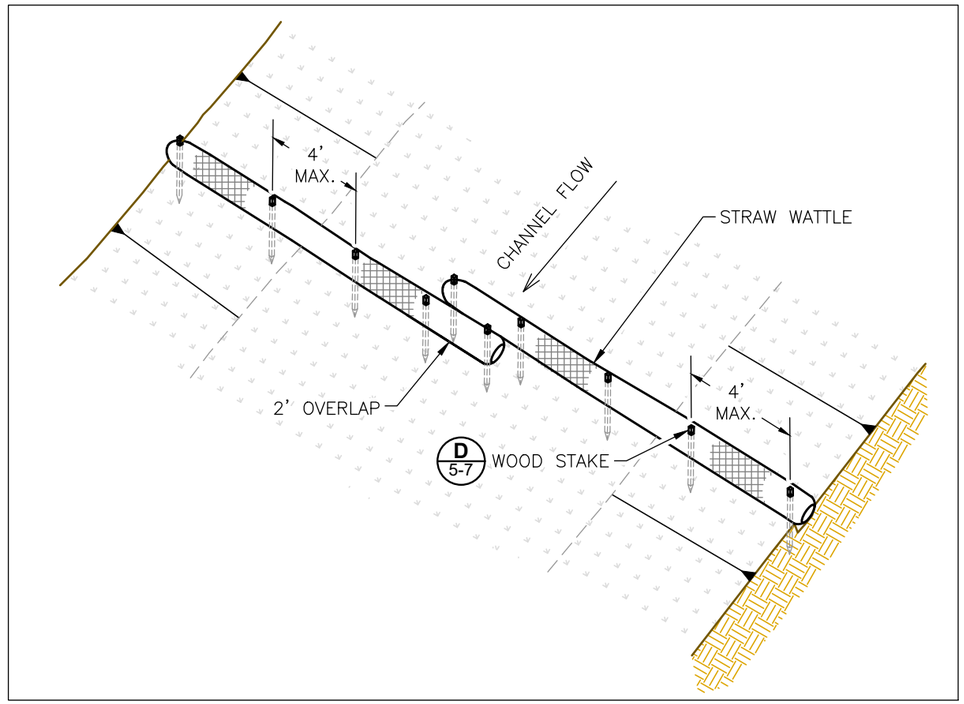
A **TYPICAL GRADE CONTROL STRUCTURE PROFILE**
SCALE: NONE



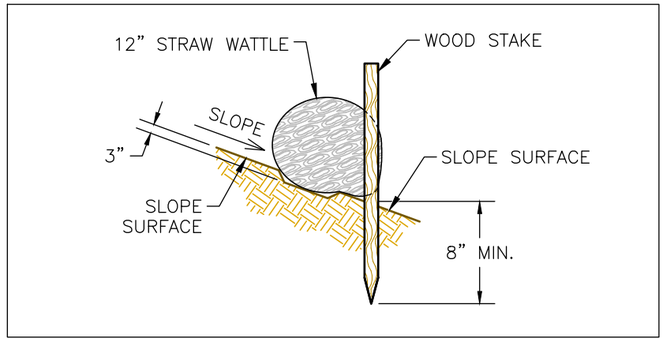
B **TYPICAL GRADE CONTROL STRUCTURE CROSS SECTION**
SCALE: NONE



E **TYPICAL ROCK CHECK DAM**
SCALE: NONE



C **TYPICAL STRAW WATTLE DETAIL**
SCALE: NONE



D **TYPICAL STAKE DETAIL**
SCALE: NONE

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FIGURE 5-7

TYPICAL EROSION CONTROL CONSTRUCTION DETAILS

QUESTA MINE
CHEVRON MINING
QUESTA, NEW MEXICO

Drawn By: KCW	Checked By: TH	Scale: NONE	Date: 6/26/19	File: 9_TAILINGSIDENTIFICATION_FIG5-7

APPENDIX A

SITE PHOTOGRAPHS

Photo 1. Lower Dump Sump, Viewed from East, Within Stage 8 Boundary

Photo 2. Southwest Support Building and Electrical Transformers,
Viewed from South of Sump, Within Site Boundary

Photo 3. Southern Support Building, Viewed from West, Within Site Boundary

Photo 4. Ramped Access, Viewed from West, Within Site Boundary

APPENDIX B

PCB SAMPLING MEMORANDUM

memorandum

To: Chevron Mining, Inc.
From: Mr. Loren Eldridge-Looker, Trihydro Corporation
Date: September 25, 2018
Re: Questa Mine Lower Dump Sump
Transformer PCB Soil Sampling

In accordance with Trihydro Corporation's (Trihydro) *Historic Tailing Spills Removal Action Work Plan and Stage 8 Pipeline Removal Work Plan* (Work Plan), dated August 10, 2018, four soil samples were collected at the Questa Mine Lower Dump Sump. These samples were collected on September 5, 2018 and analyzed for nine Aroclor Polychlorinated Biphenyls (PCBs) using EPA SW-846 Method 8082A. The sample locations are shown in Figure 4-1 of the Work Plan and were collected from the 0- to 12-inch soil interval. Figure 4-1 with sample identification callouts is included with this memorandum.

Prior to conducting sampling activities, the sampling protocol from the Work Plan was reviewed. The four samples correlated with the four electrical transformers at the Lower Dump Sump, and are summarized in Table 1 below:

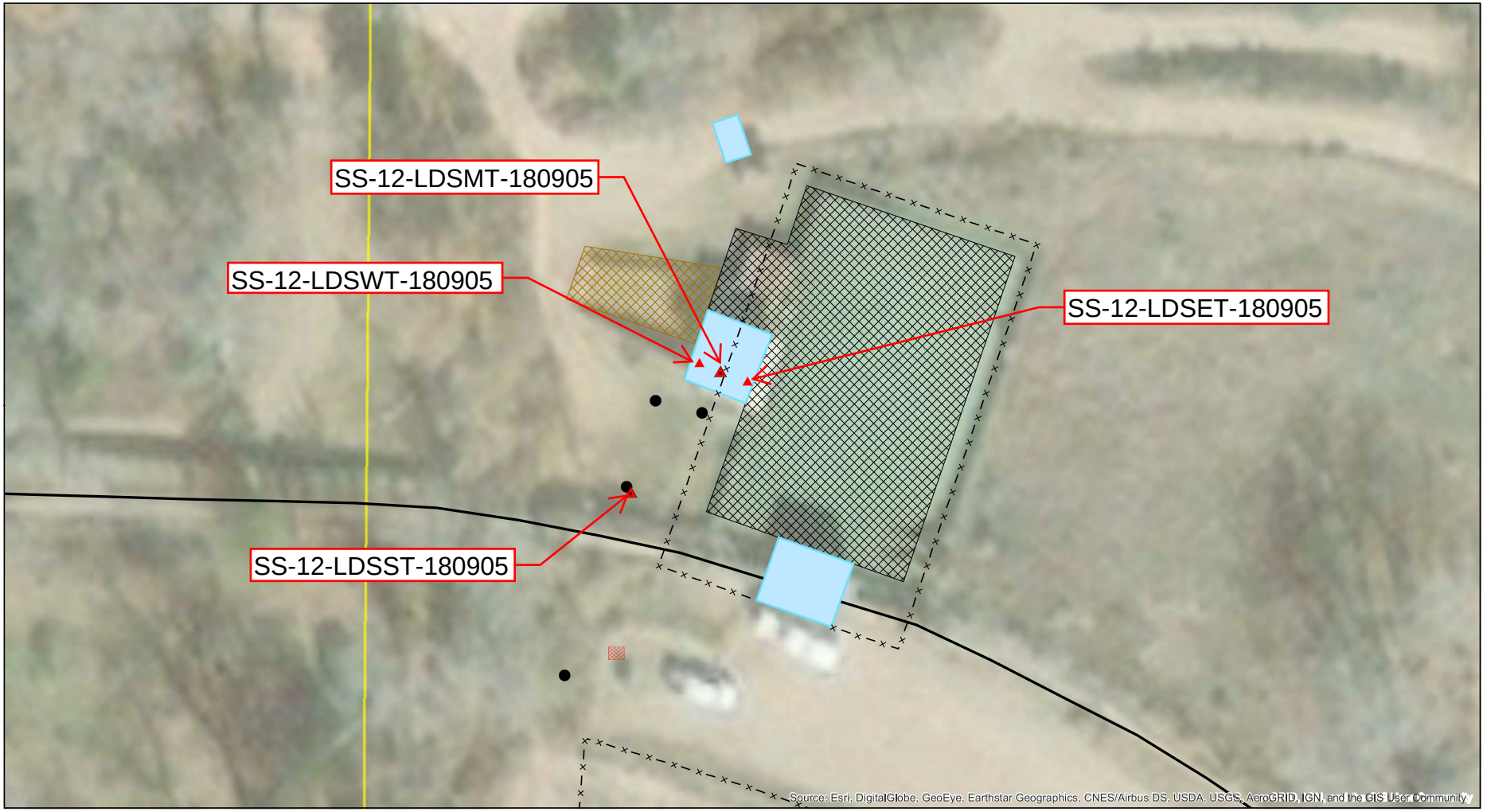
Table 1. Lower Dump Sump PCB Sample Summary

Sample Identification	Location Description	Sample Depth (in.)	Collection Date	Collection Time	Lab Analysis Result
SS-12-LDSWT-180905	Westernmost pad-mounted transformer	0-12	9/5/2018	8:30	No Detection
SS-12-LDSMT-180905	Middle pad-mounted transformer	0-12	9/5/2018	8:45	No Detection
SS-12-LDSET-180905	Easternmost pad-mounted transformer	0-12	9/5/2018	9:00	No Detection
SS-12-LDSST-180905	Southern pole-mounted transformer	0-12	9/5/2018	9:20	No Detection

A stainless-steel hand trowel was used to fill the 4-ounce amber glass jar required for each sample. In between each sample location, the trowel was decontaminated with an Alconox scrub and wash and two rinses of deionized water. Once filled, the jars were sealed, labeled, and placed in the sample cooler with ice. A Chain of Custody (COC) form was completed and added to the cooler once all samples were collected.

The sample cooler was hand delivered to TestAmerica Laboratories, Inc. (TestAmerica) in Arvada, CO on the morning of September 6, 2018. All four samples were prepared for analysis by TestAmerica on September 7, 2018 and analyzed on September 15, 2018. TestAmerica provided their Analytical Report to Trihydro on September 18, 2018 and listed "No Detections" for PCBs at all four sample locations. A copy of the Analytical Report is attached to this memorandum.

476-027-002



EXPLANATION

- ELECTRICAL BOX
- POWER POLE
- ELECTRICAL TRANSFORMER
- SOIL SAMPLE LOCATION ADJACENT TO ELECTRICAL TRANSFORMER
- FENCE
- ACCESS RAMP
- CONCRETE SUMP
- SUPPORT BUILDING
- LOWER DUMP SUMP AREA

N

0 30'

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FIGURE 4-1

SOIL SAMPLE LOCATIONS

QUESTA MINE
QUESTA, NEW MEXICO

Drawn By: DH	Checked By: BAH	Scale: 1 " = 30 '	Date: 3/28/18	File: Fig4-1_St8_SoilSampleLocs.mxd

M:\CHEVRON\CEMC_MINING\QUEST\MINE\PIPELINE\GIS\MAPPING\STAGE8\WORKPLAN\FIG4-1_ST8_SOIL SAMPLE LOCS.MXD

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-113987-1
Client Project/Site: Questa Pipeline

For:
Trihydro Corporation
15000 West 6th Ave.
Service Road Unit 100
Golden, Colorado 80401

Attn: Mr. Shaun Harshman

Authorized for release by:
9/18/2018 6:59:39 PM

Donna Rydberg, Senior Project Manager
(303)736-0192
donna.rydberg@testamericainc.com

Table of Contents

Definitions/Glossary

Client: Trihydro Corporation
Project/Site: Questa Pipeline

TestAmerica Job ID: 280-113987-1

Qualifiers

GC Semi VOA

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
F2	MS/MSD RPD exceeds control limits

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-113987-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: Trihydro Corporation

Project: Questa Pipeline

Report Number: 280-113987-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 9/6/2018 at 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 5.3º C.

POLYCHLORINATED BIPHENYLS (PCBS)

Samples SS-12-LDSWT-180905 (280-113987-1), SS-12-LDSMT-180905 (280-113987-2), SS-12-LDSET-180905 (280-113987-3) and SS-12-LDSST-180905 (280-113987-4) were analyzed for polychlorinated biphenyls (PCBs) in accordance with EPA SW-846 Method 8082A. The samples were prepared on 09/07/2018 and analyzed on 09/15/2018.

PCB-1016 failed the recovery criteria high for the MS of sample SS-12-LDSST-180905MS (280-113987-4) in batch 280-429668. PCB-1016 also exceeded the RPD limit. The associated LCS was in control and provides evidence that operating procedures were in control.

The following samples required a sulfuric acid clean-up, via EPA Method 3665A, to reduce matrix interferences: SS-12-LDSWT-180905 (280-113987-1), SS-12-LDSMT-180905 (280-113987-2), SS-12-LDSET-180905 (280-113987-3), SS-12-LDSST-180905 (280-113987-4), (LCS 280-428823/2-A), (MB 280-428823/1-A), (280-113987-A-4-B MS) and (280-113987-A-4-C MSD). Sulfuric acid lot # 186983 for prep batch 428823.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Trihydro Corporation
Project/Site: Questa Pipeline

TestAmerica Job ID: 280-113987-1

Client Sample ID: SS-12-LDSWT-180905 — Lab Sample ID: 280-113987-1

No Detections.

Client Sample ID: SS-12-LDSMT-180905 — Lab Sample ID: 280-113987-2

No Detections.

Client Sample ID: SS-12-LDSET-180905 — Lab Sample ID: 280-113987-3

No Detections.

Client Sample ID: SS-12-LDSST-180905 — Lab Sample ID: 280-113987-4

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Trihydro Corporation
Project/Site: Questa Pipeline

TestAmerica Job ID: 280-113987-1

Method	Method Description	Protocol	Laboratory
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	TAL DEN
3546	Microwave Extraction	SW846	TAL DEN

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Trihydro Corporation
Project/Site: Questa Pipeline

TestAmerica Job ID: 280-113987-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-113987-1	SS-12-LDSWT-180905	Solid	09/05/18 08:30	09/06/18 09:15
280-113987-2	SS-12-LDSMT-180905	Solid	09/05/18 08:45	09/06/18 09:15
280-113987-3	SS-12-LDSET-180905	Solid	09/05/18 09:00	09/06/18 09:15
280-113987-4	SS-12-LDSST-180905	Solid	09/05/18 09:20	09/06/18 09:15

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Client Sample ID: SS-12-LDSWT-180905
Date Collected: 09/05/18 08:30
Date Received: 09/06/18 09:15

Lab Sample ID: 280-113987-1
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1221	ND		91	30	ug/Kg		09/07/18 06:48	09/15/18 00:24	1
PCB-1016	ND		64	9.9	ug/Kg		09/07/18 06:48	09/15/18 00:24	1
PCB-1232	ND		64	9.9	ug/Kg		09/07/18 06:48	09/15/18 00:24	1
PCB-1242	ND		64	18	ug/Kg		09/07/18 06:48	09/15/18 00:24	1
PCB-1248	ND		64	11	ug/Kg		09/07/18 06:48	09/15/18 00:24	1
PCB-1254	ND		64	11	ug/Kg		09/07/18 06:48	09/15/18 00:24	1
PCB-1260	ND		64	5.1	ug/Kg		09/07/18 06:48	09/15/18 00:24	1
PCB-1262	ND		64	22	ug/Kg		09/07/18 06:48	09/15/18 00:24	1
PCB-1268	ND		64	7.6	ug/Kg		09/07/18 06:48	09/15/18 00:24	1
Polychlorinated biphenyls, Total	ND		64	5.1	ug/Kg		09/07/18 06:48	09/15/18 00:24	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*64*		*53 - 128*	*09/07/18 06:48*	*09/15/18 00:24*	*1*
DCB Decachlorobiphenyl	*86*		*59 - 130*	*09/07/18 06:48*	*09/15/18 00:24*	*1*

Client Sample ID: SS-12-LDSMT-180905
Date Collected: 09/05/18 08:45
Date Received: 09/06/18 09:15

Lab Sample ID: 280-113987-2
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1221	ND		91	30	ug/Kg		09/07/18 06:48	09/15/18 00:46	1
PCB-1016	ND		64	9.9	ug/Kg		09/07/18 06:48	09/15/18 00:46	1
PCB-1232	ND		64	9.9	ug/Kg		09/07/18 06:48	09/15/18 00:46	1
PCB-1242	ND		64	18	ug/Kg		09/07/18 06:48	09/15/18 00:46	1
PCB-1248	ND		64	11	ug/Kg		09/07/18 06:48	09/15/18 00:46	1
PCB-1254	ND		64	11	ug/Kg		09/07/18 06:48	09/15/18 00:46	1
PCB-1260	ND		64	5.1	ug/Kg		09/07/18 06:48	09/15/18 00:46	1
PCB-1262	ND		64	22	ug/Kg		09/07/18 06:48	09/15/18 00:46	1
PCB-1268	ND		64	7.6	ug/Kg		09/07/18 06:48	09/15/18 00:46	1
Polychlorinated biphenyls, Total	ND		64	5.1	ug/Kg		09/07/18 06:48	09/15/18 00:46	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*88*		*53 - 128*	*09/07/18 06:48*	*09/15/18 00:46*	*1*
DCB Decachlorobiphenyl	*87*		*59 - 130*	*09/07/18 06:48*	*09/15/18 00:46*	*1*

Client Sample ID: SS-12-LDSET-180905
Date Collected: 09/05/18 09:00
Date Received: 09/06/18 09:15

Lab Sample ID: 280-113987-3
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1221	ND		93	31	ug/Kg		09/07/18 06:48	09/15/18 01:08	1
PCB-1016	ND		65	10	ug/Kg		09/07/18 06:48	09/15/18 01:08	1
PCB-1232	ND		65	10	ug/Kg		09/07/18 06:48	09/15/18 01:08	1
PCB-1242	ND		65	18	ug/Kg		09/07/18 06:48	09/15/18 01:08	1
PCB-1248	ND		65	11	ug/Kg		09/07/18 06:48	09/15/18 01:08	1
PCB-1254	ND		65	11	ug/Kg		09/07/18 06:48	09/15/18 01:08	1
PCB-1260	ND		65	5.2	ug/Kg		09/07/18 06:48	09/15/18 01:08	1
PCB-1262	ND		65	23	ug/Kg		09/07/18 06:48	09/15/18 01:08	1
PCB-1268	ND		65	7.8	ug/Kg		09/07/18 06:48	09/15/18 01:08	1
Polychlorinated biphenyls, Total	ND		65	5.2	ug/Kg		09/07/18 06:48	09/15/18 01:08	1

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*88*		*53 - 128*	*09/07/18 06:48*	*09/15/18 01:08*	*1*
DCB Decachlorobiphenyl	*90*		*59 - 130*	*09/07/18 06:48*	*09/15/18 01:08*	*1*

Client Sample ID: SS-12-LDSST-180905
Date Collected: 09/05/18 09:20
Date Received: 09/06/18 09:15

Lab Sample ID: 280-113987-4
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1221	ND		92	31	ug/Kg		09/07/18 06:48	09/15/18 01:29	1
PCB-1016	ND	F2 F1	65	10	ug/Kg		09/07/18 06:48	09/15/18 01:29	1
PCB-1232	ND		65	10	ug/Kg		09/07/18 06:48	09/15/18 01:29	1
PCB-1242	ND		65	18	ug/Kg		09/07/18 06:48	09/15/18 01:29	1
PCB-1248	ND		65	11	ug/Kg		09/07/18 06:48	09/15/18 01:29	1
PCB-1254	ND		65	11	ug/Kg		09/07/18 06:48	09/15/18 01:29	1
PCB-1260	ND		65	5.2	ug/Kg		09/07/18 06:48	09/15/18 01:29	1
PCB-1262	ND		65	23	ug/Kg		09/07/18 06:48	09/15/18 01:29	1
PCB-1268	ND		65	7.7	ug/Kg		09/07/18 06:48	09/15/18 01:29	1
Polychlorinated biphenyls, Total	ND		65	5.2	ug/Kg		09/07/18 06:48	09/15/18 01:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*95*		*53 - 128*	*09/07/18 06:48*	*09/15/18 01:29*	*1*
DCB Decachlorobiphenyl	*77*		*59 - 130*	*09/07/18 06:48*	*09/15/18 01:29*	*1*

QC Association Summary

Client: Trihydro Corporation
Project/Site: Questa Pipeline

TestAmerica Job ID: 280-113987-1

GC Semi VOA

Prep Batch: 428823

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-113987-1	SS-12-LDSWT-180905	Total/NA	Solid	3546	
280-113987-2	SS-12-LDSMT-180905	Total/NA	Solid	3546	
280-113987-3	SS-12-LDSET-180905	Total/NA	Solid	3546	
280-113987-4	SS-12-LDSST-180905	Total/NA	Solid	3546	
MB 280-428823/1-A	Method Blank	Total/NA	Solid	3546	
LCS 280-428823/2-A	Lab Control Sample	Total/NA	Solid	3546	
280-113987-4 MS	SS-12-LDSST-180905	Total/NA	Solid	3546	
280-113987-4 MSD	SS-12-LDSST-180905	Total/NA	Solid	3546	

Analysis Batch: 429668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-113987-1	SS-12-LDSWT-180905	Total/NA	Solid	8082A	428823
280-113987-2	SS-12-LDSMT-180905	Total/NA	Solid	8082A	428823
280-113987-3	SS-12-LDSET-180905	Total/NA	Solid	8082A	428823
280-113987-4	SS-12-LDSST-180905	Total/NA	Solid	8082A	428823
MB 280-428823/1-A	Method Blank	Total/NA	Solid	8082A	428823
LCS 280-428823/2-A	Lab Control Sample	Total/NA	Solid	8082A	428823
280-113987-4 MS	SS-12-LDSST-180905	Total/NA	Solid	8082A	428823
280-113987-4 MSD	SS-12-LDSST-180905	Total/NA	Solid	8082A	428823

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 280-428823/1-A
Matrix: Solid
Analysis Batch: 429668

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 428823

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1221	ND		88	29	ug/Kg		09/07/18 06:48	09/14/18 23:40	1
PCB-1016	ND		61	9.5	ug/Kg		09/07/18 06:48	09/14/18 23:40	1
PCB-1232	ND		61	9.5	ug/Kg		09/07/18 06:48	09/14/18 23:40	1
PCB-1242	ND		61	17	ug/Kg		09/07/18 06:48	09/14/18 23:40	1
PCB-1248	ND		61	10	ug/Kg		09/07/18 06:48	09/14/18 23:40	1
PCB-1254	ND		61	10	ug/Kg		09/07/18 06:48	09/14/18 23:40	1
PCB-1260	ND		61	4.9	ug/Kg		09/07/18 06:48	09/14/18 23:40	1
PCB-1262	ND		61	22	ug/Kg		09/07/18 06:48	09/14/18 23:40	1
PCB-1268	ND		61	7.4	ug/Kg		09/07/18 06:48	09/14/18 23:40	1
Polychlorinated biphenyls, Total	ND		61	4.9	ug/Kg		09/07/18 06:48	09/14/18 23:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*103*		*53 - 128*	*09/07/18 06:48*	*09/14/18 23:40*	*1*
DCB Decachlorobiphenyl	*102*		*59 - 130*	*09/07/18 06:48*	*09/14/18 23:40*	*1*

Lab Sample ID: LCS 280-428823/2-A
Matrix: Solid
Analysis Batch: 429668

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 428823

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-1016			128	150		ug/Kg		117	54 - 132		
PCB-1260			128	127		ug/Kg		99	62 - 129		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*110*		*53 - 128*
DCB Decachlorobiphenyl	*106*		*59 - 130*

Lab Sample ID: 280-113987-4 MS
Matrix: Solid
Analysis Batch: 429668

Client Sample ID: SS-12-LDSST-180905
Prep Type: Total/NA
Prep Batch: 428823

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
PCB-1016	ND	F2 F1	123	212	F1	ug/Kg		171	54 - 132		
PCB-1260	ND		123	99.5		ug/Kg		81	62 - 129		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*98*		*53 - 128*
DCB Decachlorobiphenyl	*94*		*59 - 130*

Lab Sample ID: 280-113987-4 MSD
Matrix: Solid
Analysis Batch: 429668

Client Sample ID: SS-12-LDSST-180905
Prep Type: Total/NA
Prep Batch: 428823

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
PCB-1016	ND	F2 F1	130	134	F2	ug/Kg		103	54 - 132	45	36
PCB-1260	ND		130	93.3		ug/Kg		72	62 - 129	6	44

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: 280-113987-4 MSD
Matrix: Solid
Analysis Batch: 429668

Client Sample ID: SS-12-LDSST-180905
Prep Type: Total/NA
Prep Batch: 428823

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Tetrachloro-m-xylene	*87*		*53 - 128*
DCB Decachlorobiphenyl	*81*		*59 - 130*

Lab Chronicle

Client: Trihydro Corporation
Project/Site: Questa Pipeline

TestAmerica Job ID: 280-113987-1

Client Sample ID: SS-12-LDSWT-180905
Lab Sample ID: 280-113987-1
Date Collected: 09/05/18 08:30
Matrix: Solid
Date Received: 09/06/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			15.5 g	10 mL	428823	09/07/18 06:48	JT	TAL DEN
Total/NA	Analysis	8082A		1			429668	09/15/18 00:24	TDJ	TAL DEN

Client Sample ID: SS-12-LDSMT-180905
Lab Sample ID: 280-113987-2
Date Collected: 09/05/18 08:45
Matrix: Solid
Date Received: 09/06/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			15.5 g	10 mL	428823	09/07/18 06:48	JT	TAL DEN
Total/NA	Analysis	8082A		1			429668	09/15/18 00:46	TDJ	TAL DEN

Client Sample ID: SS-12-LDSET-180905
Lab Sample ID: 280-113987-3
Date Collected: 09/05/18 09:00
Matrix: Solid
Date Received: 09/06/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			15.2 g	10 mL	428823	09/07/18 06:48	JT	TAL DEN
Total/NA	Analysis	8082A		1			429668	09/15/18 01:08	TDJ	TAL DEN

Client Sample ID: SS-12-LDSST-180905
Lab Sample ID: 280-113987-4
Date Collected: 09/05/18 09:20
Matrix: Solid
Date Received: 09/06/18 09:15

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3546			15.3 g	10 mL	428823	09/07/18 06:48	JT	TAL DEN
Total/NA	Analysis	8082A		1			429668	09/15/18 01:29	TDJ	TAL DEN

Laboratory References:
TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: LOREN ELDRIDGE-LOCKER	Lab PM: Rydberg, Donna R	Carrier Tracking No(s):	COC No: 280-78789-25785.1
Client Contact: Shaun Harshman	Phone: (307) 851-7753	E-Mail: donna.rydberg@testamericainc.com		Page: Page 1 of 1
Company: Trihydro Corporation				Job #:
Address: 1252 Commerce Drive	Due Date Requested:			
City: Laramie	TAT Requested (days): STANDARD			
State, Zip: WY, 82070				
Phone: (307) 745-7474	PO #: Purchase Order not required			
Email: sharshmanrihydro.com	WO #: WO# 17-252WO-L			
Project Name: Questa Pipeline - PCBs	Project #: 28017197			
Site: LOWER DUMP SUMP	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8082A - Standard 8082A list	Total Number of containers	Special Instructions/Note:
			Preservation Code:				N		
SS-12-LDSWT-180905	9-5-18	08:30	G	Solid	N	N	X	1	
SS-12-LDSMT-180905	9-5-18	08:45	G	SOLID	N	N	X	1	
SS-12-LDSET-180905	9-5-18	09:00	G	SOLID	N	N	X	1	
SS-12-LDSST-180905	9-5-18	09:20	G	SOLID	N	N	X	1	

280-113987 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
LOREN ELDRIDGE-LOCKER	9-5-18 09:45	TRIHYDRO		9/6/18 0915	TAOEN
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 4.8 to .5 trmbl

Ver: 08/04/2016

Login Sample Receipt Checklist

Client: Trihydro Corporation

Job Number: 280-113987-1

Login Number: 113987
List Number: 1
Creator: Quint, Jessica A

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX C

ACM AND LBP ANALYTICAL RESULTS

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Tel: (303)736-0100

TestAmerica Job ID: 280-100940-1
Client Project/Site: Questa Pipeline - Lead and Asbestos

For:
Trihydro Corporation
1252 Commerce Drive
Laramie, Wyoming 82070

Attn: Tony Kupilik

Authorized for release by:
9/21/2017 4:43:36 PM
Michelle Johnston, Project Manager II
(303)736-0110
michelle.johnston@testamericainc.com

Designee for

Donna Rydberg, Senior Project Manager
(303)736-0192
donna.rydberg@testamericainc.com

Table of Contents

Definitions/Glossary

Client: Trihydro Corporation
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Job ID: 280-100940-1

Laboratory: TestAmerica Denver

Narrative

CASE NARRATIVE

Client: Trihydro Corporation

Project: Questa Pipeline - Lead and Asbestos

Report Number: 280-100940-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 09/07/2017; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 22.2 C.

TestAmerica Denver subcontracted the Asbestos analyses to EMLab P&K. A copy of their report has been included.

TOTAL METALS (ICP)

Samples L182817 (280-100940-8), L282817 (280-100940-9), L382817 (280-100940-10), L482817 (280-100940-11), L582817 (280-100940-12), L682817 (280-100940-13), L782817 (280-100940-14), L182917 (280-100940-33), L282917 (280-100940-34), L382917 (280-100940-35), L482917 (280-100940-36), L582917 (280-100940-37), L682917 (280-100940-38), L782917 (280-100940-39), L882917 (280-100940-40), L982917 (280-100940-41), L1082917 (280-100940-42), L1182917 (280-100940-43), L183017 (280-100940-57), L283017 (280-100940-58), BL183017 (280-100940-59), BL283017 (280-100940-60), BL383017 (280-100940-61), BL483017 (280-100940-62), BL583017 (280-100940-63) and BL683017 (280-100940-64) were analyzed for Total Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 09/11/2017 and analyzed on 09/12/2017 and 09/13/2017.

A deviation from the Standard Operating Procedure (SOP) occurred. Details are as follows: There was insufficient volume to weigh out the SOP specified 1.0-1.5g for the following samples: L1182917 (280-100940-43), BL183017 (280-100940-59), BL283017 (280-100940-60), BL383017 (280-100940-61), BL483017 (280-100940-62), BL583017 (280-100940-63) and BL683017 (280-100940-64).

Samples L582817 (280-100940-12)[5X], L682817 (280-100940-13)[2X], L382917 (280-100940-35)[2X], L782917 (280-100940-39)[5X], L283017 (280-100940-58)[5X], BL183017 (280-100940-59)[10X], BL283017 (280-100940-60)[10X], BL383017 (280-100940-61)[5X], BL483017 (280-100940-62)[20X], BL583017 (280-100940-63)[5X] and BL683017 (280-100940-64)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 280-387084. Method precision and accuracy have been verified by the acceptable LCS/LCSD analyses data.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 280-387083. Method precision and accuracy have been verified by the acceptable LCS/LCSD analyses data.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: Trihydro Corporation
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

Client Sample ID: A182817 — Lab Sample ID: 280-100940-1

No Detections.

Client Sample ID: A282817 — Lab Sample ID: 280-100940-2

No Detections.

Client Sample ID: A382817 — Lab Sample ID: 280-100940-3

No Detections.

Client Sample ID: A482817 — Lab Sample ID: 280-100940-4

No Detections.

Client Sample ID: A582817 — Lab Sample ID: 280-100940-5

No Detections.

Client Sample ID: A682817 — Lab Sample ID: 280-100940-6

No Detections.

Client Sample ID: A782817 — Lab Sample ID: 280-100940-7

No Detections.

Client Sample ID: L182817 — Lab Sample ID: 280-100940-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	540		0.77	0.27	mg/Kg	1		6010C	Total/NA

Client Sample ID: L282817 — Lab Sample ID: 280-100940-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	590		0.66	0.23	mg/Kg	1		6010C	Total/NA

Client Sample ID: L382817 — Lab Sample ID: 280-100940-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	590		0.75	0.26	mg/Kg	1		6010C	Total/NA

Client Sample ID: L482817 — Lab Sample ID: 280-100940-11

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	570		0.82	0.28	mg/Kg	1		6010C	Total/NA

Client Sample ID: L582817 — Lab Sample ID: 280-100940-12

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	230		4.1	1.4	mg/Kg	5		6010C	Total/NA

Client Sample ID: L682817 — Lab Sample ID: 280-100940-13

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

Detection Summary

Client: Trihydro Corporation
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

Client Sample ID: L682817 (Continued) — Lab Sample ID: 280-100940-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	29		1.2	0.42	mg/Kg	2		6010C	Total/NA

Client Sample ID: L782817 — Lab Sample ID: 280-100940-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	550		0.83	0.29	mg/Kg	1		6010C	Total/NA

Client Sample ID: INS182817 — Lab Sample ID: 280-100940-15

No Detections.

Client Sample ID: INS282817 — Lab Sample ID: 280-100940-16

No Detections.

Client Sample ID: PL182817 — Lab Sample ID: 280-100940-17

No Detections.

Client Sample ID: G182817 — Lab Sample ID: 280-100940-18

No Detections.

Client Sample ID: G282817 — Lab Sample ID: 280-100940-19

No Detections.

Client Sample ID: G382817 — Lab Sample ID: 280-100940-20

No Detections.

Client Sample ID: G482817 — Lab Sample ID: 280-100940-21

No Detections.

Client Sample ID: A182917 — Lab Sample ID: 280-100940-22

No Detections.

Client Sample ID: A282917 — Lab Sample ID: 280-100940-23

No Detections.

Client Sample ID: A382917 — Lab Sample ID: 280-100940-24

No Detections.

Client Sample ID: A482917 — Lab Sample ID: 280-100940-25

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

Detection Summary

Client: Trihydro Corporation
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

Client Sample ID: A582917 — Lab Sample ID: 280-100940-26

No Detections.

Client Sample ID: A682917 — Lab Sample ID: 280-100940-27

No Detections.

Client Sample ID: A782917 — Lab Sample ID: 280-100940-28

No Detections.

Client Sample ID: A882917 — Lab Sample ID: 280-100940-29

No Detections.

Client Sample ID: A982917 — Lab Sample ID: 280-100940-30

No Detections.

Client Sample ID: A1082917 — Lab Sample ID: 280-100940-31

No Detections.

Client Sample ID: A1182917 — Lab Sample ID: 280-100940-32

No Detections.

Client Sample ID: L182917 — Lab Sample ID: 280-100940-33

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	670		0.73	0.25	mg/Kg	1		6010C	Total/NA

Client Sample ID: L282917 — Lab Sample ID: 280-100940-34

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	500		0.87	0.30	mg/Kg	1		6010C	Total/NA

Client Sample ID: L382917 — Lab Sample ID: 280-100940-35

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	480		1.5	0.53	mg/Kg	2		6010C	Total/NA

Client Sample ID: L482917 — Lab Sample ID: 280-100940-36

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	450		0.73	0.25	mg/Kg	1		6010C	Total/NA

Client Sample ID: L582917 — Lab Sample ID: 280-100940-37

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	280		0.79	0.27	mg/Kg	1		6010C	Total/NA

Client Sample ID: L682917 — Lab Sample ID: 280-100940-38

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: Trihydro Corporation
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

Client Sample ID: L682917 (Continued) — Lab Sample ID: 280-100940-38

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	120		0.77	0.27	mg/Kg	1		6010C	Total/NA

Client Sample ID: L782917 — Lab Sample ID: 280-100940-39

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	810		4.3	1.5	mg/Kg	5		6010C	Total/NA

Client Sample ID: L882917 — Lab Sample ID: 280-100940-40

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	32		0.86	0.30	mg/Kg	1		6010C	Total/NA

Client Sample ID: L982917 — Lab Sample ID: 280-100940-41

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	430		0.78	0.27	mg/Kg	1		6010C	Total/NA

Client Sample ID: L1082917 — Lab Sample ID: 280-100940-42

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	460		0.72	0.25	mg/Kg	1		6010C	Total/NA

Client Sample ID: L1182917 — Lab Sample ID: 280-100940-43

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	290		1.1	0.38	mg/Kg	1		6010C	Total/NA

Client Sample ID: G182917 — Lab Sample ID: 280-100940-44

No Detections.

Client Sample ID: G282917 — Lab Sample ID: 280-100940-45

No Detections.

Client Sample ID: G382917 — Lab Sample ID: 280-100940-46

No Detections.

Client Sample ID: G482917 — Lab Sample ID: 280-100940-47

No Detections.

Client Sample ID: PL182917 — Lab Sample ID: 280-100940-48

No Detections.

Client Sample ID: A183017 — Lab Sample ID: 280-100940-49

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

Detection Summary

Client: Trihydro Corporation
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

Client Sample ID: A283017 — Lab Sample ID: 280-100940-50

No Detections.

Client Sample ID: BA183017 — Lab Sample ID: 280-100940-51

No Detections.

Client Sample ID: BA283017 — Lab Sample ID: 280-100940-52

No Detections.

Client Sample ID: BA383017 — Lab Sample ID: 280-100940-53

No Detections.

Client Sample ID: BA483017 — Lab Sample ID: 280-100940-54

No Detections.

Client Sample ID: BA583017 — Lab Sample ID: 280-100940-55

No Detections.

Client Sample ID: BA683017 — Lab Sample ID: 280-100940-56

No Detections.

Client Sample ID: L183017 — Lab Sample ID: 280-100940-57

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	330		0.99	0.34	mg/Kg	1		6010C	Total/NA

Client Sample ID: L283017 — Lab Sample ID: 280-100940-58

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	380		5.0	1.7	mg/Kg	5		6010C	Total/NA

Client Sample ID: BL183017 — Lab Sample ID: 280-100940-59

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	390		9.3	3.2	mg/Kg	10		6010C	Total/NA

Client Sample ID: BL283017 — Lab Sample ID: 280-100940-60

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	340		8.3	2.9	mg/Kg	10		6010C	Total/NA

Client Sample ID: BL383017 — Lab Sample ID: 280-100940-61

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	250		4.3	1.5	mg/Kg	5		6010C	Total/NA

Client Sample ID: BL483017 — Lab Sample ID: 280-100940-62

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

Detection Summary

Client: Trihydro Corporation
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

Client Sample ID: BL483017 (Continued) — Lab Sample ID: 280-100940-62

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	630		15	5.3	mg/Kg	20		6010C	Total/NA

Client Sample ID: BL583017 — Lab Sample ID: 280-100940-63

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	240		5.5	1.9	mg/Kg	5		6010C	Total/NA

Client Sample ID: BL683017 — Lab Sample ID: 280-100940-64

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	5600		5.6	1.9	mg/Kg	5		6010C	Total/NA

Client Sample ID: INS183017 — Lab Sample ID: 280-100940-65

No Detections.

Client Sample ID: INS283017 — Lab Sample ID: 280-100940-66

No Detections.

Client Sample ID: VG183017 — Lab Sample ID: 280-100940-67

No Detections.

Client Sample ID: VG283017 — Lab Sample ID: 280-100940-68

No Detections.

Client Sample ID: VG383017 — Lab Sample ID: 280-100940-69

No Detections.

Client Sample ID: PW183017 — Lab Sample ID: 280-100940-70

No Detections.

Client Sample ID: PW283017 — Lab Sample ID: 280-100940-71

No Detections.

Client Sample ID: PW383017 — Lab Sample ID: 280-100940-72

No Detections.

Client Sample ID: PW483017 — Lab Sample ID: 280-100940-73

No Detections.

This Detection Summary does not include radiochemical test results.

Method Summary

Client: Trihydro Corporation
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL DEN
Asbestos - PLM by EPA 600/R-93/116 (pric	General Sub Contract Method	NONE	

Protocol References:

NONE = NONE

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

= EMLab P&K - Denver, 4955 Yarrow Street, Arvada, CO 80002

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

Sample Summary

Client: Trihydro Corporation
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-100940-1	A182817	Solid	08/28/17 13:15	09/07/17 09:15
280-100940-2	A282817	Solid	08/28/17 13:54	09/07/17 09:15
280-100940-3	A382817	Solid	08/28/17 14:20	09/07/17 09:15
280-100940-4	A482817	Solid	08/28/17 14:40	09/07/17 09:15
280-100940-5	A582817	Solid	08/28/17 15:10	09/07/17 09:15
280-100940-6	A682817	Solid	08/28/17 15:35	09/07/17 09:15
280-100940-7	A782817	Solid	08/28/17 16:15	09/07/17 09:15
280-100940-8	L182817	Solid	08/28/17 13:15	09/07/17 09:15
280-100940-9	L282817	Solid	08/28/17 13:54	09/07/17 09:15
280-100940-10	L382817	Solid	08/28/17 14:20	09/07/17 09:15
280-100940-11	L482817	Solid	08/28/17 14:40	09/07/17 09:15
280-100940-12	L582817	Solid	08/28/17 14:50	09/07/17 09:15
280-100940-13	L682817	Solid	08/28/17 15:35	09/07/17 09:15
280-100940-14	L782817	Solid	08/28/17 16:15	09/07/17 09:15
280-100940-15	INS182817	Solid	08/28/17 15:55	09/07/17 09:15
280-100940-16	INS282817	Solid	08/28/17 15:55	09/07/17 09:15
280-100940-17	PL182817	Solid	08/28/17 15:55	09/07/17 09:15
280-100940-18	G182817	Solid	08/28/17 14:50	09/07/17 09:15
280-100940-19	G282817	Solid	08/28/17 14:50	09/07/17 09:15
280-100940-20	G382817	Solid	08/28/17 16:40	09/07/17 09:15
280-100940-21	G482817	Solid	08/28/17 16:40	09/07/17 09:15
280-100940-22	A182917	Solid	08/29/17 08:35	09/07/17 09:15
280-100940-23	A282917	Solid	08/29/17 09:10	09/07/17 09:15
280-100940-24	A382917	Solid	08/29/17 09:45	09/07/17 09:15
280-100940-25	A482917	Solid	08/29/17 10:05	09/07/17 09:15
280-100940-26	A582917	Solid	08/29/17 10:25	09/07/17 09:15
280-100940-27	A682917	Solid	08/29/17 11:05	09/07/17 09:15
280-100940-28	A782917	Solid	08/29/17 11:40	09/07/17 09:15
280-100940-29	A882917	Solid	08/29/17 11:55	09/07/17 09:15
280-100940-30	A982917	Solid	08/29/17 12:30	09/07/17 09:15
280-100940-31	A1082917	Solid	08/29/17 15:10	09/07/17 09:15
280-100940-32	A1182917	Solid	08/29/17 16:40	09/07/17 09:15
280-100940-33	L182917	Solid	08/29/17 08:35	09/07/17 09:15
280-100940-34	L282917	Solid	08/29/17 09:10	09/07/17 09:15
280-100940-35	L382917	Solid	08/29/17 09:45	09/07/17 09:15
280-100940-36	L482917	Solid	08/29/17 10:05	09/07/17 09:15
280-100940-37	L582917	Solid	08/29/17 10:25	09/07/17 09:15
280-100940-38	L682917	Solid	08/29/17 11:05	09/07/17 09:15
280-100940-39	L782917	Solid	08/29/17 11:40	09/07/17 09:15
280-100940-40	L882917	Solid	08/29/17 11:55	09/07/17 09:15
280-100940-41	L982917	Solid	08/29/17 12:30	09/07/17 09:15
280-100940-42	L1082917	Solid	08/29/17 15:10	09/07/17 09:15
280-100940-43	L1182917	Solid	08/29/17 16:40	09/07/17 09:15
280-100940-44	G182917	Solid	08/29/17 09:20	09/07/17 09:15
280-100940-45	G282917	Solid	08/29/17 09:25	09/07/17 09:15
280-100940-46	G382917	Solid	08/29/17 10:20	09/07/17 09:15
280-100940-47	G482917	Solid	08/29/17 10:25	09/07/17 09:15
280-100940-48	PL182917	Solid	08/29/17 10:30	09/07/17 09:15
280-100940-49	A183017	Solid	08/30/17 09:40	09/07/17 09:15
280-100940-50	A283017	Solid	08/30/17 11:10	09/07/17 09:15
280-100940-51	BA183017	Solid	08/30/17 11:15	09/07/17 09:15
280-100940-52	BA283017	Solid	08/30/17 11:20	09/07/17 09:15
280-100940-53	BA383017	Solid	08/30/17 11:25	09/07/17 09:15

Sample Summary

Client: Trihydro Corporation
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-100940-54	BA483017	Solid	08/30/17 11:30	09/07/17 09:15
280-100940-55	BA583017	Solid	08/30/17 11:40	09/07/17 09:15
280-100940-56	BA683017	Solid	08/30/17 11:50	09/07/17 09:15
280-100940-57	L183017	Solid	08/30/17 09:40	09/07/17 09:15
280-100940-58	L283017	Solid	08/30/17 11:10	09/07/17 09:15
280-100940-59	BL183017	Solid	08/30/17 11:15	09/07/17 09:15
280-100940-60	BL283017	Solid	08/30/17 11:20	09/07/17 09:15
280-100940-61	BL383017	Solid	08/30/17 11:25	09/07/17 09:15
280-100940-62	BL483017	Solid	08/30/17 11:30	09/07/17 09:15
280-100940-63	BL583017	Solid	08/30/17 11:40	09/07/17 09:15
280-100940-64	BL683017	Solid	08/30/17 11:50	09/07/17 09:15
280-100940-65	INS183017	Solid	08/30/17 09:10	09/07/17 09:15
280-100940-66	INS283017	Solid	08/30/17 09:15	09/07/17 09:15
280-100940-67	VG183017	Solid	08/30/17 09:20	09/07/17 09:15
280-100940-68	VG283017	Solid	08/30/17 09:30	09/07/17 09:15
280-100940-69	VG383017	Solid	08/30/17 09:40	09/07/17 09:15
280-100940-70	PW183017	Solid	08/30/17 15:10	09/07/17 09:15
280-100940-71	PW283017	Solid	08/30/17 15:20	09/07/17 09:15
280-100940-72	PW383017	Solid	08/30/17 15:30	09/07/17 09:15
280-100940-73	PW483017	Solid	08/30/17 15:40	09/07/17 09:15

Method: 6010C - Metals (ICP)

Client Sample ID: L182817
Date Collected: 08/28/17 13:15
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-8
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	540		0.77	0.27	mg/Kg		09/11/17 13:30	09/12/17 02:35	1

Client Sample ID: L282817
Date Collected: 08/28/17 13:54
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-9
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	590		0.66	0.23	mg/Kg		09/11/17 13:30	09/12/17 02:37	1

Client Sample ID: L382817
Date Collected: 08/28/17 14:20
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-10
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	590		0.75	0.26	mg/Kg		09/11/17 13:30	09/12/17 02:40	1

Client Sample ID: L482817
Date Collected: 08/28/17 14:40
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-11
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	570		0.82	0.28	mg/Kg		09/11/17 13:30	09/12/17 02:42	1

Client Sample ID: L582817
Date Collected: 08/28/17 14:50
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-12
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	230		4.1	1.4	mg/Kg		09/11/17 13:30	09/13/17 07:21	5

Client Sample ID: L682817
Date Collected: 08/28/17 15:35
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-13
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	29		1.2	0.42	mg/Kg		09/11/17 13:30	09/13/17 07:24	2

Client Sample ID: L782817
Date Collected: 08/28/17 16:15
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-14
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	550		0.83	0.29	mg/Kg		09/11/17 13:30	09/12/17 03:00	1

Client Sample ID: L182917
Date Collected: 08/29/17 08:35
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-33
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	670		0.73	0.25	mg/Kg		09/11/17 13:30	09/12/17 03:03	1

Client Sample ID: L282917
Date Collected: 08/29/17 09:10
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-34
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	500		0.87	0.30	mg/Kg		09/11/17 13:30	09/12/17 03:05	1

Method: 6010C - Metals (ICP)

Client Sample ID: L382917
Date Collected: 08/29/17 09:45
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-35
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	480		1.5	0.53	mg/Kg		09/11/17 13:30	09/13/17 07:44	2

Client Sample ID: L482917
Date Collected: 08/29/17 10:05
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-36
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	450		0.73	0.25	mg/Kg		09/11/17 13:30	09/12/17 03:10	1

Client Sample ID: L582917
Date Collected: 08/29/17 10:25
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-37
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	280		0.79	0.27	mg/Kg		09/11/17 13:30	09/12/17 03:12	1

Client Sample ID: L682917
Date Collected: 08/29/17 11:05
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-38
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	120		0.77	0.27	mg/Kg		09/11/17 13:30	09/12/17 03:15	1

Client Sample ID: L782917
Date Collected: 08/29/17 11:40
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-39
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	810		4.3	1.5	mg/Kg		09/11/17 13:30	09/13/17 14:37	5

Client Sample ID: L882917
Date Collected: 08/29/17 11:55
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-40
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	32		0.86	0.30	mg/Kg		09/11/17 13:30	09/12/17 03:43	1

Client Sample ID: L982917
Date Collected: 08/29/17 12:30
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-41
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	430		0.78	0.27	mg/Kg		09/11/17 13:30	09/12/17 03:45	1

Client Sample ID: L1082917
Date Collected: 08/29/17 15:10
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-42
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	460		0.72	0.25	mg/Kg		09/11/17 13:30	09/12/17 03:48	1

Client Sample ID: L1182917
Date Collected: 08/29/17 16:40
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-43
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	290		1.1	0.38	mg/Kg		09/11/17 13:30	09/12/17 03:50	1

Method: 6010C - Metals (ICP)

Client Sample ID: L183017
Date Collected: 08/30/17 09:40
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-57
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	330		0.99	0.34	mg/Kg		09/11/17 13:30	09/12/17 03:53	1

Client Sample ID: L283017
Date Collected: 08/30/17 11:10
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-58
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	380		5.0	1.7	mg/Kg		09/11/17 13:30	09/13/17 06:16	5

Client Sample ID: BL183017
Date Collected: 08/30/17 11:15
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-59
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	390		9.3	3.2	mg/Kg		09/11/17 13:30	09/13/17 06:28	10

Client Sample ID: BL283017
Date Collected: 08/30/17 11:20
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-60
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	340		8.3	2.9	mg/Kg		09/11/17 13:30	09/13/17 06:31	10

Client Sample ID: BL383017
Date Collected: 08/30/17 11:25
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-61
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	250		4.3	1.5	mg/Kg		09/11/17 13:30	09/13/17 06:33	5

Client Sample ID: BL483017
Date Collected: 08/30/17 11:30
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-62
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	630		15	5.3	mg/Kg		09/11/17 13:30	09/13/17 08:09	20

Client Sample ID: BL583017
Date Collected: 08/30/17 11:40
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-63
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	240		5.5	1.9	mg/Kg		09/11/17 13:30	09/13/17 06:38	5

Client Sample ID: BL683017
Date Collected: 08/30/17 11:50
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-64
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	5600		5.6	1.9	mg/Kg		09/11/17 13:30	09/13/17 06:46	5

Metals

Prep Batch: 387083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100940-39	L782917	Total/NA	Solid	3050B	
280-100940-40	L882917	Total/NA	Solid	3050B	
280-100940-41	L982917	Total/NA	Solid	3050B	
280-100940-42	L1082917	Total/NA	Solid	3050B	
280-100940-43	L1182917	Total/NA	Solid	3050B	
280-100940-57	L183017	Total/NA	Solid	3050B	
280-100940-58	L283017	Total/NA	Solid	3050B	
280-100940-59	BL183017	Total/NA	Solid	3050B	
280-100940-60	BL283017	Total/NA	Solid	3050B	
280-100940-61	BL383017	Total/NA	Solid	3050B	
280-100940-62	BL483017	Total/NA	Solid	3050B	
280-100940-63	BL583017	Total/NA	Solid	3050B	
280-100940-64	BL683017	Total/NA	Solid	3050B	
MB 280-387083/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 280-387083/2-A	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 280-387083/3-A	Lab Control Sample Dup	Total/NA	Solid	3050B	

Prep Batch: 387084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100940-8	L182817	Total/NA	Solid	3050B	
280-100940-9	L282817	Total/NA	Solid	3050B	
280-100940-10	L382817	Total/NA	Solid	3050B	
280-100940-11	L482817	Total/NA	Solid	3050B	
280-100940-12	L582817	Total/NA	Solid	3050B	
280-100940-13	L682817	Total/NA	Solid	3050B	
280-100940-14	L782817	Total/NA	Solid	3050B	
280-100940-33	L182917	Total/NA	Solid	3050B	
280-100940-34	L282917	Total/NA	Solid	3050B	
280-100940-35	L382917	Total/NA	Solid	3050B	
280-100940-36	L482917	Total/NA	Solid	3050B	
280-100940-37	L582917	Total/NA	Solid	3050B	
280-100940-38	L682917	Total/NA	Solid	3050B	
MB 280-387084/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 280-387084/2-A	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 280-387084/3-A	Lab Control Sample Dup	Total/NA	Solid	3050B	

Analysis Batch: 387317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100940-8	L182817	Total/NA	Solid	6010C	387084
280-100940-9	L282817	Total/NA	Solid	6010C	387084
280-100940-10	L382817	Total/NA	Solid	6010C	387084
280-100940-11	L482817	Total/NA	Solid	6010C	387084
280-100940-14	L782817	Total/NA	Solid	6010C	387084
280-100940-33	L182917	Total/NA	Solid	6010C	387084
280-100940-34	L282917	Total/NA	Solid	6010C	387084
280-100940-36	L482917	Total/NA	Solid	6010C	387084
280-100940-37	L582917	Total/NA	Solid	6010C	387084
280-100940-38	L682917	Total/NA	Solid	6010C	387084
280-100940-40	L882917	Total/NA	Solid	6010C	387083
280-100940-41	L982917	Total/NA	Solid	6010C	387083
280-100940-42	L1082917	Total/NA	Solid	6010C	387083

Metals (Continued)

Analysis Batch: 387317 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100940-43	L1182917	Total/NA	Solid	6010C	387083
280-100940-57	L183017	Total/NA	Solid	6010C	387083
MB 280-387083/1-A	Method Blank	Total/NA	Solid	6010C	387083
MB 280-387084/1-A	Method Blank	Total/NA	Solid	6010C	387084
LCS 280-387083/2-A	Lab Control Sample	Total/NA	Solid	6010C	387083
LCS 280-387084/2-A	Lab Control Sample	Total/NA	Solid	6010C	387084
LCSD 280-387083/3-A	Lab Control Sample Dup	Total/NA	Solid	6010C	387083
LCSD 280-387084/3-A	Lab Control Sample Dup	Total/NA	Solid	6010C	387084

Analysis Batch: 387473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100940-12	L582817	Total/NA	Solid	6010C	387084
280-100940-13	L682817	Total/NA	Solid	6010C	387084
280-100940-35	L382917	Total/NA	Solid	6010C	387084
280-100940-58	L283017	Total/NA	Solid	6010C	387083
280-100940-59	BL183017	Total/NA	Solid	6010C	387083
280-100940-60	BL283017	Total/NA	Solid	6010C	387083
280-100940-61	BL383017	Total/NA	Solid	6010C	387083
280-100940-62	BL483017	Total/NA	Solid	6010C	387083
280-100940-63	BL583017	Total/NA	Solid	6010C	387083
280-100940-64	BL683017	Total/NA	Solid	6010C	387083

Analysis Batch: 387616

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100940-39	L782917	Total/NA	Solid	6010C	387083

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-387083/1-A
Matrix: Solid
Analysis Batch: 387317

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 387083

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.90	0.31	mg/Kg		09/11/17 13:30	09/12/17 03:33	1

Lab Sample ID: LCS 280-387083/2-A
Matrix: Solid
Analysis Batch: 387317

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 387083

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	50.0	50.2		mg/Kg		100	86 - 110

Lab Sample ID: LCSD 280-387083/3-A
Matrix: Solid
Analysis Batch: 387317

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 387083

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	50.0	50.4		mg/Kg		101	86 - 110	0	20

Lab Sample ID: MB 280-387084/1-A
Matrix: Solid
Analysis Batch: 387317

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 387084

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.90	0.31	mg/Kg		09/11/17 13:30	09/12/17 02:25	1

Lab Sample ID: LCS 280-387084/2-A
Matrix: Solid
Analysis Batch: 387317

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 387084

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	50.0	50.7		mg/Kg		101	86 - 110

Lab Sample ID: LCSD 280-387084/3-A
Matrix: Solid
Analysis Batch: 387317

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 387084

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Lead	50.0	49.9		mg/Kg		100	86 - 110	1	20

Lab Chronicle

Client: Trihydro Corporation
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

Client Sample ID: L182817
Date Collected: 08/28/17 13:15
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-8
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.165 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 02:35	CML	TAL DEN

Client Sample ID: L282817
Date Collected: 08/28/17 13:54
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.371 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 02:37	CML	TAL DEN

Client Sample ID: L382817
Date Collected: 08/28/17 14:20
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.193 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 02:40	CML	TAL DEN

Client Sample ID: L482817
Date Collected: 08/28/17 14:40
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-11
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.101 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 02:42	CML	TAL DEN

Client Sample ID: L582817
Date Collected: 08/28/17 14:50
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-12
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.096 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		5			387473	09/13/17 07:21	CRR	TAL DEN

Client Sample ID: L682817
Date Collected: 08/28/17 15:35
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-13
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.491 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		2			387473	09/13/17 07:24	CRR	TAL DEN

Lab Chronicle

Client: Trihydro Corporation
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

Client Sample ID: L782817
Date Collected: 08/28/17 16:15
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-14
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.078 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 03:00	CML	TAL DEN

Client Sample ID: L182917
Date Collected: 08/29/17 08:35
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-33
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.226 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 03:03	CML	TAL DEN

Client Sample ID: L282917
Date Collected: 08/29/17 09:10
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-34
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.033 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 03:05	CML	TAL DEN

Client Sample ID: L382917
Date Collected: 08/29/17 09:45
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-35
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.171 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		2			387473	09/13/17 07:44	CRR	TAL DEN

Client Sample ID: L482917
Date Collected: 08/29/17 10:05
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-36
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.227 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 03:10	CML	TAL DEN

Client Sample ID: L582917
Date Collected: 08/29/17 10:25
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-37
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.134 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 03:12	CML	TAL DEN

Lab Chronicle

Client: Trihydro Corporation
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

Client Sample ID: L682917
Date Collected: 08/29/17 11:05
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-38
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.164 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 03:15	CML	TAL DEN

Client Sample ID: L782917
Date Collected: 08/29/17 11:40
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-39
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.049 g	100 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		5			387616	09/13/17 14:37	CML	TAL DEN

Client Sample ID: L882917
Date Collected: 08/29/17 11:55
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-40
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.044 g	100 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 03:43	CML	TAL DEN

Client Sample ID: L982917
Date Collected: 08/29/17 12:30
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-41
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.160 g	100 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 03:45	CML	TAL DEN

Client Sample ID: L1082917
Date Collected: 08/29/17 15:10
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-42
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.257 g	100 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 03:48	CML	TAL DEN

Client Sample ID: L1182917
Date Collected: 08/29/17 16:40
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-43
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.825 g	100 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 03:50	CML	TAL DEN

Lab Chronicle

Client: Trihydro Corporation
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

Client Sample ID: L183017
Date Collected: 08/30/17 09:40
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-57
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.905 g	100 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 03:53	CML	TAL DEN

Client Sample ID: L283017
Date Collected: 08/30/17 11:10
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-58
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.901 g	100 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		5			387473	09/13/17 06:16	CRR	TAL DEN

Client Sample ID: BL183017
Date Collected: 08/30/17 11:15
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-59
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.482 g	50 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		10			387473	09/13/17 06:28	CRR	TAL DEN

Client Sample ID: BL283017
Date Collected: 08/30/17 11:20
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-60
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.541 g	50 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		10			387473	09/13/17 06:31	CRR	TAL DEN

Client Sample ID: BL383017
Date Collected: 08/30/17 11:25
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-61
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.526 g	50 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		5			387473	09/13/17 06:33	CRR	TAL DEN

Client Sample ID: BL483017
Date Collected: 08/30/17 11:30
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-62
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.588 g	50 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		20			387473	09/13/17 08:09	CRR	TAL DEN

Lab Chronicle

Client: Trihydro Corporation
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

Client Sample ID: BL583017

Date Collected: 08/30/17 11:40
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-63

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.814 g	100 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		5			387473	09/13/17 06:38	CRR	TAL DEN

Client Sample ID: BL683017

Date Collected: 08/30/17 11:50
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-64

Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.402 g	50 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		5			387473	09/13/17 06:46	CRR	TAL DEN

Laboratory References:

= EMLab P&K - Denver, 4955 Yarrow Street, Arvada, CO 80002

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

EMLab P&K
A TestAmerica Company

Report for:

Donna Rydberg
TestAmerica-Denver
4955 Yarrow Street
Arvada, CO 80002

Regarding: Project: 280-100940-1; Questa Pipeline- Lead and Asbestos
EML ID: 1790994

Approved by:

Approved Signatory
Noah Lazarte

Dates of Analysis:
Asbestos PLM: 09-19-2017

Service SOPs: Asbestos PLM (EPA Methods 600/R-93/116 & 600/M4-82-020, SOP EM-AS-S-1267)

EMLab P&K
4955 Yarrow Street , Arvada, CO 80002
(800) 651-4802 Fax (623) 780-7695 www.emlab.com

Client: TestAmerica-Denver
C/O: Donna Rydberg
Re: 280-100940-1; Questa Pipeline- Lead and Asbestos

Date of Sampling: 08-28-2017
Date of Receipt: 09-08-2017
Date of Report: 09-19-2017

ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Total Samples Submitted:	47
Total Samples Analyzed:	47
Total Samples with Layer Asbestos Content > 1%:	4

Location: 280-100940-1, A182817 Lab ID-Version‡: 8373424-1

Sample Layers	Asbestos Content
Gray Compound	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-2, A282817 Lab ID-Version‡: 8373425-1

Sample Layers	Asbestos Content
Brown Compound	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-3, A382817 Lab ID-Version‡: 8373426-1

Sample Layers	Asbestos Content
Brown Compound	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-4, A482817 Lab ID-Version‡: 8373427-1

Sample Layers	Asbestos Content
Brown Compound	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 280-100940-5, A582817 Lab ID-Version‡: 8373428-1

Sample Layers	Asbestos Content
Red Non-Fibrous Material	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-6, A682817 Lab ID-Version‡: 8373429-1

Sample Layers	Asbestos Content
Gray Compound	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-7, A782817 Lab ID-Version‡: 8373430-1

Sample Layers	Asbestos Content
Brown Compound	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-15, INS182817 Lab ID-Version‡: 8373431-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
Composite Non-Asbestos Content:	90% Glass Fibers 7% Cellulose
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 280-100940-16, INS282817 Lab ID-Version‡: 8373432-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
Composite Non-Asbestos Content:	95% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 280-100940-17, PL182817 Lab ID-Version‡: 8373433-1

Sample Layers	Asbestos Content
Brown Non-Fibrous Material	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-18, G182817 Lab ID-Version‡: 8373434-1

Sample Layers	Asbestos Content
Brown Non-Fibrous Material	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-19, G282817 Lab ID-Version‡: 8373435-1

Sample Layers	Asbestos Content
Brown Non-Fibrous Material	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 280-100940-20, G382817 Lab ID-Version‡: 8373436-1

Sample Layers	Asbestos Content
Brown Non-Fibrous Material	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-21, G482817 Lab ID-Version‡: 8373437-1

Sample Layers	Asbestos Content
Brown Non-Fibrous Material	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-22, A182817 Lab ID-Version‡: 8373438-1

Sample Layers	Asbestos Content
Brown Compound	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-23, A282817 Lab ID-Version‡: 8373439-1

Sample Layers	Asbestos Content
Brown Compound	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 280-100940-24, A382817 Lab ID-Version‡: 8373440-1

Sample Layers	Asbestos Content
Gray Compound	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-25, A482817 Lab ID-Version‡: 8373441-1

Sample Layers	Asbestos Content
Brown Compound	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-26, A582817 Lab ID-Version‡: 8373442-1

Sample Layers	Asbestos Content
Brown Compound	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-27, A682817 Lab ID-Version‡: 8373443-1

Sample Layers	Asbestos Content
Gray Compound	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 280-100940-28, A782817 Lab ID-Version‡: 8373444-1

Sample Layers	Asbestos Content
Gray Compound	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-29, A882817 Lab ID-Version‡: 8373445-1

Sample Layers	Asbestos Content
Brown Compound	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-30, A982817 Lab ID-Version‡: 8373446-1

Sample Layers	Asbestos Content
Gray Compound	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-31, A1082817 Lab ID-Version‡: 8373447-1

Sample Layers	Asbestos Content
Brown Compound	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 280-100940-32, A1182817 Lab ID-Version‡: 8373448-1

Sample Layers	Asbestos Content
Brown Compound	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-44, G182917 Lab ID-Version‡: 8373449-1

Sample Layers	Asbestos Content
Brown Non-Fibrous Material	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-45, G282917 Lab ID-Version‡: 8373450-1

Sample Layers	Asbestos Content
Brown Non-Fibrous Material	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-46, G382917 Lab ID-Version‡: 8373451-1

Sample Layers	Asbestos Content
Brown Non-Fibrous Material	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 280-100940-47, G482917 Lab ID-Version‡: 8373452-1

Sample Layers	Asbestos Content
Brown Non-Fibrous Material	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-48, PL182917 Lab ID-Version‡: 8373453-1

Sample Layers	Asbestos Content
Brown Non-Fibrous Material	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-49, A183017 Lab ID-Version‡: 8373454-1

Sample Layers	Asbestos Content
Gray Compound	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-50, A283017 Lab ID-Version‡: 8373455-1

Sample Layers	Asbestos Content
Red Non-Fibrous Material	ND
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 280-100940-51, BA183017 Lab ID-Version‡: 8373456-1

Sample Layers	Asbestos Content
Brown/Black Non-Fibrous Material with Paint	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-52, BA283017 Lab ID-Version‡: 8373457-1

Sample Layers	Asbestos Content
Brown/Black Non-Fibrous Material with Paint	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-53, BA383017 Lab ID-Version‡: 8373458-1

Sample Layers	Asbestos Content
Brown/Black Non-Fibrous Material with Paint	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-54, BA483017 Lab ID-Version‡: 8373459-1

Sample Layers	Asbestos Content
Brown/Black Non-Fibrous Material with Paint	ND
Sample Composite Homogeneity:	Good

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Date of Report: 09-19-2017

ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 280-100940-55, BA583017 Lab ID-Version‡: 8373460-1

Sample Layers	Asbestos Content
Yellow Coating	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-56, BA683017 Lab ID-Version‡: 8373461-1

Sample Layers	Asbestos Content
Yellow Coating	ND
Sample Composite Homogeneity:	Good

Location: 280-100940-65, INS183017 Lab ID-Version‡: 8373462-1

Sample Layers	Asbestos Content
Multicolored Insulation	ND
Composite Non-Asbestos Content:	95% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 280-100940-66, INS283017 Lab ID-Version‡: 8373463-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
Composite Non-Asbestos Content:	95% Glass Fibers
Sample Composite Homogeneity:	Good

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 280-100940-67, VG183017 Lab ID-Version‡: 8373464-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Composite Non-Asbestos Content:	3% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 280-100940-68, VG283017 Lab ID-Version‡: 8373465-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Composite Non-Asbestos Content:	3% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 280-100940-69, VG383017 Lab ID-Version‡: 8373466-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
Composite Non-Asbestos Content:	3% Glass Fibers
Sample Composite Homogeneity:	Good

Location: 280-100940-70, PW183017 Lab ID-Version‡: 8373467-1

Sample Layers	Asbestos Content
Gray Felt	40% Chrysotile
Black Tar	ND
Composite Non-Asbestos Content:	20% Cellulose
Sample Composite Homogeneity:	Moderate

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ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116

Location: 280-100940-71, PW283017 Lab ID-Version‡: 8373468-1

Sample Layers	Asbestos Content
Gray Felt	50% Chrysotile
Black Tar	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 280-100940-72, PW383017 Lab ID-Version‡: 8373469-1

Sample Layers	Asbestos Content
Gray Felt	40% Chrysotile
Black Tar	ND
Composite Non-Asbestos Content:	20% Cellulose
Sample Composite Homogeneity:	Moderate

Location: 280-100940-73, PW483017 Lab ID-Version‡: 8373470-1

Sample Layers	Asbestos Content
Gray Felt	50% Chrysotile
Black Tar	ND
Composite Non-Asbestos Content:	15% Cellulose
Sample Composite Homogeneity:	Moderate

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TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rydberg, Donna R	Carrier Tracking No(s):	COC No: 280-411382.1
Client Contact: Shipping/Receiving	Phone:	E-Mail: donna.rydberg@testamericainc.com	State of Origin: Colorado	Page: Page 1 of 6
Company: EMLab P&K		Accreditations Required (See note): NELAP - Oregon		Job #: 280-100940-1
Address: 4955 Yarrow Street,	Due Date Requested: 9/19/2017			Preservation Codes:
City: Arvada	TAT Requested (days):			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: CO, 80002				
Phone:	PO #:			
Email:	WO #:			Other:
Project Name: Questa Pipeline - Lead and Asbestos	Project #: 28017197			
Site:	SSOW#:			

Analysis Requested

001790994

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (Asbestos - PLM by EPA 600/R-93/116 (bulk per layer)/ Asbestos - PLM by EPA 600/R-93/116 (point	Total Number of containers	Special Instructions/Note:
			Preservation Code:		X	X		X	
A182817 (280-100940-1)	8/28/17	13:15 Mountain		Solid			X		
A282817 (280-100940-2)	8/28/17	13:54 Mountain		Solid			X		
A382817 (280-100940-3)	8/28/17	14:20 Mountain		Solid			X		
A482817 (280-100940-4)	8/28/17	14:40 Mountain		Solid			X		
A582817 (280-100940-5)	8/28/17	15:10 Mountain		Solid			X		
A682817 (280-100940-6)	8/28/17	15:35 Mountain		Solid			X		
A782817 (280-100940-7)	8/28/17	16:15 Mountain		Solid			X		
INS182817 (280-100940-15)	8/28/17	15:55 Mountain		Solid			X		
INS282817 (280-100940-16)	8/28/17	15:55 Mountain		Solid			X		

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification Unconfirmed	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)* ☐ Return To Client ☐ Disposal By Lab ☐ Archive For Months
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:		Date:	Time:		Method of Shipment:	
Relinquished by:	Date/Time:	Company	Received by:		Date/Time: 9/8/17 1400	Company: TestAmerica Den
Relinquished by:	Date/Time:	Company	Received by:		Date/Time:	Company:
Relinquished by:	Date/Time:	Company	Received by:		Date/Time:	Company
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:			

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rydberg, Donna R	Carrier Tracking No(s):	COC No: 280-411382.2
Client Contact: Shipping/Receiving	Phone:	E-Mail: donna.rydberg@testamericainc.com	State of Origin: Colorado	Page: Page 2 of 6
Company: EMLab P&K		Accreditations Required (See note): NELAP - Oregon		Job #: 280-100940-1
Address: 4955 Yarrow Street,	Due Date Requested: 9/19/2017			Preservation Codes:
City: Arvada	TAT Requested (days):			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: CO, 80002				
Phone:	PO #:			Other:
Email:	WO #:			
Project Name: Questa Pipeline - Lead and Asbestos	Project #: 28017197			
Site:	SSOW#:			

Analysis Requested

001790994

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Solid, Oil/waste, BT=Tissue, Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	9002 (Asbestos - PLM by EPA 600/R-93/116 (prep per layer)) Asbestos - PLM by EPA 600/R-93/116 (prep	Total Number of containers	Special Instructions/Note:
		Preservation Code:							
PL182817 (280-100940-17)	8/28/17	15:55 Mountain		Solid			X		
G182817 (280-100940-18)	8/28/17	14:50 Mountain		Solid			X		
G282817 (280-100940-19)	8/28/17	14:50 Mountain		Solid			X		
G382817 (280-100940-20)	8/28/17	16:40 Mountain		Solid			X		
G482817 (280-100940-21)	8/28/17	16:40 Mountain		Solid			X		
A182917 (280-100940-22)	8/29/17	08:35 Mountain		Solid			X		
A282917 (280-100940-23)	8/29/17	09:10 Mountain		Solid			X		
A382917 (280-100940-24)	8/29/17	09:45 Mountain		Solid			X		
A482917 (280-100940-25)	8/29/17	10:05 Mountain		Solid			X		

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*
Unconfirmed	☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 9/8/17 1100	Company EMLab P&K
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rydberg, Donna R	Carrier Tracking No(s):	COC No: 280-411382.3
Client Contact: Shipping/Receiving	Phone:	E-Mail: donna.rydberg@testamericainc.com	State of Origin: Colorado	Page: Page 3 of 6
Company: EMLab P&K		Accreditations Required (See note): NELAP - Oregon		Job #: 280-100940-1
Address: 4955 Yarrow Street,	Due Date Requested: 9/19/2017			Preservation Codes:
City: Arvada	TAT Requested (days):			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: CO, 80002				
Phone:	PO #:			
Email:	WO #:			Other:
Project Name: Questa Pipeline - Lead and Asbestos	Project #: 28017197			
Site:	SSOW#:			

Analysis Requested

001790994

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (Asbestos - PLM by EPA 600/R-93/116 (Drop get dyed)); Asbestos - PLM by EPA 600/R-93/116 (Gelle	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
A582917 (280-100940-26)	8/29/17	10:25 Mountain		Solid			X		
A682917 (280-100940-27)	8/29/17	11:05 Mountain		Solid			X		
A782917 (280-100940-28)	8/29/17	11:40 Mountain		Solid			X		
A882917 (280-100940-29)	8/29/17	11:55 Mountain		Solid			X		
A982917 (280-100940-30)	8/29/17	12:30 Mountain		Solid			X		
A1082917 (280-100940-31)	8/29/17	15:10 Mountain		Solid			X		
A1182917 (280-100940-32)	8/29/17	16:40 Mountain		Solid			X		
G182917 (280-100940-44)	8/29/17	09:20 Mountain		Solid			X		
G282917 (280-100940-45)	8/29/17	09:25 Mountain		Solid			X		

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for any analyte/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 9/8/17 1500	Company EMLab Den
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:
Cooler Temperature(s) °C and Other Remarks:	

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rydberg, Donna R	Carrier Tracking No(s):	COC No: 280-411382.4
Client Contact: Shipping/Receiving	Phone:	E-Mail: donna.rydberg@testamericainc.com	State of Origin: Colorado	Page: Page 4 of 6
Company: EMLab P&K		Accreditations Required (See note): NELAP - Oregon		Job #: 280-100940-1
Address: 4955 Yarrow Street,	Due Date Requested: 9/19/2017			
City: Arvada	TAT Requested (days):			
State, Zip: CO, 80002				
Phone:	PO #:			
Email:	WO #:			
Project Name: Questa Pipeline - Lead and Asbestos	Project #: 28017197			
Site:	SSOW#:			

Preservation Codes:
A - HCL; B - NaOH; C - Zn Acetate; D - Nitric Acid; E - NaHSO4; F - MeOH; G - Amchlor; H - Ascorbic Acid; I - Ice; J - DI Water; K - EDTA; L - EDA; M - Hexane; N - None; O - AsNaO2; P - Na2O4S; Q - Na2SO3; R - Na2S2O3; S - H2SO4; T - TSP Dodecahydrate; U - Acetone; V - MCAA; W - pH 4-5; Z - other (specify); Other:

Analysis Requested

001790994

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (Water, Solid, Oil/solid, Biota, Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (Asbestos - PLM by EPA 600/R-93/116 (point per layer)) Asbestos - PLM by EPA 600/R-93/116 (gric	Total Number of Containers	Special Instructions/Note:
			Preservation Code:						
G382917 (280-100940-46)	8/29/17	10:20 Mountain		Solid			X		
G482917 (280-100940-47)	8/29/17	10:25 Mountain		Solid			X		
PL182917 (280-100940-48)	8/29/17	10:30 Mountain		Solid			X		
A183017 (280-100940-49)	8/30/17	09:40 Mountain		Solid			X		
A283017 (280-100940-50)	8/30/17	11:10 Mountain		Solid			X		
BA183017 (280-100940-51)	8/30/17	11:15 Mountain		Solid			X		
BA283017 (280-100940-52)	8/30/17	11:20 Mountain		Solid			X		
BA383017 (280-100940-53)	8/30/17	11:25 Mountain		Solid			X		
BA483017 (280-100940-54)	8/30/17	11:30 Mountain		Solid			X		

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)* ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 9/8/17 1400	Company EMLab P&K
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rydberg, Donna R	Carrier Tracking No(s):	COC No: 280-411382.5
Client Contact: Shipping/Receiving	Phone:	E-Mail: donna.rydberg@testamericainc.com	State of Origin: Colorado	Page: Page 5 of 6
Company: EMLab P&K		Accreditations Required (See note): NELAP - Oregon		Job #: 280-100940-1
Address: 4955 Yarrow Street,	Due Date Requested: 9/19/2017			Preservation Codes:
City: Arvada	TAT Requested (days):			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - AmchNor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: CO, 80002				
Phone:	PO #:			
Email:	WO #:			Other:
Project Name: Questa Pipeline - Lead and Asbestos	Project #: 28017197			
Site:	SSOW#:			

Analysis Requested

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (Asbestos - PLM by EPA 600/R-93/116 (price per layer)) Asbestos - PLM by EPA 600/R-93/116 (price per layer)	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
BA583017 (280-100940-55)	8/30/17	11:40 Mountain		Solid			X		
BA683017 (280-100940-56)	8/30/17	11:50 Mountain		Solid			X		
INS183017 (280-100940-65)	8/30/17	09:10 Mountain		Solid			X		
INS283017 (280-100940-66)	8/30/17	09:15 Mountain		Solid			X		
VG183017 (280-100940-67)	8/30/17	09:20 Mountain		Solid			X		
VG283017 (280-100940-68)	8/30/17	09:30 Mountain		Solid			X		
VGS83017 (280-100940-69)	8/30/17	09:40 Mountain		Solid			X		
PW183017 (280-100940-70)	8/30/17	15:10 Mountain		Solid			X		
PW283017 (280-100940-71)	8/30/17	15:20 Mountain		Solid			X		

001790994

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*	***Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)*** ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* *Months*
Deliverable Requested: I, II, III, IV, Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 9/8/17 1400	Company EMLab P&K
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

1 2 3 4 5 6 7 8 9 10 11 12 13 14

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information (Sub Contract Lab)	Sampler:	Lab PM: Rydberg, Donna R	Carrier Tracking No(s):	COC No: 280-411382.6
Client Contact: Shipping/Receiving	Phone:	E-Mail: donna.rydberg@testamericainc.com	State of Origin: Colorado	Page: Page 6 of 6
Company: EMLab P&K		Accreditations Required (See note): NELAP - Oregon		Job #: 280-100940-1
Address: 4955 Yarrow Street,	Due Date Requested: 9/19/2017	**Analysis Requested**		**Preservation Codes:**
City: Arvada	TAT Requested (days):			A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA; M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
State, Zip: CO, 80002				
Phone:	PO #:			
Email:	WO #:			
Project Name: Questa Pipeline - Lead and Asbestos	Project #: 28017197			
Site:	SSOW#:			Other:

001790994

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	SUB (Asbestos - PLM by EPA 600/R-93/116 (price per layer))/ Asbestos - PLM by EPA 600/R-93/116 (prle	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
PW383017 (280-100940-72)	8/30/17	15:30 Mountain		Solid			X		
PW483017 (280-100940-73)	8/30/17	15:40 Mountain		Solid			X		

Note: Since laboratory accreditations are subject to change, TestAmerica Laboratories, Inc. places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the TestAmerica laboratory or other instructions will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to TestAmerica Laboratories, Inc.

Possible Hazard Identification *Unconfirmed*		*Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)* ☐ *Return To Client* ☐ *Disposal By Lab* ☐ *Archive For* *Months*
Deliverable Requested: I, II, III, IV, Other (specify)	Primary Deliverable Rank: 2	Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:		
Relinquished by:	Date/Time:	Company	Received by: [signature]	Date/Time: 9/8/17 1400	Company EMLab Den
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:		Cooler Temperature(s) °C and Other Remarks:		

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: KUPILIK	Lab PM: Rydberg, Donna R	Carrier Tracking No(s):	COC No: 280-67249-22759.1 /
Client Contact: Tony Kupilik	Phone: (307) 745-7474	E-Mail: donna.rydberg@testamericainc.com		Page: Page 1 of 1
Company: Trihydro Corporation				Job #:

Address: 1252 Commerce Drive	Due Date Requested:
City: Laramie	TAT Requested (days): 10 DAY
State, Zip: WY, 82070	
Phone:	PO #: Purchase Order Requested
Email: tkupilik@trihydro.com	WO #: 17-252WO-L
Project Name: Questa Pipeline - Lead and Asbestos	Project #: 28017197
Site:	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	ASBESTOS	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
A182817	8/28/17	1315	G	S			X		
A282817	8/28/17	1354	G	S			X		
A382817	8/28/17	1420	G	S			X		
A482817	8/28/17	1440	G	S			X		
A582817	8/28/17	1510	G	S			X		
A682817	8/28/17	1535	G	S			X		
A782817	8/28/17	1615	G	S			X		

280-100940 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) LEVEL II

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
T. KUPILIK	9/6/17 @ 1500	THC		9/7/17 0915	TAD
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.:

Cooler Temperature(s) °C and Other Remarks: 22.1+0.1, TR#7 transferred by JS 9/7/17

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: Kupilik	Lab PM: Rydberg, Donna R	Carrier Tracking No(s):	COC No: 280-67249-22759.1 2
Client Contact: Tony Kupilik	Phone: (307) 745-7474	E-Mail: donna.rydberg@testamericainc.com		Page: Page 1 of 1
Company: Trihydro Corporation				Job #:
Address: 1252 Commerce Drive	Due Date Requested:			
City: Laramie	TAT Requested (days): 10 DAYS			
State, Zip: WY, 82070	PO #: 17-252WO-L Purchase Order Requested			
Phone:	WO #: 17-252WO-L			
Email: tkupilik@trihydro.com	Project #: 28017197			
Project Name: Questa Pipeline - Lead and Asbestos	SSOW#:			
Site:				

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	LEAD	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
L182817	8/28/17	1315	G	S			X		
L282817	8/28/17	1354	G	S			X		
L382817	8/28/17	1420	G	S			X		
L482817	8/28/17	1440	G	S			X		
L582817	8/28/17	1450	G	S			X		
L682817	8/28/17	1535	G	S			X		
L782817	8/28/17	1615	G	S			X		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) LEVEL II

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
T. KUPILIK	9/6/17 @ 1500	THE		9/7/17 0910	MAD
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: KUPILIK	Lab PM: Rydberg, Donna R	Carrier Tracking No(s):	COC No: ~~280-67249-22759.3~~ 3
Client Contact: Tony Kupilik	Phone: (307)745-7474	E-Mail: donna.rydberg@testamericainc.com		Page: Page 1 of 1
Company: Trihydro Corporation				Job #:

Address: 1252 Commerce Drive	Due Date Requested:
City: Laramie	TAT Requested (days): 10 DAY
State, Zip: WY, 82070	
Phone:	PO #:
Email: tkupilik@trihydro.com	WO #: 17-252WO-L
Project Name: Questa Pipeline - Lead and Asbestos	Project #: 28017197
Site:	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	ASBESTOS	Total Number of containers	Special Instructions/Note:
		Preservation Code:							
INS182817	8/28/17	1555	G	S			X		
INS282817		1555					X		
PL182817		1555					X		
G182817		1450					X		
G282817		1450					X		
G382817		1640					X		
G482817		1640					X		
							1		
							1		
							1		
							1		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☑ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) LEVEL II

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
T. KUPILIK	9/6/17 @ 1500	THC		9/7/17 0910	TAD
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: KUPILIK	Lab PM: Rydberg, Donna R	Carrier Tracking No(s):	COC No: 4
Client Contact: Tony Kupilik	Phone: (307) 745-7474	E-Mail: donna.rydberg@testamericainc.com		Page: Page 1 of 1
Company: Trihydro Corporation				Job #:
Address: 1252 Commerce Drive	Due Date Requested:			
City: Laramie	TAT Requested (days): 10 DAY			
State, Zip: WY, 82070	PO #:			
Phone: (307) 745-7474	WO #: 17252WO-L			
Email: tkupilik@trihydro.com	Project #: 28017197			
Project Name: Questa Pipeline - Lead and Asbestos	SSOW#:			
Site:				

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	ASBESTOS	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
A1 82917	8/29/17	0835	G	S			X		
A2 82917		0910					X		
A3 82917		0945					X		
A4 82917		1005					X		
A5 82917		1025					X		
A6 82917		1105					X		
A7 82917		1140					X		
A8 82917		1155					X		
A9 82917		1230					X		
A10 82917		1510					X		
A11 82917		1640					X		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) LEVEL II

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	T. KUPILIK	9/6/17 @ 1500	THC		9/7/17 0910	TAL
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: KUPILIK	Lab PM: Rydberg, Donna R	Carrier Tracking No(s):	COC No: 5
Client Contact: Tony Kupilik	Phone: (307) 745-7474	E-Mail: donna.rydberg@testamericainc.com		Page: Page 1 of 1
Company: Trihydro Corporation				Job #:
Address: 1252 Commerce Drive	Due Date Requested:			
City: Laramie	TAT Requested (days): 10 DAY			
State, Zip: WY, 82070	PO #:			
Phone:	WO #: 17-252WO-L			
Email: tkupilik@trihydro.com	Project #: 28017197			
Project Name: Questa Pipeline - Lead and Asbestos	SSOW#:			
Site:				

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	LEAD	Total Number of containers	Special Instructions/Note:
Preservation Code:									
L1 82917	8/29/17	0835	G	S					
L2 82917		0910							
L3 82917		0945							
L4 82917		1005							
L5 82917		1025							
L6 82917		1105							
L7 82917		1140							
L8 82917		1155							
L9 82917		1230							
L10 82917		1510							
L11 82917		1640							

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) LEVEL II

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
T. KUPILIK	9/6/17 @ 1500			9/7/17 0910	TAL
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: KUPILIK	Lab PM: Rydberg, Donna R	Carrier Tracking No(s):	COC No: 6
Client Contact: Tony Kupilik	Phone: (307) 745-7474	E-Mail: donna.rydberg@testamericainc.com		Page: Page 1 of 1
Company: Trihydro Corporation				Job #:
Address: 1252 Commerce Drive	Due Date Requested:			
City: Laramie	TAT Requested (days): 10 DAY			
State, Zip: WY, 82070	PO #:			
Phone:	WO #: 17-252WO-L			
Email: tkupilik@trihydro.com	Project #: 28017197			
Project Name: Questa Pipeline - Lead and Asbestos	SSOW#:			
Site:				

Analysis Requested

Preservation Codes:

A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - DI Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	ASBESTOS	Total Number of containers	Special Instructions/Note:
Preservation Code:									
G1 82917	8/29/17	0920	G	S			X		
G2 82917		0925					X		
G3 82917		1020					X		
G4 82917		1025					X		
PL1 82917		1030					X		
							1		
							1		
							1		
							1		
							1		
							1		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify): LEVEL II

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	T. KUPILIK	9/6/17 @ 1500	THC		9/7/17 0915	DAI
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: KUPILIK	Lab PM: Rydberg, Donna R	Carrier Tracking No(s):	COC No: 7
Client Contact: Tony Kupilik	Phone: (307)745-7474	E-Mail: donna.rydberg@testamericainc.com		Page: Page 1 of 1
Company: Trihydro Corporation				Job #:

Address: 1252 Commerce Drive	Due Date Requested:
City: Laramie	TAT Requested (days): 10 DAY
State, Zip: WY, 82070	
Phone:	PO #:
Email: tkupilik@trihydro.com	WO #: 17-252WO-L
Project Name: Questa Pipeline - Lead and Asbestos	Project #: 28017197
Site:	SSOW#:

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	ASBESTOS	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
A183017	8/30/17	0940	G	S			X	1	
A283017		1110							
BA183017		1115							
BA283017		1120							
BA383017		1125							
BA483017		1130							
BA583017		1140							
BA683017		1150							

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☒ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify): LEVEL II

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
T. KUPILIK	9/6/17 @ 1500	THC		9/7/17 0915	TAD
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ∆ Yes ∆ No	Custody Seal No.:	Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: KUPILIK	Lab PM: Rydberg, Donna R	Carrier Tracking No(s):	COC No: 8
Client Contact: Tony Kupilik	Phone: (307) 745-7474	E-Mail: donna.rydberg@testamericainc.com		Page: Page 1 of 1
Company: Trihydro Corporation				Job #:
Address: 1252 Commerce Drive	Due Date Requested:			
City: Laramie	TAT Requested (days): 10 DAY			
State, Zip: WY, 82070				
Phone:	PO #:			
Email: tkupilik@trihydro.com	WO #: 17-252WO-L			
Project Name: Questa Pipeline - Lead and Asbestos	Project #: 28017197			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - pH 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	LEAD	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
L183017	8/30/17	0940	G	S			X		
L283017		1110					X		
BL183017		1115					X		
BL283017		1120					X		
BL383017		1125					X		
BL483017		1130					X		
BL583017		1140					X		
BL683017		1150					X		
							1		
							1		
							1		

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) LEVEL II

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
1	T. KUPILIK	9/6/17 @ 1500	THC		9/7/17 0915	TP
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
3	Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: ☐ Yes ☐ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

TestAmerica Denver
4955 Yarrow Street
Arvada, CO 80002
Phone (303) 736-0100 Fax (303) 431-7171

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: KUPILIK	Lab PM: Rydberg, Donna R	Carrier Tracking No(s):	COC No: 9
Client Contact: Tony Kupilik	Phone: (307) 745-7474	E-Mail: donna.rydberg@testamericainc.com		Page: Page 1 of 1
Company: Trihydro Corporation				Job #:
Address: 1252 Commerce Drive	Due Date Requested:			
City: Laramie	TAT Requested (days): 10 DAY			
State, Zip: WY, 82070	PO #:			
Phone:	WO #: 17-252WO-6			
Email: tkupilik@trihydro.com	Project #: 28017197			
Project Name: Questa Pipeline - Lead and Asbestos	SSOW#:			
Site:				

Analysis Requested

Preservation Codes:
A - HCL, B - NaOH, C - Zn Acetate, D - Nitric Acid, E - NaHSO4, F - MeOH, G - Amchlor, H - Ascorbic Acid, I - Ice, J - Di Water, K - EDTA, L - EDA, M - Hexane, N - None, O - AsNaO2, P - Na2O4S, Q - Na2SO3, R - Na2S2O3, S - H2SO4, T - TSP Dodecahydrate, U - Acetone, V - MCAA, W - pH 4-5, Z - other (specify)
Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	ASBESTOS	Total Number of containers	Special Instructions/Note:
			Preservation Code:						
INS183017	8/30/17	0910	G	S		X	X		
INS283017		0915				X	X		
VG183017		0920				X	X		
VG283017		0930				X	X		
VG383017		0940				X	X		
PW183017		1510				X	X		
PW283017		1520				X	X		
PW383017		1530				X	X		
PW483017		1540				X	X		
						-			
						-			

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☒ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify) LEVEL II

Special Instructions/QC Requirements:

Empty Kit Relinquished by: | Date: | Time: | Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
T. KUPILIK	9/6/17 @ 1500	THC		9/7/17 0910	TA
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: △ Yes △ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

Login Sample Receipt Checklist

Client: Trihydro Corporation

Job Number: 280-100940-1

Login Number: 100940
List Number: 1
Creator: True, Joshua A

List Source: TestAmerica Denver

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX D

ARCADIS GROUNDWATER MONITORING MEMO

D-1. INSTALLATION AND WATER-QUALITY SAMPLING OF TEMPORARY MONITORING WELL LS-4

D-2. SITE 4 MONITORING WELL INSTALLATION AND MONITORING PLAN

D-3. EVALUATION OF GROUNDWATER MONITORING AT THE LOWER DUMP SUMP

APPENDIX D-1

INSTALLATION AND WATER-QUALITY SAMPLING OF TEMPORARY MONITORING WELL LS-4

MEMO

To:
Gabriel Herrera, CEMC
Cynthia Gulde, CEMC

Copies:
File

From:
Joe Gilbert
Tim Cox

Arcadis U.S., Inc.
630 Plaza Drive
Suite 100
Highlands Ranch
Colorado 80129
Tel 720 344 3500
Fax 720 344 3535

Date:
November 28, 2018

Arcadis Project No.:
B0046795.0089

Subject:
Installation and Water-Quality Sampling of Temporary Monitoring Well LS-4
Lower Dump Sump, Chevron Mining Inc.
Questa, New Mexico

INTRODUCTION

At the request of Chevron Environmental Management Company (CEMC), Arcadis U.S., Inc. (Arcadis) has prepared this memorandum to document the installation of a temporary monitoring well, LS-4, at the Chevron Mining, Inc. (CMI) Lower Dump Sump (LDS). The LDS is in the southern portion of the Village of Questa, immediately south of the Red River (Figure 1, attached). The LDS is being decommissioned as part of the Early Removal Historic Tailing Spill Project and Stage 8 of the CMI tailing pipeline removal project. Tailing material remains in the LDS area, and CEMC has proposed that the remnant tailing be left in place. Arcadis prepared a memorandum that evaluated the current groundwater monitoring wells, and proposed changes to the monitoring wells that included well abandonment and installation of a new monitoring well, LS-4 (Arcadis 2018; Revised Stage 8 Work Plan – Appendix E, November 9, 2018). The location of LS-4 was agreed upon by CEMC and the New Mexico Environment Department, and the well was installed on November 6, 2018. The purpose of this memorandum is to document the installation of temporary well LS-4 and present results of a water-quality sample collected after the well was installed and developed. A discussion of groundwater conditions in the LDS area is also provided.

LS-4 WELL INSTALLATION AND SAMPLING

Temporary monitoring well LS-4 is located just south of existing monitoring well LS-3 (Figure 1). The location of LS-4 is positioned to assess the potential for leaching of tailing constituents into shallow

groundwater. A permit for installation of the well was obtained before drilling field activities. The drilling permit was approved on October 25, 2018 under New Mexico Office of the State Engineer Permit RG-97656.

Arcadis subcontracted Yellow Jacket Drilling, LLC to complete the well installation and development. A borehole log and well completion diagram of LS-4, and photographic documentation of the well installation and sampling are attached.

Borehole Advancement

The borehole was drilled using a truck-mounted Central Mining Equipment 95 hollow-stem auger rig (Drill Rig YJ#137). The augers were nominal 8-inch outer diameter and a nominal 4.25-inch inner diameter, resulting in a nominal 8-inch diameter borehole.

Drilling refusal was reached at approximately 31.8 feet below ground surface (bgs), which was the total depth of the borehole. The lithology consisted primarily of unconsolidated silty gravels. No tailing was observed in drill cuttings. Drill cuttings were moist at approximately 14 feet. From approximately 23 feet to total depth, the borehole was advanced through a coarse gravel consisting primarily of cobbles up to 2 to 4 inches in diameter. The gravel had limited amounts of fine sediment and the drilling refusal was likely a result of large cobbles.

Well Construction

The well was constructed of 2-inch diameter schedule 40 polyvinyl chloride (PVC) casing with the bottom of the well placed at 31.8 feet bgs. The well is screened from 11.8 to 31.8 feet bgs with 0.010-inch standard slotted well screen. A sand-based filter pack was placed adjacent to the screen from approximately 7 feet to 31.8 feet bgs. Above the sand pack, a hydrated bentonite chip annular seal was placed from 2 to 7 feet bgs. The well was completed with a 6-inch diameter steel stickup monument set in Portland type I/II cement concrete. The concrete was placed from the top of the bentonite seal to the ground surface with approximately 2.5 feet of stick-up.

Well Development

Well development was completed after the bentonite seal was placed in the well annulus. Development was completed using a combination of bailing using a modular stainless-steel bailer, surging with a weighted surge block, and pumping until sand and heavier fine sediments were removed. The well produced approximately 33 gallons of water during development. Pump tubing was then put into the well at approximately 20 feet and the well was pumped using a peristaltic pump until turbidity was below 5 nephelometric turbidity units (ntu) and other field water-quality parameters (dissolved oxygen, temperature and specific conductance) stabilized to within 10%.

Well Survey

Monitoring well LS-4 was surveyed by Entact, LLC. The other LDS monitoring wells (LS-1, LS-2, and LS-3) were also surveyed so that all wells were surveyed using the same coordinate system and datum. Survey information is presented in Table 1 (attached). The northing and easting coordinates are based on the New Mexico Central - State Plane coordinate system, utilizing the NAD83 datum. The ground surface elevation at each well was surveyed using the NAVD88 vertical datum.

Groundwater Sampling

Following well development, monitoring well LS-4 was sampled on November 7, 2018. The depth to water at the time of sampling was 15.9 feet bgs. Water levels in the other three LDS monitoring wells were also measured when LS-4 was sampled and measurements are provided in Table 1.

The sample from LS-4 was collected using a peristatic pump using low-flow sampling procedures. The sample bottles were placed on ice and submitted for laboratory analysis of dissolved and total metal and inorganic analysis. The sample was analyzed by Hall Environmental Laboratory in Albuquerque, New Mexico. Water-quality field parameters and laboratory sample results are summarized in the attached Table 2, and laboratory analytical reports are attached. All constituents are below U.S. Environmental Protection Agency (USEPA) cleanup levels that are displayed in Table 2. Sample results were also compared to federal Maximum Contaminant Levels and New Mexico groundwater standards and are below these other regulatory standards. The very low detections of molybdenum, manganese, and sulfate, which are indicator constituents of tailing leachate, suggest that shallow groundwater in the vicinity of the well is not impacted by tailing leachate.

The low detections of indicator constituents in LS-4 are consistent with a grab water sample collected from a trench in 2014, during the historical tailing Removal Action at the LDS (Figure 1). The trench was at the western edge of the LDS and the water sample indicated that the shallow groundwater was not impacted. For example, molybdenum was detected at 0.015 milligrams per liter (mg/L) in the sample, which is several times lower than the USEPA health-based criterion of 0.08 mg/L.

GROUNDWATER CONDITIONS IN THE LOWER DUMP SUMP AREA

The groundwater flow direction in the LDS area was assessed using the new groundwater elevation data from monitoring well LS-4, with groundwater elevations from existing monitoring wells LS-1, LS-2, and LS-3. Groundwater elevation contours were estimated and are shown on Figure 1. Groundwater flow is perpendicular to the contours and flow is generally in-line to subparallel with the Red River, flowing in a westerly direction. Monitoring wells LS-3 and LS-4 are downgradient of most of the LDS area and downgradient of areas where tailing is proposed to be left in place.

The groundwater quality observed in new monitoring well LS-4 is characteristic of groundwater quality throughout the LDS area. Recent sample results from nearby monitoring wells LS-1, LS-2, and LS-3 (Figure 1) are presented in Table 2 and constituent concentrations are nearly identical to constituent concentrations in LS-4. These monitoring wells were installed in 1991 and have been routinely sampled since 2001 under CMI's Discharge Permit 933. All constituents in these monitoring wells are currently below USEPA cleanup levels and New Mexico groundwater standards.

Historical groundwater quality in the LDS area was assessed using sample results from LS-1, LS-2, and LS-3, dating back to 1991. Figures 2, 3, and 4 (attached) show molybdenum and sulfate concentrations for these respective wells. Over the 27-year period of record, molybdenum has been well below the USEPA health-based criterion of 0.08 mg/L and sulfate has been significantly below the New Mexico standard for domestic water supply of 600 mg/L.

In addition to the LDS monitoring wells that provide a historical perspective on groundwater quality, private wells are also located west and downgradient of the LDS (Figure 1). Private well PR3 was sampled in January, April, May, September and November 2004, February 2005, January 2006, and July 2007, during the Remedial Investigation and no groundwater standards were exceeded. Private wells PR4 and PR5 were sampled in May 2004, and similarly no groundwater standards were exceeded. Farther to the

west, a temporary monitoring well (Hunt's Pond Well) was installed and sampled in May 2004 as part of the Remedial Investigation to evaluate if suspected tailing in the area impacted groundwater; however, no groundwater standards were exceeded in the temporary well.

Considering that there is no current or historical evidence of tailing leachate impacts on shallow groundwater, it is unlikely that tailing left in place at the LDS will impact future groundwater quality.

REFERENCE

Arcadis 2018. Memorandum: Evaluation of Groundwater Monitoring at the Lower Dump Sump, Chevron Mining Inc., April 16.

ATTACHMENTS

Table 1 - Lower Dump Sump Monitoring Well Survey

Table 2 - Analytical Results for Groundwater Samples

Figure 1 – Monitoring Locations at Lower Dump Sump

Figure 2 - Historical Molybdenum and Sulfate Concentrations in Monitoring Well LS-1 (Lower Dump Sump)

Figure 3 - Historical Molybdenum and Sulfate Concentrations in Monitoring Well LS-2 (Lower Dump Sump)

Figure 4 - Historical Molybdenum and Sulfate Concentrations in Monitoring Well LS-3 (Lower Dump Sump)

LS-4 Borehole Log and Completion Diagram

Photographic Documentation of LS-4 Well Installation

Laboratory Analytical Report for LS-4 Sample

Table 1
Lower Dump Sump Monitoring Well Survey

Monitoring Well	Northing (feet)	Easting (feet)	Ground Surface Elevation (feet)	Water Level on 11/07/2018 (feet below ground surface)
LS-1	2072907.49	1833612.27	7384.24	41.3
LS-2	2072903.05	1832976.13	7345.14	11.0
LS-3	2072928.78	1832495.87	7333.92	5.4
LS-4	2072773.48	1832593.06	7344.96	15.9

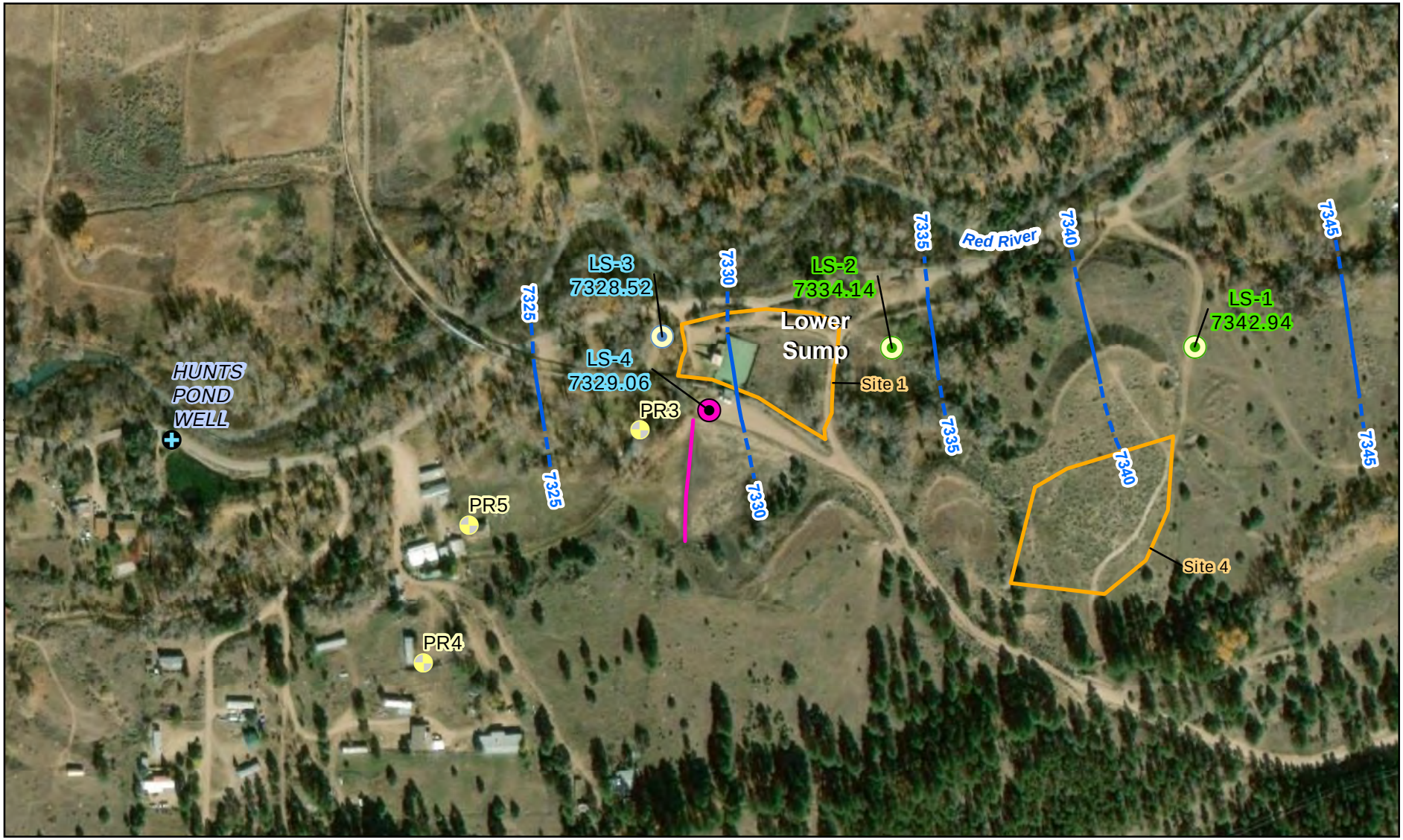
Note:
Elevation uses the North American Vertical Datum of 1988
Horizontal Coordinates are in US State Plane Feet, New Mexico Central

Table 1
Analytical Results for Groundwater Samples

Site ID:	Groundwater Cleanup Levels[a]	New Temporary Well LS-4	LS-1	LS-2	LS-3
Sample Date:		**11/7/2018**	**7/25/2018**	**7/12/2018**	**7/25/2018**
Dissolved Concentration (mg/L)					
Aluminum	--	<0.020	<0.0029	<0.0029	0.0052 J
Arsenic	--	<0.0010	<0.00042	<0.00042	<0.00042
Barium	--	0.036	0.027	0.028	0.036
Beryllium	--	<0.0020	<0.00029	<0.00029	<0.00029
Cadmium	--	<0.0020	<0.001	<0.001	<0.001
Calcium	--	83	60	60	75
Chromium	--	<0.0060	<0.0013	<0.0013	<0.0013
Cobalt	--	<0.0060	<0.0016	<0.0016	<0.0016
Copper	--	<0.0060	<0.0032	<0.0032	<0.0032
Iron	1	<0.020	<0.016	<0.016	<0.016
Lead	--	<0.00050	<0.00017	<0.00017	<0.00017
Magnesium	--	16	11	11	14
Manganese	0.2	0.022	<0.00039	<0.00039	0.012
Molybdenum	0.08	0.026	0.028	0.023	0.012
Nickel	--	0.01	0.0036 J	0.0036 J	0.0025 J
Potassium	--	1.7	1.6	1.3	0.64 J
Selenium	--	<0.0010	<0.00076	<0.00076	<0.00076
Silver	--	<0.0050	<0.0018	<0.0018	<0.0018
Sodium	--	8.6	7.5	8.1	8.6
Uranium	0.03	<0.00050	0.00071	0.00044 J	0.00012 J
Vanadium	--	<0.050	<0.0019	<0.0019	<0.0019
Zinc	--	0.027	0.024	0.02	0.014
Anions (mg/L)					
Chloride	--	7.8	4.3	5.1	7.2
Fluoride	1.6	1.1	1.5	1	0.78
Sulfate	600	230	110	120	160
Alkalinity, Total	--	48.68	60	55.2	50.52
Bicarb. Alk. as $CaCO_3$	--	48.68	60	55.2	50.52
Carbonate as $CaCO_3$	--	<2.0	<2.0	<2.0	<2.0
Total Dissolved Solids	1000	413	284	294	342
Nitrate/Nitrite as N	--	<1.0	0.34 J	0.35 J	<0.27
Field Measurements					
pH	--	6.28	6.53	6.46	6.34
Electrical Conductivity (mS/cm)	--	0.44	0.35	0.373	0.429
Dissolved Oxygen (mg/L)	--	6.23	--	--	--
Temperature (°C)	--	11.7	10.7	10.24	12.05
Turbidity (NTU)	--	0.56	--	--	--

Notes:
Analyses performed by Hall Laboratories in Albuquerque, New Mexico
[a] Groundwater cleanup levels for tailing facility groundwater from the Record of Decision.
-- = no cleanup level for this constituent
°C = degrees Centigrade
$CaCO_3$ = calcium carbonate
mg/L = milligrams per liter
mS/cm = milliSiemens per centimeter
NTU = Nephelometric Turbidity Unit

CITY: Boulder, CO DIV/GROUP: AIT DRAFTER: kkelley
Path: Z:\GISProjects_ENV\Chevron_CMI_Questa\GIS\ArcMap_MXD\2018\Fig_1_Monitoring_Locations_at_Lower_Dump_Sump_v3.mxd



Legend

- Monitoring Well Proposed to be Abandoned
- Existing Monitoring Locations
- New Temporary Well LS-4
- Hunts Pond Well (Abandoned)
- PR Wells (Private Resident Well)
- Western Trench
- Site
- Groundwater Elevation - Contour Interval 5 Feet (Dashed where Inferred)

0 150 300 600 Feet

State Plane Coordinate Datum:
NAD83 State Plane NM Central Feet (ft)

CHEVRON MINING INC. QUESTA MINE

Monitoring Locations at Lower Dump Sump

ARCADIS

FIGURE 1

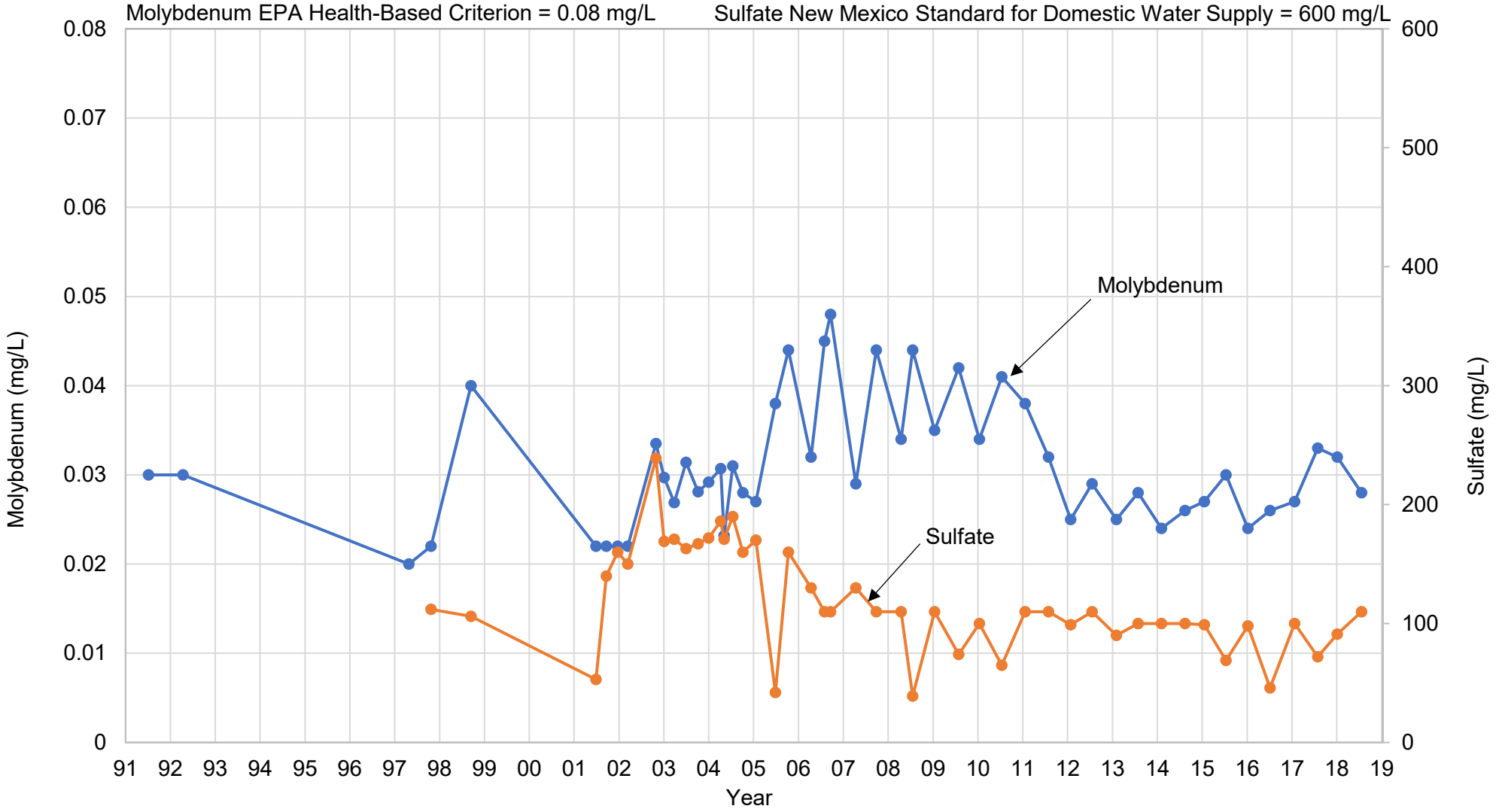


Figure 2
Historical Molybdenum and Sulfate Concentrations
in Monitoring Well LS-1 (Lower Dump Sump)

ARCADIS Design & Consultancy for natural and built assets

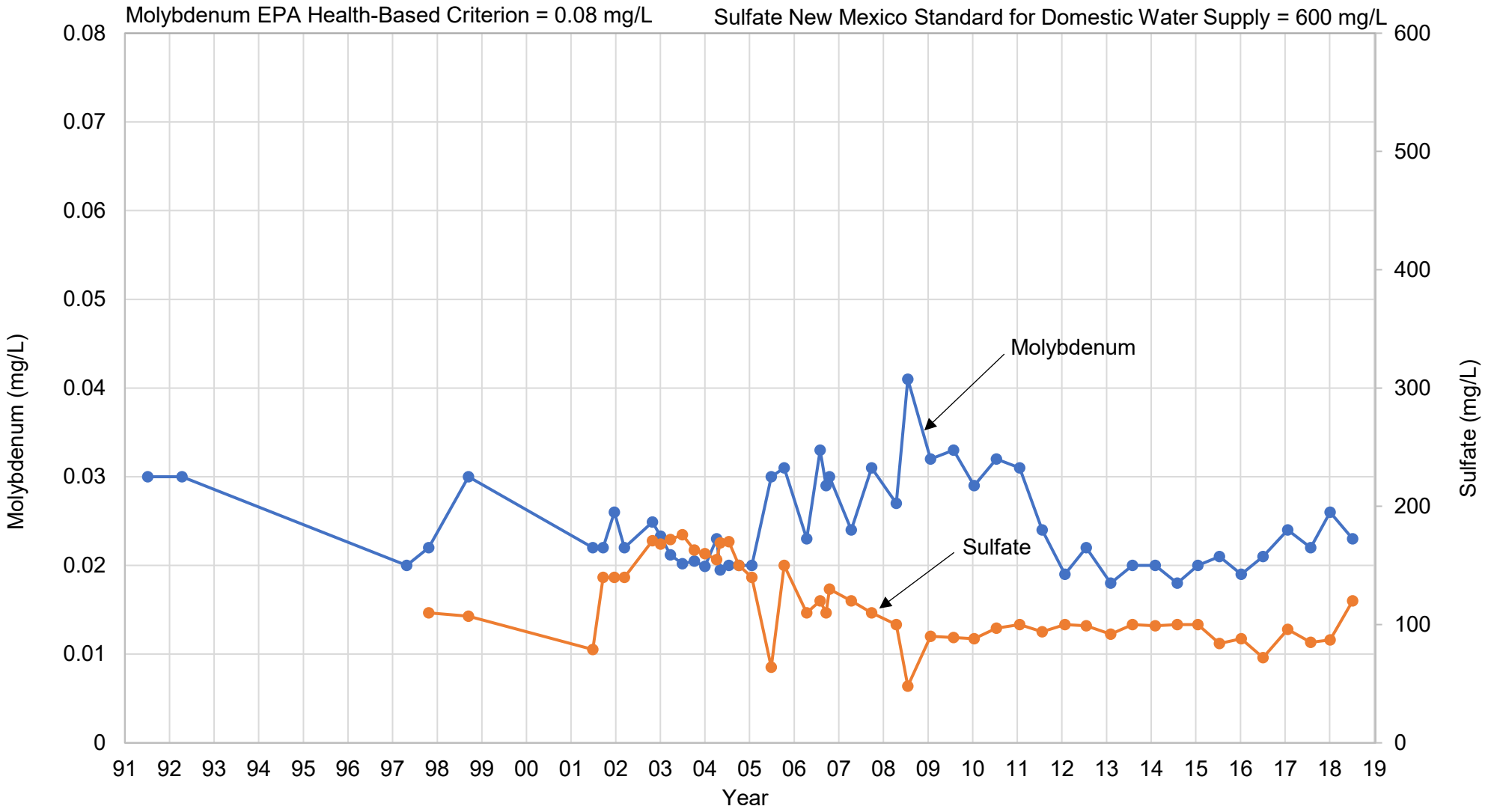


Figure 3
Historical Molybdenum and Sulfate Concentrations
in Monitoring Well LS-2 (Lower Dump Sump)

ARCADIS Design & Consultancy for natural and built assets

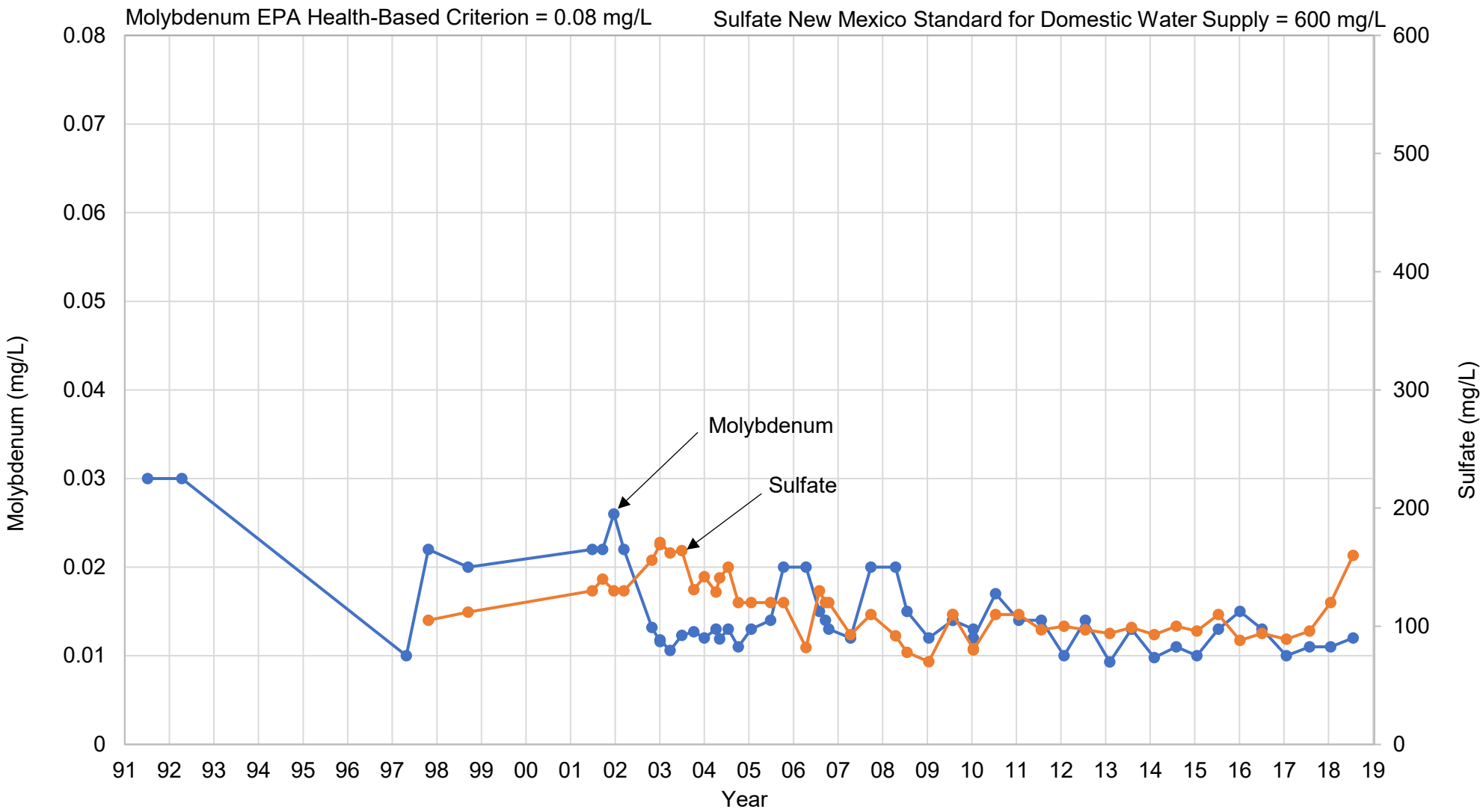


Figure 4
Historical Molybdenum and Sulfate Concentrations
in Monitoring Well LS-3 (Lower Dump Sump)

ARCADIS Design & Consultancy for natural and built assets

ARCADIS Design & Consultancy for natural and built assets — Well Log and Completion Record

Well ID: LS-4

Project Name:	Lower Dump Sump Temporary Well Installation	Date Started:	11/6/2018	Logger:	J. Gilbert
Project Number:	B0046795.0089	Date Completed:	11/6/2018	Reviewed By:	T. Cox
Project Location:	CMI Questa Tailing Facility, Questa, NM	Ground Elev. (ft):	7,344.96	Client:	CEMC
Drilling Co.	Yellow Jacket Drilling	Northing (ft):	2,072,773.48	Borehole Depth (ft bgs):	31.8
Drilling Rig:	CME 95 Yellow Jacket #137	Easting (ft):	1,832,593.06	Well Depth (ft bgs):	31.8
Drilling Method:	Hollow Stem Auger	TOC Elev. (ft):	7,347.47	Stickup (ft ags):	2.51

Depth (feet bgs)	Material Description	USCS	Graphic Log	ROP (ft/hr)	Drilling/Completion Notes
	Fill. Red Brown, sandy gravel, some cobbles to 3-inch in size, loose, poorly sorted, dry	GP		30	borehole started 11/06/2017 0937 AM Hollow Stem Auger - Augers are 4.25-inch inner diameter, 8-inch outer diameter
10	Silty GRAVEL, brown, coarse sand and pea-sized gravel, poorly sorted, sub-rounded, silty, moist at 14 feet, loose	GM		30	Portland Cement Concrete Mix 3/8 bentonite chip 8-inch Borehole Diameter 2-inch schedule 40 PVC casing Water Level at 15.5 ft
20	GRAVEL, brown, sub-rounded, clast-supported, cobbles up to 4-inches, poorly sorted, wet	GW		30	2-inch schedule 40 PVC well screen, 0.010 slot 11.8 feet to 31.8 feet 10/20 sand filter pack
30					bottom cap
40					
50					

WELL DEVELOPMENT PARAMETERS

Total Purged:	8 gallons
Purge Rate:	0.13 gpm
Static Water Level:	15.5 feet bgs

Final parameters after development:

pH:	6.28
Temperature:	11.7 C
Conductivity:	440.3 uS/cm
Dissolved Oxygen:	6.23 mg/L
Turbidity:	0.56 ntu
Oxidation-Reduction Potential:	177.4 mv

Notes:
ft = feet
ft bgs = feet below ground surface
ft ags = feet above ground surface
ROP = rate of penetration in feet per hour
Coordinates are US State Plane (feet), New Mexico Central, North American Datum of 1983
TOC = top of well casing; measuring point

Project Photographs

Lower Dump Sump – LS-4 Monitoring Well Installation
CMI Questa Mine
Questa, New Mexico

Photo: 1

Date:
11/06/2018

Description:
Drill rig and support unit set up at LS-4. Note location of power pole – the power pole is near the west property boundary at the Lower Dump Sump. View West.

Location:
Lower Dump Sump

Photo: 2

Date:
11/06/2018

Description:
4.25 inch inner diameter and 8-inch outer diameter hollow stem augers were used to advance the LS-4 borehole. Note cutting shoe on auger.

Location:
Lower Dump Sump

Project Photographs

Lower Dump Sump – LS-4 Well Installation
CMI Questa Mine
Questa, New Mexico

Photo: 3

Date:
11/06/2018

Description:
Borehole has been advanced to total depth in this picture – approximately 31.8 feet. The augers are in and maintaining the borehole, casing is set up for installation.

Location:
Lower Dump Sump

Photo: 4

Date:
11/06/2018

Description:
0.010-slot well screen was used for the well installation.

Location:
Lower Dump Sump

Project Photographs

Lower Dump Sump – LS-4 Well Installation
CMI Questa Mine
Questa, New Mexico

Photo: 5

Date:
11/06/2018

Description:
2-inch schedule 40 PVC internally threaded well screen and casing was used to construct LS-4. The drillers are screwing casing sections together.

Location:
Lower Dump Sump

Photo: 6

Date:
11/06/2018

Description:
Drillers have installed well casing and are preparing to tremie the sand filter pack and the annular seal.

Location:
Lower Dump Sump

Project Photographs

Lower Dump Sump – LS-4 Well Installation
CMI Questa Mine
Questa, New Mexico

Photo: 7

Date:
11/06/2018

Description:
10/20 sized silica sand was used for the well screen filter pack.

Location:
Lower Dump Sump

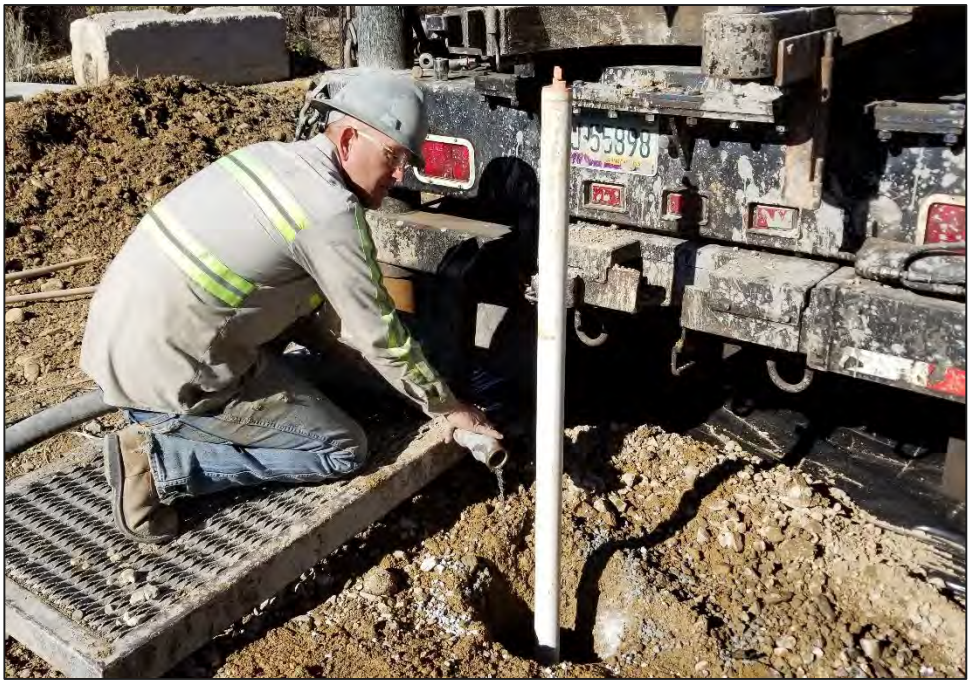


Photo: 8

Date:
11/06/2018

Description:
Following installation of the sand pack, a bentonite chip annular seal was placed and hydrated. Drillers are hydrating bentonite after placing in the annulus.

Location:
Lower Dump Sump

Project Photographs

Lower Dump Sump – LS-4 Well Installation
CMI Questa Mine
Questa, New Mexico

Photo: 9

Date:
11/06/2018

Description:
The well was developed using a bailer and surge block to remove coarse sediment. This photo shows the groundwater condition at the onset of bailing, after initial well surging.

Location:
Lower Dump Sump

Photo: 10

Date:
11/06/2018

Description:
The well stickup and temporary apron were constructed following well development and the drill rig was moved off the drilling location.

Location:
Lower Dump Sump

Project Photographs

Lower Dump Sump – LS-4 Well Installation
CMI Questa Mine
Questa, New Mexico

Photo: 11

Date:
11/07/2018

Description:
The day after well drilling and installation, the well was sampled using a peristaltic pump and multi-parameter meter flow-cell. The well was pumped for 3 well volumes (approximately 8 gallons) before sampling.

Location:
Lower Dump Sump

Photo: 12

Date:
11/07/2018

Description:
Well water from pump immediately prior to sampling. Turbidity was below 1 nephelometric turbidity unit, and parameters had stabilized.

Location:
Lower Dump Sump

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

November 16, 2018

Timothy Cox
Arcadis
630 Plaza Dr #100
Highlands Ranch, CO 80129
TEL: (303) 725-3048
FAX

RE: Lower Dump Sump Temp Well Sampling OrderNo.: 1811505

Dear Timothy Cox:

Hall Environmental Analysis Laboratory received 2 sample(s) on 11/9/2018 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Arcadis
Client Sample ID: LS-4-T01N-11072018
Project: Lower Dump Sump Temp Well Sampling
Collection Date: 11/7/2018 10:30:00 AM
Lab ID: 1811505-001
Matrix: AQUEOUS
Received Date: 11/9/2018 8:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **smb**	
Fluoride	1.1	0.10		mg/L	1	11/9/2018 3:44:59 PM	R55569
Chloride	7.8	0.50		mg/L	1	11/9/2018 3:44:59 PM	R55569
Sulfate	230	10		mg/L	20	11/9/2018 3:57:51 PM	R55569
Nitrate+Nitrite as N	ND	1.0		mg/L	5	11/9/2018 5:53:37 PM	R55569
SM2320B: ALKALINITY						Analyst: **JRR**	
Bicarbonate (As CaCO3)	48.68	20.00		mg/L Ca	1	11/12/2018 11:44:29 AM	R55578
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	11/12/2018 11:44:29 AM	R55578
Total Alkalinity (as CaCO3)	48.68	20.00		mg/L Ca	1	11/12/2018 11:44:29 AM	R55578
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**	
Total Dissolved Solids	413	20.0		mg/L	1	11/12/2018 5:59:00 PM	41454
EPA METHOD 200.7: TOTAL METALS						Analyst: **pmf**	
Aluminum	ND	0.020		mg/L	1	11/14/2018 6:05:17 PM	41478
Barium	0.037	0.0020		mg/L	1	11/14/2018 6:05:17 PM	41478
Beryllium	ND	0.0020		mg/L	1	11/14/2018 6:05:17 PM	41478
Cadmium	ND	0.0020		mg/L	1	11/14/2018 6:05:17 PM	41478
Calcium	86	1.0		mg/L	1	11/14/2018 6:05:17 PM	41478
Chromium	ND	0.0060		mg/L	1	11/14/2018 6:05:17 PM	41478
Cobalt	ND	0.0060		mg/L	1	11/14/2018 6:05:17 PM	41478
Copper	ND	0.0060		mg/L	1	11/14/2018 6:05:17 PM	41478
Iron	ND	0.020		mg/L	1	11/14/2018 6:05:17 PM	41478
Magnesium	16	1.0		mg/L	1	11/14/2018 6:05:17 PM	41478
Manganese	0.022	0.0020		mg/L	1	11/14/2018 6:05:17 PM	41478
Molybdenum	0.027	0.0080		mg/L	1	11/14/2018 6:05:17 PM	41478
Potassium	1.9	1.0		mg/L	1	11/14/2018 6:05:17 PM	41478
Silicon	8.0	0.80		mg/L	10	11/15/2018 6:56:53 PM	41478
Silver	ND	0.0050		mg/L	1	11/14/2018 6:05:17 PM	41478
Sodium	9.2	1.0		mg/L	1	11/14/2018 6:05:17 PM	41478
Vanadium	ND	0.050		mg/L	1	11/14/2018 6:05:17 PM	41478
Zinc	0.021	0.010		mg/L	1	11/14/2018 6:05:17 PM	41478
200.8 ICPMS METALS:TOTAL						Analyst: **DBK**	
Arsenic	ND	0.0010		mg/L	1	11/15/2018 12:36:04 PM	41478
Lead	ND	0.00050		mg/L	1	11/15/2018 5:16:09 PM	41478
Selenium	ND	0.0010		mg/L	1	11/15/2018 12:36:04 PM	41478
Uranium	0.00060	0.00050		mg/L	1	11/15/2018 5:16:09 PM	41478
EPA METHOD 245.1: MERCURY						Analyst: **rde**	
Mercury	ND	0.00020		mg/L	1	11/13/2018 9:33:00 AM	41481

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Arcadis
Client Sample ID: LS-4-D01N-11072018
Project: Lower Dump Sump Temp Well Sampling
Collection Date: 11/7/2018 10:30:00 AM
Lab ID: 1811505-002
Matrix: AQUEOUS
Received Date: 11/9/2018 8:40:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA 200.8: DISSOLVED METALS						Analyst: **DBK**	
Arsenic	ND	0.0010		mg/L	1	11/14/2018 1:57:14 PM	B55644
Lead	ND	0.00050		mg/L	1	11/14/2018 1:57:14 PM	B55644
Selenium	ND	0.0010		mg/L	1	11/14/2018 1:57:14 PM	B55644
Uranium	ND	0.00050		mg/L	1	11/14/2018 1:57:14 PM	B55644
EPA METHOD 200.7: DISSOLVED METALS						Analyst: **pmf**	
Aluminum	ND	0.020		mg/L	1	11/13/2018 5:07:23 PM	A55628
Barium	0.036	0.0020		mg/L	1	11/13/2018 5:07:23 PM	A55628
Beryllium	ND	0.0020		mg/L	1	11/13/2018 5:07:23 PM	A55628
Cadmium	ND	0.0020		mg/L	1	11/13/2018 5:07:23 PM	A55628
Calcium	83	1.0		mg/L	1	11/13/2018 5:07:23 PM	A55628
Chromium	ND	0.0060		mg/L	1	11/13/2018 5:07:23 PM	A55628
Cobalt	ND	0.0060		mg/L	1	11/13/2018 5:07:23 PM	A55628
Copper	ND	0.0060		mg/L	1	11/13/2018 5:07:23 PM	A55628
Iron	ND	0.020		mg/L	1	11/13/2018 5:07:23 PM	A55628
Magnesium	16	1.0		mg/L	1	11/13/2018 5:07:23 PM	A55628
Manganese	0.022	0.0020		mg/L	1	11/13/2018 5:07:23 PM	A55628
Molybdenum	0.026	0.0080		mg/L	1	11/13/2018 5:07:23 PM	A55628
Nickel	ND	0.010		mg/L	1	11/13/2018 5:07:23 PM	A55628
Potassium	1.7	1.0		mg/L	1	11/13/2018 5:07:23 PM	A55628
Silicon	8.4	0.80		mg/L	10	11/13/2018 5:09:44 PM	A55628
Silver	ND	0.0050		mg/L	1	11/13/2018 5:07:23 PM	A55628
Sodium	8.6	1.0		mg/L	1	11/13/2018 5:07:23 PM	A55628
Vanadium	ND	0.050		mg/L	1	11/13/2018 5:07:23 PM	A55628
Zinc	0.027	0.010		mg/L	1	11/13/2018 5:07:23 PM	A55628

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1811505**

16-Nov-18

Client: Arcadis

Project: Lower Dump Sump Temp Well Sampling

Sample ID **MB-A**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **PBW**	Batch ID: **A55628**	RunNo: **55628**
Prep Date:	Analysis Date: **11/13/2018**	SeqNo: **1853151** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Potassium	ND	1.0								
Silicon	ND	0.080								
Silver	ND	0.0050								
Sodium	ND	1.0								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Sample ID **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A55628**	RunNo: **55628**
Prep Date:	Analysis Date: **11/13/2018**	SeqNo: **1853152** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	140	50	150			
Barium	0.0021	0.0020	0.002000	0	106	50	150			
Beryllium	ND	0.0020	0.002000	0	94.0	50	150			
Cadmium	0.0023	0.0020	0.002000	0	114	50	150			
Calcium	ND	1.0	0.5000	0	102	50	150			
Chromium	0.0060	0.0060	0.006000	0	100	50	150			
Cobalt	0.0061	0.0060	0.006000	0	101	50	150			
Copper	ND	0.0060	0.006000	0	98.0	50	150			
Iron	ND	0.020	0.02000	0	93.2	50	150			
Magnesium	ND	1.0	0.5000	0	97.2	50	150			
Manganese	0.0021	0.0020	0.002000	0	106	50	150			
Molybdenum	0.0089	0.0080	0.008000	0	112	50	150			
Nickel	ND	0.010	0.005000	0	106	50	150			
Potassium	ND	1.0	0.5000	0	104	50	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1811505**

16-Nov-18

Client: Arcadis

Project: Lower Dump Sump Temp Well Sampling

Sample ID **LLLCS-A**	SampType: **LCSLL**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **A55628**	RunNo: **55628**
Prep Date:	Analysis Date: **11/13/2018**	SeqNo: **1853152** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silicon	0.082	0.080	0.08000	0	103	50	150			
Silver	ND	0.0050	0.005000	0	97.6	50	150			
Sodium	ND	1.0	0.5000	0	108	50	150			
Vanadium	ND	0.050	0.01000	0	103	50	150			
Zinc	ND	0.010	0.005000	0	105	50	150			

Sample ID **LCS-A**	SampType: **LCS**	TestCode: **EPA Method 200.7: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **A55628**	RunNo: **55628**
Prep Date:	Analysis Date: **11/13/2018**	SeqNo: **1853153** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.56	0.020	0.5000	0	112	85	115			
Barium	0.51	0.0020	0.5000	0	102	85	115			
Beryllium	0.51	0.0020	0.5000	0	103	85	115			
Cadmium	0.51	0.0020	0.5000	0	102	85	115			
Calcium	48	1.0	50.00	0	96.7	85	115			
Chromium	0.50	0.0060	0.5000	0	100	85	115			
Cobalt	0.49	0.0060	0.5000	0	98.1	85	115			
Copper	0.51	0.0060	0.5000	0	102	85	115			
Iron	0.50	0.020	0.5000	0	101	85	115			
Magnesium	48	1.0	50.00	0	96.0	85	115			
Manganese	0.50	0.0020	0.5000	0	101	85	115			
Molybdenum	0.51	0.0080	0.5000	0	102	85	115			
Nickel	0.50	0.010	0.5000	0	101	85	115			
Potassium	47	1.0	50.00	0	94.8	85	115			
Silicon	2.6	0.080	2.500	0	103	85	115			
Silver	0.10	0.0050	0.1000	0	103	85	115			
Sodium	49	1.0	50.00	0	98.9	85	115			
Vanadium	0.51	0.050	0.5000	0	103	85	115			
Zinc	0.50	0.010	0.5000	0	101	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1811505**

16-Nov-18

Client: Arcadis

Project: Lower Dump Sump Temp Well Sampling

Sample ID	**MB-41478**	SampType:	**MBLK**	TestCode:	**EPA Method 200.7: Total Metals**
Client ID:	**PBW**	Batch ID:	**41478**	RunNo:	**55628**
Prep Date:	**11/12/2018**	Analysis Date:	**11/13/2018**	SeqNo:	**1853166** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Beryllium	ND	0.0020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Potassium	ND	1.0								
Silicon	ND	0.080								
Silver	ND	0.0050								
Sodium	ND	1.0								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Sample ID	**LLLCS-41478**	SampType:	**LCSLL**	TestCode:	**EPA Method 200.7: Total Metals**
Client ID:	**BatchQC**	Batch ID:	**41478**	RunNo:	**55628**
Prep Date:	**11/12/2018**	Analysis Date:	**11/13/2018**	SeqNo:	**1853167** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020	0.01000	0	132	50	150			
Barium	0.0020	0.0020	0.002000	0	103	50	150			
Beryllium	ND	0.0020	0.002000	0	87.5	50	150			
Cadmium	0.0022	0.0020	0.002000	0	108	50	150			
Calcium	ND	1.0	0.5000	0	101	50	150			
Chromium	ND	0.0060	0.006000	0	92.7	50	150			
Cobalt	ND	0.0060	0.006000	0	90.3	50	150			
Copper	ND	0.0060	0.006000	0	78.5	50	150			
Iron	0.021	0.020	0.02000	0	106	50	150			
Magnesium	ND	1.0	0.5000	0	98.5	50	150			
Manganese	ND	0.0020	0.002000	0	99.0	50	150			
Molybdenum	0.0088	0.0080	0.008000	0	109	50	150			
Potassium	ND	1.0	0.5000	0	108	50	150			
Silicon	0.090	0.080	0.08000	0	113	50	150			
Silver	0.0052	0.0050	0.005000	0	103	50	150			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1811505**

16-Nov-18

Client: Arcadis

Project: Lower Dump Sump Temp Well Sampling

Sample ID	**LLLCS-41478**	SampType:	**LCSLL**	TestCode:	**EPA Method 200.7: Total Metals**					
Client ID:	**BatchQC**	Batch ID:	**41478**	RunNo:	**55628**					
Prep Date:	**11/12/2018**	Analysis Date:	**11/13/2018**	SeqNo:	**1853167**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0	0.5000	0	128	50	150			
Vanadium	ND	0.050	0.01000	0	96.4	50	150			
Zinc	ND	0.010	0.005000	0	139	50	150			

Sample ID	**LCS-41478**	SampType:	**LCS**	TestCode:	**EPA Method 200.7: Total Metals**					
Client ID:	**LCSW**	Batch ID:	**41478**	RunNo:	**55628**					
Prep Date:	**11/12/2018**	Analysis Date:	**11/13/2018**	SeqNo:	**1853168**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	0.56	0.020	0.5000	0	111	85	115			
Barium	0.49	0.0020	0.5000	0	97.2	85	115			
Beryllium	0.50	0.0020	0.5000	0	99.2	85	115			
Cadmium	0.49	0.0020	0.5000	0	98.7	85	115			
Calcium	47	1.0	50.00	0	94.2	85	115			
Chromium	0.49	0.0060	0.5000	0	97.0	85	115			
Cobalt	0.48	0.0060	0.5000	0	95.2	85	115			
Copper	0.49	0.0060	0.5000	0	98.1	85	115			
Iron	0.49	0.020	0.5000	0	98.3	85	115			
Magnesium	47	1.0	50.00	0	93.5	85	115			
Manganese	0.48	0.0020	0.5000	0	96.8	85	115			
Molybdenum	0.49	0.0080	0.5000	0	97.8	85	115			
Potassium	46	1.0	50.00	0	92.4	85	115			
Silicon	2.5	0.080	2.500	0	101	85	115			
Silver	0.099	0.0050	0.1000	0	98.7	85	115			
Sodium	49	1.0	50.00	0	97.8	85	115			
Vanadium	0.50	0.050	0.5000	0	99.4	85	115			
Zinc	0.49	0.010	0.5000	0	97.3	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1811505**

16-Nov-18

Client: Arcadis

Project: Lower Dump Sump Temp Well Sampling

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **PBW**	Batch ID: **B55644**	RunNo: **55644**
Prep Date:	Analysis Date: **11/14/2018**	SeqNo: **1853625** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.00050								
Selenium	ND	0.0010								
Uranium	ND	0.00050								

Sample ID **LLLCS**	SampType: **LCSLL**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **BatchQC**	Batch ID: **B55644**	RunNo: **55644**
Prep Date:	Analysis Date: **11/14/2018**	SeqNo: **1853626** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010	0.001000	0	97.3	50	150			
Lead	ND	0.00050	0.0005000	0	94.1	50	150			
Selenium	ND	0.0010	0.001000	0	92.8	50	150			
Uranium	ND	0.00050	0.0005000	0	91.6	50	150			

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA 200.8: Dissolved Metals**
Client ID: **LCSW**	Batch ID: **B55644**	RunNo: **55644**
Prep Date:	Analysis Date: **11/14/2018**	SeqNo: **1853627** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	100	85	115			
Lead	0.012	0.00050	0.01250	0	96.4	85	115			
Selenium	0.025	0.0010	0.02500	0	99.9	85	115			
Uranium	0.012	0.00050	0.01250	0	93.7	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1811505**

16-Nov-18

Client: Arcadis

Project: Lower Dump Sump Temp Well Sampling

Sample ID	**MB-41478**	SampType:	**MBLK**	TestCode:	**200.8 ICPMS Metals:Total**					
Client ID:	**PBW**	Batch ID:	**41478**	RunNo:	**55677**					
Prep Date:	**11/12/2018**	Analysis Date:	**11/15/2018**	SeqNo:	**1854976**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Selenium	ND	0.0010								

Sample ID	**MSLLLCS-41478**	SampType:	**LCSLL**	TestCode:	**200.8 ICPMS Metals:Total**					
Client ID:	**BatchQC**	Batch ID:	**41478**	RunNo:	**55677**					
Prep Date:	**11/12/2018**	Analysis Date:	**11/15/2018**	SeqNo:	**1854977**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010	0.001000	0	99.6	50	150			
Selenium	ND	0.0010	0.001000	0	93.8	50	150			

Sample ID	**MSLCS-41478**	SampType:	**LCS**	TestCode:	**200.8 ICPMS Metals:Total**					
Client ID:	**LCSW**	Batch ID:	**41478**	RunNo:	**55677**					
Prep Date:	**11/12/2018**	Analysis Date:	**11/15/2018**	SeqNo:	**1854978**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	98.7	85	115			
Selenium	0.024	0.0010	0.02500	0	97.7	85	115			

Sample ID	**MB-41478**	SampType:	**MBLK**	TestCode:	**200.8 ICPMS Metals:Total**					
Client ID:	**PBW**	Batch ID:	**41478**	RunNo:	**55677**					
Prep Date:	**11/12/2018**	Analysis Date:	**11/15/2018**	SeqNo:	**1855446**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.00050								
Uranium	ND	0.00050								

Sample ID	**MSLLLCS-41478**	SampType:	**LCSLL**	TestCode:	**200.8 ICPMS Metals:Total**					
Client ID:	**BatchQC**	Batch ID:	**41478**	RunNo:	**55677**					
Prep Date:	**11/12/2018**	Analysis Date:	**11/15/2018**	SeqNo:	**1855448**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.00050	0.0005000	0	98.6	50	150			
Uranium	ND	0.00050	0.0005000	0	96.4	50	150			

Sample ID	**MSLCS-41478**	SampType:	**LCS**	TestCode:	**200.8 ICPMS Metals:Total**					
Client ID:	**LCSW**	Batch ID:	**41478**	RunNo:	**55677**					
Prep Date:	**11/12/2018**	Analysis Date:	**11/15/2018**	SeqNo:	**1855450**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1811505**

16-Nov-18

Client: Arcadis

Project: Lower Dump Sump Temp Well Sampling

Sample ID	**MSLCS-41478**	SampType:	**LCS**	TestCode:	**200.8 ICPMS Metals:Total**					
Client ID:	**LCSW**	Batch ID:	**41478**	RunNo:	**55677**					
Prep Date:	**11/12/2018**	Analysis Date:	**11/15/2018**	SeqNo:	**1855450**	Units:	**mg/L**			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.013	0.00050	0.01250	0	100	85	115			
Uranium	0.012	0.00050	0.01250	0	97.5	85	115			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1811505**

16-Nov-18

Client: Arcadis

Project: Lower Dump Sump Temp Well Sampling

Sample ID	**MB-41481**	SampType:	**MBLK**	TestCode:	**EPA Method 245.1: Mercury**					
Client ID:	**PBW**	Batch ID:	**41481**	RunNo:	**55601**					
Prep Date:	**11/12/2018**	Analysis Date:	**11/13/2018**	SeqNo:	**1851583**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	**LCS-41481**	SampType:	**LCS**	TestCode:	**EPA Method 245.1: Mercury**					
Client ID:	**LCSW**	Batch ID:	**41481**	RunNo:	**55601**					
Prep Date:	**11/12/2018**	Analysis Date:	**11/13/2018**	SeqNo:	**1851584**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.5	80	120			

Sample ID	**1811505-001BMS**	SampType:	**MS**	TestCode:	**EPA Method 245.1: Mercury**					
Client ID:	**LS-4-T01N-1107201**	Batch ID:	**41481**	RunNo:	**55601**					
Prep Date:	**11/12/2018**	Analysis Date:	**11/13/2018**	SeqNo:	**1851586**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.6	75	125			

Sample ID	**1811505-001BMSD**	SampType:	**MSD**	TestCode:	**EPA Method 245.1: Mercury**					
Client ID:	**LS-4-T01N-1107201**	Batch ID:	**41481**	RunNo:	**55601**					
Prep Date:	**11/12/2018**	Analysis Date:	**11/13/2018**	SeqNo:	**1851587**	Units:	**mg/L**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0046	0.00020	0.005000	0	92.3	75	125	6.64	20	

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1811505**

16-Nov-18

Client: Arcadis

Project: Lower Dump Sump Temp Well Sampling

Sample ID **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R55569**	RunNo: **55569**
Prep Date:	Analysis Date: **11/9/2018**	SeqNo: **1850581** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R55569**	RunNo: **55569**
Prep Date:	Analysis Date: **11/9/2018**	SeqNo: **1850582** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.53	0.10	0.5000	0	106	90	110			
Chloride	4.8	0.50	5.000	0	96.8	90	110			
Sulfate	9.9	0.50	10.00	0	99.5	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	101	90	110			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1811505**

16-Nov-18

Client: Arcadis

Project: Lower Dump Sump Temp Well Sampling

Sample ID	**mb-1 alk**	SampType:	**MBLK**		TestCode:	**SM2320B: Alkalinity**					
Client ID:	**PBW**	Batch ID:	**R55578**		RunNo:	**55578**					
Prep Date:		Analysis Date:	**11/12/2018**		SeqNo:	**1851816**	Units:	**mg/L CaCO3**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Alkalinity (as CaCO3)	ND	20.00									

Sample ID	**lcs-1 alk**	SampType:	**LCS**		TestCode:	**SM2320B: Alkalinity**					
Client ID:	**LCSW**	Batch ID:	**R55578**		RunNo:	**55578**					
Prep Date:		Analysis Date:	**11/12/2018**		SeqNo:	**1851817**	Units:	**mg/L CaCO3**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Alkalinity (as CaCO3)	77.24	20.00	80.00	0	96.6	90	110				

Sample ID	**mb-2 alk**	SampType:	**MBLK**		TestCode:	**SM2320B: Alkalinity**					
Client ID:	**PBW**	Batch ID:	**R55578**		RunNo:	**55578**					
Prep Date:		Analysis Date:	**11/12/2018**		SeqNo:	**1851840**	Units:	**mg/L CaCO3**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Alkalinity (as CaCO3)	ND	20.00									

Sample ID	**lcs-2 alk**	SampType:	**LCS**		TestCode:	**SM2320B: Alkalinity**					
Client ID:	**LCSW**	Batch ID:	**R55578**		RunNo:	**55578**					
Prep Date:		Analysis Date:	**11/12/2018**		SeqNo:	**1851841**	Units:	**mg/L CaCO3**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Alkalinity (as CaCO3)	77.88	20.00	80.00	0	97.4	90	110				

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1811505**

16-Nov-18

Client: Arcadis

Project: Lower Dump Sump Temp Well Sampling

Sample ID	**MB-41454**	SampType:	**MBLK**		TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**PBW**	Batch ID:	**41454**		RunNo:	**55588**					
Prep Date:	**11/9/2018**	Analysis Date:	**11/12/2018**		SeqNo:	**1850918**	Units:	**mg/L**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids		ND	20.0								

Sample ID	**LCS-41454**	SampType:	**LCS**		TestCode:	**SM2540C MOD: Total Dissolved Solids**					
Client ID:	**LCSW**	Batch ID:	**41454**		RunNo:	**55588**					
Prep Date:	**11/9/2018**	Analysis Date:	**11/12/2018**		SeqNo:	**1850919**	Units:	**mg/L**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids		1010	20.0	1000	0	101	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
D	Sample Diluted Due to Matrix	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits
ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
PQL	Practical Quanitative Limit	RL	Reporting Detection Limit
S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

HALL ENVIRONMENTAL ANALYSIS LABORATORY

Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
Tel. 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: ARCADIS HIGHLANDS R Work Order Number: 1811505 RcptNo: 1

Received By: Victoria Zellar 11/9/2018 8:40:00 AM Victoria Zellar

Completed By: Ashley Gallegos 11/9/2018 9:07:40 AM

Reviewed By: VVZ 11/9/18 labeled by: ENM 11/9/18

Chain of Custody

1. Is Chain of Custody complete? Yes ☑ No ☐ Not Present ☐
2. How was the sample delivered? FedEx

Log In

3. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☑ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
8. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
9. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
10. Were any sample containers received broken? Yes ☐ No ☑
11. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐ # of preserved bottles checked for pH: 3 (<2 or >12 unless noted) Adjusted? NO
12. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
13. Is it clear what analyses were requested? Yes ☑ No ☐
14. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐ Checked by: ENM 11/9/18

Special Handling (if applicable)

15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date: _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks:

17. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.6	Good	Yes			

Chain-of-Custody Record

Client: Chevron EMC / Arcadis

Mailing Address: 630 Plaza Drive
Suite 100, Highlands Ranch, CO 80129

Phone #: 303 471 3448

email or Fax#: Timothy.Cox@arcadis.com

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation: ☐ Az Compliance
☐ NELAC ☐ Other ______
☐ EDD (Type) ______

Turn-Around Time:
☐ Standard ☒ Rush 24 hr.

Project Name: Lower Dump Sump Temporary Well ~~~~ Sampling

Project #: B0046795.0089

Project Manager: Tim Cox

Sampler: Joe Gilbert

On Ice: ☒ Yes ☐ No

# of Coolers: 1

Cooler Temp (including CF): 3.6

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com
4901 Hawkins NE - Albuquerque, NM 87109
Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No. 1811505	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, ~~Br~~ Br, NO_3, NO_2, ~~PO_4~~, SO_4	~~8260 (VOA)~~ TDS sm2540	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Alkalinity sm2320B	Total Metals/Dissolved Metals	Total Mercury	Uranium EPA 200.8 / Dissolved	~~TOC~~	~~[illegible]~~
11072018	1032	W	LS-4-TOIN-11072018	Poly Bottles	H_2SO_4, HNO_3, 4°C	-001							X	X			X	X	X	X	~~X~~	~~X~~
11072018	1030	W	LS-4-DOIN-11072018	Poly Bottle	HNO_3	-002												X		X		

Date	Time	Relinquished by:	Received by:	Via:	Date	Time
11082018	1137	[signature]	FedEx Drop		11082018	1200
			[signature]	FEDEX	11/9/18	8:40

Remarks:
Metals = Ca, Mg, Na, K, Al, As, Ba, Be, Cd, Cr, Co, Cu, Fe, Pb, Mn, Mo, Se, Ag, Si, V, Zn, U, Hg

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

APPENDIX D-2

SITE 4 MONITORING WELL INSTALLATION AND MONITORING PLAN

MEMO

To:
Gabe Herrera, CEMC
Cindy Gulde, CEMC

Copies:
File

Arcadis U.S., Inc.
630 Plaza Drive
Suite 100
Highlands Ranch
Colorado 80129
Tel 720 344 3500
Fax 720 344 3535

From:
Tim Cox
Joe Gilbert

Date:
June 14, 2019
(Revised September 23, 2019)

Arcadis Project No.:
B0046795.0089

Subject:
Site 4 New Monitoring Well (LS-5) Installation and Monitoring Plan
Lower Dump Sump
Chevron Mining, Inc.
Questa, New Mexico

At the request of Chevron Environmental Management Company (CEMC), Arcadis U.S., Inc (Arcadis) has prepared this memorandum describing the installation and monitoring of a new alluvial groundwater monitoring well, LS-5, at the Chevron Mining, Inc. (CMI) Lower Dump Sump (LDS). The LDS is in the southern portion of the Village of Questa, immediately south of the Red River. The LDS is being decommissioned as part of the CMI Questa Mine tailing pipeline removal. Tailing material remains in the LDS area at Site 4, and CEMC proposes that the remnant tailing be left in place (Figure 1).

CEMC received a May 28, 2019 letter from the U.S. Environmental Protection Agency (USEPA) requesting a new monitoring well be installed immediately downgradient of Site 4 to confirm current and future groundwater protection from the proposed action to leave tailing in place. The USEPA further requested a plan for installing the monitoring well and a groundwater monitoring plan proposing the sampling frequency and water quality parameters to be monitored. The following addresses these requests.

MONITORING WELL INSTALLATION

A new monitoring well (LS-5) will be installed northwest of Site 4 at the LDS (Figure 1). Figure 1 shows interpreted groundwater elevation contours based on recent water levels measured in existing monitoring wells and in a private well (RG-67516). Based on the water levels, the groundwater flow direction is interpreted to be toward the northwest immediately north of Site 4, shifting to the west closer to the Red River. The location of the new monitoring well is therefore downgradient of Site 4.

A permit for drilling and installing monitoring well LS-5 will be obtained from the New Mexico Office of the State Engineer (OSE) before drilling field activities. The borehole for the monitoring well will be advanced using a Sonic drill rig. The borehole for nearby monitoring well LS-4 was drilled with a hollow-stem auger and reached refusal at 31 feet when cobbles were encountered. Therefore, a Sonic drilling rig will be used to ensure that the target depth can be reached. The borehole diameter will be sufficient for completion of a 2-inch diameter well. Based on the depth to groundwater in nearby LS-1 of approximately 40 feet, the well will be drilled to a depth of approximately 60 feet. Drill cuttings will be logged by a field geologist.

A 2-inch diameter well will be installed in the borehole. The well will be constructed with polyvinyl chloride casing and screen. The screen length will be 20 feet, with the top of the screen set at the water table. The screen slot size will be 0.01 inch. An appropriately sized filter material will be placed in the annulus around the screen up to 5 feet above the top of the screen. A bentonite hydraulic seal will be placed above the filter material, and a cement grout will be placed in the remaining annulus to ground surface. The well will be protected with a concrete pad and steel, locking riser.

The well will be developed with a surge block and bailer, followed by pumping until the water is free of fine sediment and field parameters have stabilized. The coordinates of the well will be surveyed using the New Mexico Central State Plane coordinate system, utilizing the North American Datum of 1983 datum. The top of casing and ground surface elevation at the well will be surveyed using the North American Vertical Datum of 1988 vertical datum.

SAMPLING AND ANALYSIS

LS-5 will be sampled using low-flow purge and sample methods. The groundwater sample will be analyzed for dissolved metals and select inorganic constituents, consistent with the Tailing Facility Performance Monitoring Plan (Arcadis 2018a). Hall Environmental Laboratory in Albuquerque, New Mexico will analyze the sample.

MONITORING FREQUENCY

LS-5 will be sampled after it is installed followed by sampling at a quarterly frequency. Existing monitoring well LS-3 will also continue to be sampled at a quarterly frequency. If groundwater quality in the wells is not impacted by tailing left in place after 2 years of quarterly sampling, CEMC may request a reduction in the sampling frequency.

ABANDONMENT OF LS-1

Appendix E of the November 8, 2018 Addendum to the Historic Tailings Spill Removal Action Work Plan and Stage 8 Pipeline Removal Work plan (Trihydro Corporation 2018) contains the April 16, 2018 memorandum: Evaluation of Groundwater Monitoring at the Lower Dump Sump, prepared by Arcadis. The memorandum concludes that monitoring wells LS-1 and LS-2 are cross-gradient or upgradient of the areas where tailing are proposed to be left in place, and recommended that the two wells be abandoned in accordance with the OSE Rules and Regulations Governing Well Driller Licensing, Construction, Repair, and Plugging of Wells (19.27.4 New Mexico Administrative Code). The USEPA, New Mexico Environment Department (NMED), and Mining and Minerals Division (MMD) did not comment on this recommendation to abandon LS-1 and LS-2; therefore, CEMC proceeded with preparing plugging plans that were submitted to OSE. In September 2019, the USEPA provided comments on a revised Stage 8 Pipeline Removal Work Plan and requested that only LS-1 be abandoned. CEMC plans to abandon LS-1 at the same time LS-5 is installed.

In October 2018, CEMC agreed to install a temporary monitoring well, LS-4, near tailing material that had been identified. NMED requested the temporary well to be installed to assess the potential for leaching of tailing constituents into shallow groundwater. NMED agreed that if the well was unimpacted that it could be abandoned. Temporary monitoring well LS-4 was installed and sampled in November 2018 and found to be below all USEPA groundwater cleanup levels (Arcadis 2018b). In September 2019, the USEPA provided comments on a revised Stage 8 Pipeline Removal Work Plan and requested that LS-4 not be abandoned.

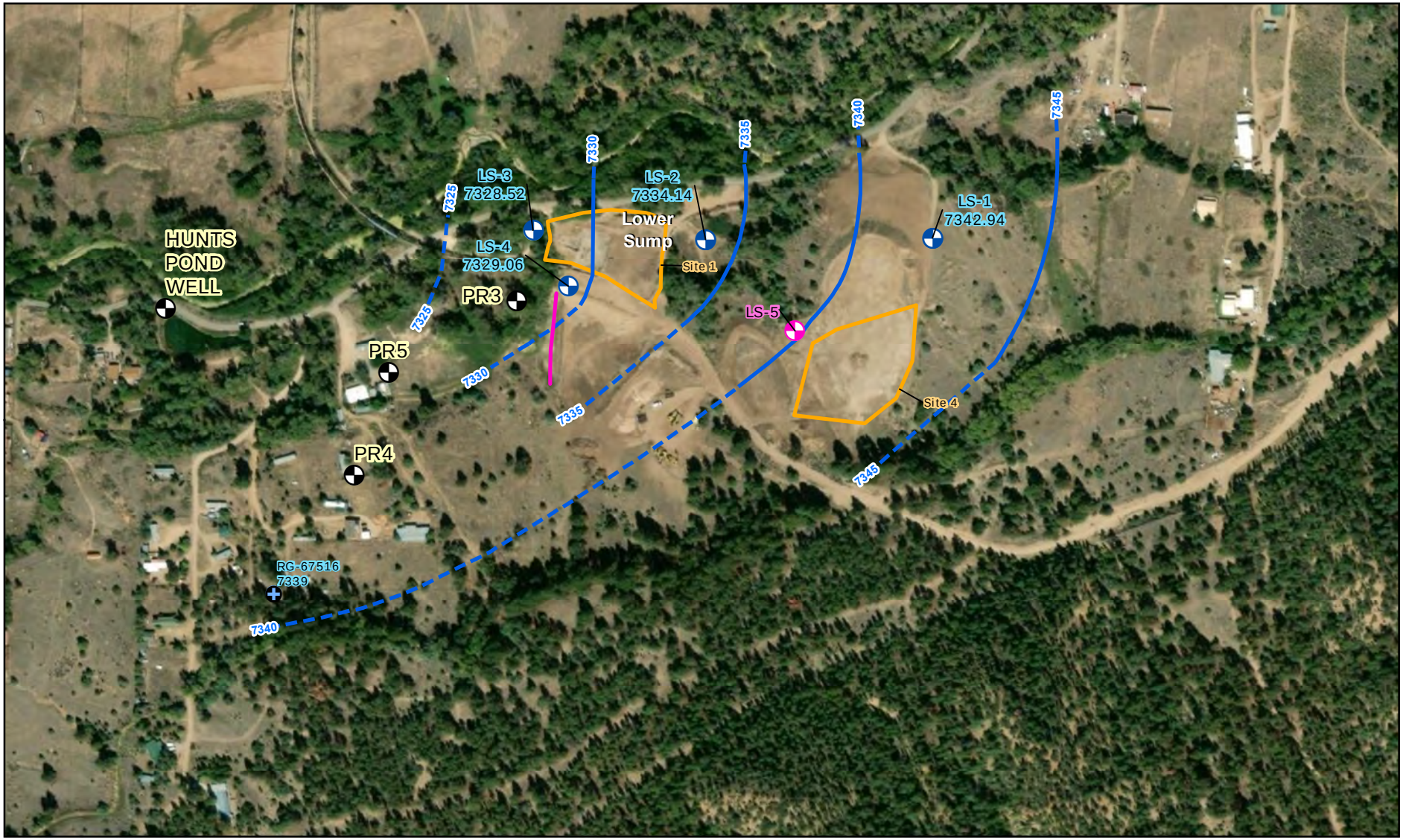
REFERENCES

Arcadis. 2018a. Tailing Facility Performance Monitoring Plan, Questa Mine Superfund Site, Questa, New Mexico, prepared for Chevron Mining Inc., Revision 1, August 24.

Arcadis. 2018b. Memorandum - Installation and Water-Quality Sampling of Temporary Monitoring Well LS-4 Lower Dump Sump, Chevron Mining Inc., Questa, New Mexico, November 28.

Trihydro Corporation. 2018. Addendum to the Historic Tailings Spill Removal Action Work Plan and Stage 8 Pipeline Removal Work Plan, Chevron Questa Mine Superfund Site, Chevron Mining Inc., November 8.

CITY: Boulder, CO DIV/GROUP: AIT DRAFTER: kkelley
Path: Z:\GISProjects_ENV\Chevron_CMI_Questa\GIS\ArcMap_MXD\2019\Fig_1_Monitoring_Locations_at_Lower_Dump_Sump.mxd



Legend

- Existing Monitoring Locations (Water levels measured by Arcadis on 11/7/18)
- Private Residential Wells
- RG-67516 (Water level measured by MMD on 4/9/19)
- Proposed Monitoring Well Location
- Western Trench
- Site
- Groundwater Elevation - Contour Interval 5 Feet (Dashed where Inferred)

State Plane Coordinate Datum:
NAD83 State Plane NM Central Feet (ft)
LDS well water levels collected in November 2018
RG-67516 water level from New Mexico Mining and Minerals Division Correspondance, April 9, 2019

0 150 300 600 Feet

CHEVRON MINING INC. QUESTA MINE

Monitoring Locations at Lower Dump Sump

ARCADIS

FIGURE 1

APPENDIX D-3

EVALUATION OF GROUNDWATER MONITORING AT THE LOWER DUMP SUMP

MEMO

To:
Cynthia Gulde, CEMC

Copies:
File

Arcadis U.S., Inc.
630 Plaza Drive
Suite 100
Highlands Ranch
Colorado 80129
Tel 720 344 3500
Fax 720 344 3535

From:
Tim Cox
Joe Gilbert

Date:
April 16, 2018
(Revised September 23, 2019)

Arcadis Project No.:
B0046795.0073

Subject:
Evaluation of Groundwater Monitoring at the Lower Dump Sump
Chevron Mining, Inc.
Questa, New Mexico

At the request of Chevron Environmental Management Company (CEMC), Arcadis U.S., Inc. has prepared this technical memorandum that evaluates current and proposed future groundwater monitoring at the Chevron Mining Inc. (CMI) Lower Dump Sump (LDS). The LDS is in the southern portion of the Village of Questa, immediately south of the Red River (Figure 1). The LDS is scheduled to be decommissioned as part of the tailing pipeline removal. A small amount of tailing material remains in the LDS area, and CEMC proposes that the remnant tailing be left in place. Three alluvial groundwater monitoring wells (LS-1, LS-2, and LS-3) are located near the LDS and have been sampled since 1991. Private wells PR3, PR4, and PR5 and the Hunt's Pond well are also in the LDS area and were sampled in 2004 and 2005 during the Remedial Investigation. Constituent concentrations in samples from all wells have been and are currently below state and federal groundwater standards. Although the historical sample data indicate that the LDS and remnant tailing have not impacted groundwater quality, additional groundwater monitoring has been requested if the tailing are left in place.

Alluvial groundwater is present at approximately 6 feet below ground surface (bgs) at LS-3, increasing to approximately 40 feet bgs at LS-1 as the topography rises in elevation to the south. Groundwater elevations from October 2017 are shown on Figure 1, with interpreted groundwater elevation contours through the LDS area. The groundwater flow direction is east to west and is sub-parallel to the Red River. Based on this groundwater flow direction, monitoring well LS-3 is downgradient of the LDS structure, whereas LS-1 and LS-2 are upgradient. Because the wells are upgradient of the LDS and tailing to be left in place, LS-1 and LS-2 could be abandoned in accordance with the New Mexico Office of the State Engineer Rules and Regulations Governing Well Driller Licensing, Construction, Repair, and Plugging of Wells (19.27.4 New Mexico Administrative Code [NMAC]). However, in September 2019, the USEPA

provided comments on a revised Stage 8 Pipeline Removal Work Plan and requested that only LS-1 be abandoned.

Private wells PR3 and PR4 are downgradient of the area of tailing to be left in place. Sampling of these wells requires permission by the property owners. Therefore, a new monitoring well (LS-4) is proposed to be installed on CMI property at the northern boundary of the remnant tailing, which is shown on Figure 1. A monitoring well at this location would be downgradient of the tailing and would monitor potential impacts to groundwater. The new monitoring well would be approximately 25 feet deep with a screened interval from approximately 5 to 25 feet, thereby intersecting the water table. The well will be installed in accordance with the New Mexico Office of the State Engineer Rules and Regulations Governing Well Driller Licensing, Construction, Repair, and Plugging of Wells (19.27.4 NMAC).

The new monitoring well (LS-4) will be included in the Tailing Facility Performance Monitoring Plan and sampled at the same frequency and for the same constituents as the other LDS wells. Existing monitoring well LS-1 will be removed from the Tailing Facility Performance Monitoring Plan after it has been abandoned.

FIGURE

Figure 1 Existing Wells and Proposed Monitoring Well Near the Lower Dump Sump

CITY: Boulder, CO DIV/GROUP: AIT DRAFTER: jgilbert
Path: Z:\GISProjects_ENV\Chevron_CMI_Questa\GIS\ArcMap_MXD\2018\Fig_1_Existing_Wells_and_Proposed_Monitoring_Well_Near_Lower_Dump_Sump.mxd

DRAFT

Legend

- Hunts Pond Well (Abandoned)
- PR Wells (Private Resident Well)
- LS Wells (Lower Sump Monitoring Well)
- Proposed New Alluvial Monitoring Well
- Monitoring Well Proposed to be Abandoned
- Approximate Groundwater Elevation Contour (feet)
- Approximate Area of Tailing
- 7323.3 Groundwater Elevation in Monitoring Well (feet, October 2017)
- Groundwater Flow Direction

N

0 150 300 600 Feet

State Plane Coordinate Datum:
NAD83 State Plane NM Central Feet (ft)

CHEVRON MINING INC. QUESTA MINE

Existing Wells and Proposed Monitoring Well Near the Lower Dump Sump

ARCADIS

FIGURE 1

APPENDIX E

TEST PIT LOGS, PHOTOS, AND DOCUMENTATION

APPENDIX E-1

APRIL 2018 TEST PIT INFORMATION

APPENDIX E-1. PHOTO LOG
APRIL 2018 TEST PITTING, QUESTA, NM

Photo 1. TP-3 041118

Photo 2. TP-8 041118

Photo 3. TP-15 041218

Photo 4. TP-16 041218

Photo 5. TP-17 041218

Photo 6. TP-18 041218

Photo 7. TP-19 041218

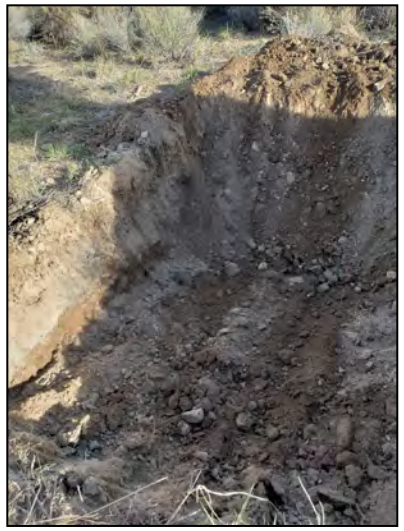


Photo 8. TP-20 041218-1

Photo 9. TP-20 041218-2

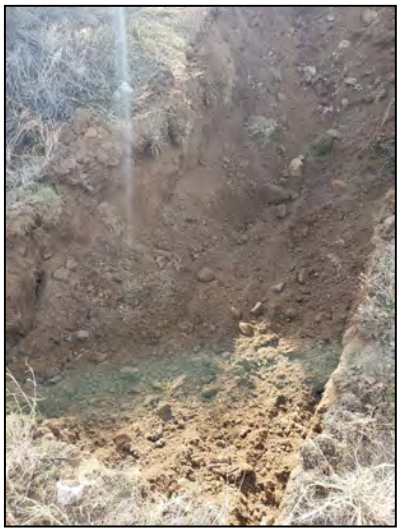


Photo 10. TP-21 041218

Photo 11. TP-22 041218

Photo 12. TP-23 041218

APPENDIX E-2

DECEMBER 2018 TEST PIT INFORMATION

XQ006-18 LDS Decommissioning – Site 5
Questa, NM Mine Site
Additional HTS Test Pit Investigation Report

HTS Test Pits

1. Site 5 Additional
    a. Number of test pits: 5
    b. Date of excavation: 12/11/18
    c. Tailings Presence: HTS found in 2 test pits
    d. Photos:

Test Pit 33 (Clean: Surface - 60"+ depth)

Test Pit 34 (HTS Present: Surface – 48"+ depth)

Test Pit 35 (HTS: S: 12”-15”, N: Surface - 108”+ depth)

Test Pit 36 (Clean: Surface - 96”+ depth)

Test Pit 37 (Clean: Surface – 96”+ depth)

XQ006-18 LDS SITE 5 ADDITIONAL TEST PITS - INVESTIGATIVE SURVEY DATA					
HORIZONTAL DATUM:		**STATE PLANE NAD83**			
VERTICAL DATUM:		**STATE PLANE NAVD88**			
Point	**Northing**	**Easting**	**Elevation**	**Depth Excavated**	**HTS present?**
TP-33	2072785.539	1833361.563	7392.988	5 FT (or 60”)	Clean: 0” – 60+”
	2072780.35	1833362.481	7393.026		
	2072788.625	1833376.956	7393.065		
	2072782.274	1833377.503	7393.053		
TP-34	2072822.955	1833426.523	7394.26	4 FT (or 48”)	Clean: 0” – 48” HTS: 48”+
	2072820.708	1833421.217	7394.192		
	2072832.944	1833414.812	7393.819		
	2072835.416	1833420.178	7393.926		
TP-35	2072850.389	1833407.315	7393.732	9 FT (or 108”)	North Edge – Clean: 0” -108” HTS: 108”+
	2072853.046	1833413.22	7393.623		
	2072875.358	1833400.943	7392.983		South Edge – Clean: 0” – 12” HTS: 12” – 15” Clean: 15” – 108”+
	2072872.69	1833396.186	7392.937		
TP-36	2072850.829	1833479.216	7395.086	8 FT (or 96”)	Clean: 0” – 96”+
	2072846.665	1833483.28	7394.945		
	2072861.442	1833499.616	7394.521		
	2072866.984	1833496.198	7394.547		
TP-37	2072747.028	1833439.647	7395.235	8 FT (or 96”)	Clean: 0” – 96”+
	2072764.363	1833438.799	7394.67		
	2072762.098	1833431.203	7394.456		
	2072746.79	1833433.778	7395.197		

ENTACT

Auxiliary Borrow Pit

N

Site 5

TP 35 (12 - 108 inches+)

TP 36 (Clean)

TP 34 (48 inches+)

TP 33 (Clean)

TP 37 (Clean)

Site 4

XQ006-18 LDS Decommissioning
Site 5 Additional Test Pit Locations
12/11/18

APPENDIX E-3

JANUARY 2019 TEST PIT INFORMATION

Date/Time: START: 09:30 , 1/16/19 END: 14:00, 1/17/19

Personnel Present:

ENTACT:	D. DeKalb, N. Bennett, C. Froome, H. Montoya
CEMC:	G. Hererra, D. LeBlanc
NMED:	J. Marcoline

Test Pit ID	Photo ID #	Depth to Top of Tailings (inches BGS)	Depth to Bottom of Tailings (inches BGS)	Total Depth of Test Pit (inches BGS)
TP38	TP38-1 011619 DD TP38-2 011619 DD	CLEAN	CLEAN	51.46
TP39	TP39-1 011619 DD TP39-2 011619 DD	CLEAN	CLEAN	50.65
TP40	TP40-1 011619 DD TP40-2 011619 DD	CLEAN	CLEAN	45.43
TP41	TP41-1 011619 DD TP41-2 011619 DD	CLEAN	CLEAN	50.33
TP42	TP42-1 011619 DD TP42-2 011619 DD	CLEAN	CLEAN	52.19
TP43	TP43-1 011619 DD TP43-2 011619 DD	CLEAN	CLEAN	45.02
TP44	TP44-1 011619 DD TP44-2 011619 DD	CLEAN	CLEAN	53.15
TP45	TP45-1 011619 DD TP45-2 011619 DD	CLEAN	CLEAN	55.28
TP46	TP46-1 011719 DD	Unable to dig due to large rocky soil. Instructed to quit digging and move location.	Unable to dig due to large rocky soil. Instructed to quit digging and move location.	~ 10
TP46 - JMTP	TP46-2 JMTP 011719 DD TP46-3 JMTP 011719 DD	CLEAN	CLEAN	46.09
TP47	TP47-1 011719 DD TP47-2 011719 DD	CLEAN	CLEAN	56.92
TP48	TP48-1 011719 DD TP48-2 011719 DD	CLEAN	CLEAN	46.19
TP49	TP49-1 011619 DD TP49-2 011619 DD	CLEAN	CLEAN	40.92
TP50	TP50-1 011619 DD TP50-2 011619 DD	CLEAN	CLEAN	50.21
TP51	TP51-1 011619 DD TP51-2 011619 DD	CLEAN	CLEAN	41.24
TP52	TP52-1 011719 DD TP52-2 011719 DD	CLEAN	CLEAN	52.07
TP53	TP53-1 011719 DD TP53-2 011719 DD	CLEAN	CLEAN	57.28
TP54	TP54-1 011719 DD TP54-2 011719 DD	CLEAN	CLEAN	45.44
TP55	TP55-1 011719 DD TP55-2 011719 DD	CLEAN	CLEAN	47.42
TP56	TP56-1 011619 DD TP56-2 011619 DD	CLEAN	CLEAN	51.20
TP57	TP57-1 011619 DD TP57-2 011619 DD	CLEAN	CLEAN	49.39
TP58	TP58-1 011619 DD TP58-2 011619 DD	CLEAN	CLEAN	59.32
TP59	TP59-1 011719 DD TP59-2 011719 DD	CLEAN	CLEAN	46.62

Date/Time: START: 09:30 , 1/16/19 END: 14:00, 1/17/19

Personnel Present:

ENTACT:	D. DeKalb, N. Bennett, C. Froome, H. Montoya
CEMC:	G. Hererra, D. LeBlanc
NMED:	J. Marcoline

Test Pit ID	Photo ID #	Depth to Top of Tailings (inches BGS)	Depth to Bottom of Tailings (inches BGS)	Total Depth of Test Pit (inches BGS)
TP60	TP60-1 011719 DD TP60-2 011719 DD	CLEAN	CLEAN	51.24
TP61	TP61-1 011719 DD TP61-2 011719 DD	CLEAN	CLEAN	49.85
TP62	TP62-1 011719 DD TP62-2 011719 DD	SAMPLE COLLECTED	SAMPLE COLLECTED	47.99
TP63	TP63-1 011619 DD TP63-2 011619 DD	CLEAN	CLEAN	50.96
TP64	TP64-1 011619 DD TP64-2 011619 DD TP64-3 011619 DD	Surface	HTS blended to ~16", More impacted from ~16" to ~21", Clean from ~21"+	46.02
TP65	TP65-1 011719 DD TP65-2 011719 DD	CLEAN	CLEAN	46.58
TP66	TP66-1 011719 DD TP66-2 011719 DD	CLEAN	CLEAN	39.41
TP67	TP67-1 011619 DD TP67-2 011619 DD	CLEAN	CLEAN	52.74
TP68	TP68-1 011619 DD TP68-2 011619 DD	CLEAN	CLEAN	49.60
TP69	TP69-1 011619 DD TP69-2 011619 DD	CLEAN	CLEAN	51.92

XQ006-18 LDS Decommissioning
Questa, NM Mine Site
Additional HTS Test Pit Investigation Report

HTS Test Pits

1. Trihydro Test Pit Grid
    a. Number of test pits: 32
    b. Date of excavation: 1/16/19 & 1/17/19
    c. Tailings Presence: HTS found in 1 test pit
    d. Photos:

Test Pit 38 (Clean to ~51")

Test Pit 39 (Clean to ~51")

Test Pit 40 (Clean to ~45")

Test Pit 41 (Clean to ~50")

Test Pit 42 (Clean to ~52")

Test Pit 43 (Clean to ~45")

Test Pit 44 (Clean to ~53”)

Test Pit 45 (Clean to ~55”)

Test Pit 46 (Clean to ~10”)

Test Pit 46 JMTP (Clean to ~46”)

Test Pit 47 (Clean to ~57”)

Test Pit 48 (Clean to ~46”)

Test Pit 49 (Clean to ~41”)

Test Pit 50 (Clean to ~50”)

Test Pit 51 (Clean to ~41”)

Test Pit 52 (Clean to ~52”)

Test Pit 53 (Clean to ~57”)

Test Pit 54 (Clean to ~45”)

Test Pit 55 (Clean to ~47”)

Test Pit 56 (Clean to ~51”)

Test Pit 57 (Clean to ~49”)

Test Pit 58 (Clean to ~59”)

Test Pit 59 (Clean to ~47”)

Test Pit 60 (Clean to ~51”)

Test Pit 61 (Clean to ~50”)

Test Pit 62 (Sample Collected)

Test Pit 63 (Clean to ~51”)

Test Pit 64 (HTS: Surface – 21”, Clean from ~21 to ~46”)

Test Pit 65 (Clean to ~47”)

Test Pit 66 (Clean to ~39”)

Test Pit 67 (Clean to ~53”)

Test Pit 68 (Clean to ~50”)

Test Pit 69 (Clean to ~52”)

XQ006-18 LDS Decommissioning
Trihydro Test Pit Map
1/16/19 - 1/17/19

APPENDIX E-4

JUNE 2019 TEST PIT INFORMATION

Test Pit Field Form

Date/Time: 6/4/2019

Personnel Present: A. Benjamin
C.J. White
B. Kraich

Test Pit ID	Photo ID#	Depth to Top of Tailings (in. BGS)	Depth to Bottom of Tailings (in. BGS)	Total Depth of Test Pit (in. BGS)
TP-70	• TP-70a • TP-70d • TP-70b • TP-70e • TP-70c • TP-70f	36"	40"	48"
TP-71	• TP-71a • TP-71d • TP-71b • TP-71e • TP-71c • TP-71f	N/A	N/A	42"
TP-72	• TP-72a • TP-72d • TP-72b • TP-72e • TP-72c • TP-72f	N/A	N/A	38"
TP-73	• TP-73a • TP-73d • TP-73b • TP-73c	N/A	N/A	40"
TP-74	• TP-74a • TP-74d • TP-74g • TP-74b • TP-74e • TP-74c • TP-74f	N/A	N/A	40"
TP-75	• TP-75a • TP-75d • TP-75b • TP-75e • TP-75c	N/A	N/A	36"
TP-76	• TP-76a • TP-76d • TP-76b • TP-76c	• 0" (east wall of test pit) • 36" (north wall of test pit, under berm of clean material)	60"	78"
TP-77	• TP-77a • TP-77d • TP-77g • TP-77b • TP-77e • TP-77h • TP-77c • TP-77f • TP-77i	0" (surface)	48"	60"
TP-78	• TP-78a • TP-78d • TP-78b • TP-78e • TP-78c • TP-78f	N/A	N/A	36"
TP-79	• TP-79a • TP-79d • TP-79b • TP-79e • TP-79c • TP-79f	0" (surface) Note: visible HTS on ground surface of berm to the east of TP-79	28"	42"
TP-82	• TP-82a • TP-82d • TP-82b • TP-82e • TP-82c • TP-82f	0" (surface)	96"	108"

Test Pit Field Form

Date/Time: 6/4/2019

Personnel Present: A. Benjamin
C.J. White
B. Kraich

Test Pit ID	Photo ID#	Depth to Top of Tailings (in. BGS)	Depth to Bottom of Tailings (in. BGS)	Total Depth of Test Pit (in. BGS)
TP-83	• TP-83a • TP-83d • TP-83g • TP-83b • TP-83e • TP-83c • TP-83f	N/A	N/A	36"
TP-84	• TP-84a • TP-84d • TP-84g • TP-84b • TP-84e • TP-84c • TP-84f	N/A	N/A	42"
TP-85	• TP-85a • TP-85d • TP-85b • TP-85e • TP-85c • TP-85f	N/A	N/A	48"
TP-87	• TP-87a • TP-87d • TP-87b • TP-87e • TP-87c • TP-87f	N/A	N/A	36"
TP-93	• TP-93a • TP-93d • TP-93b • TP-93e • TP-93c • TP-93f	N/A	N/A	40"
TP-100	• TP-100a • TP-100d • TP-100b • TP-100e • TP-100c • TP-100f	N/A	N/A	36"
TP-101	• TP-101a • TP-101d • TP-101g • TP-101b • TP-101e • TP-101c • TP-101f	N/A	N/A	36"
TP-102	• TP-102a • TP-102d • TP-102b • TP-102e • TP-102c	N/A	N/A	36"
TP-103	• TP-103a • TP-103d • TP-103b • TP-103e • TP-103c • TP-103f	N/A	N/A	42"
TP-104	• TP-104a • TP-104d • TP-104b • TP-104e • TP-104c	N/A	N/A	36"

Test Pit Field Form

Date/Time: 6/5/2019

Personnel Present: A. Benjamin
C.J. White
B. Kraich

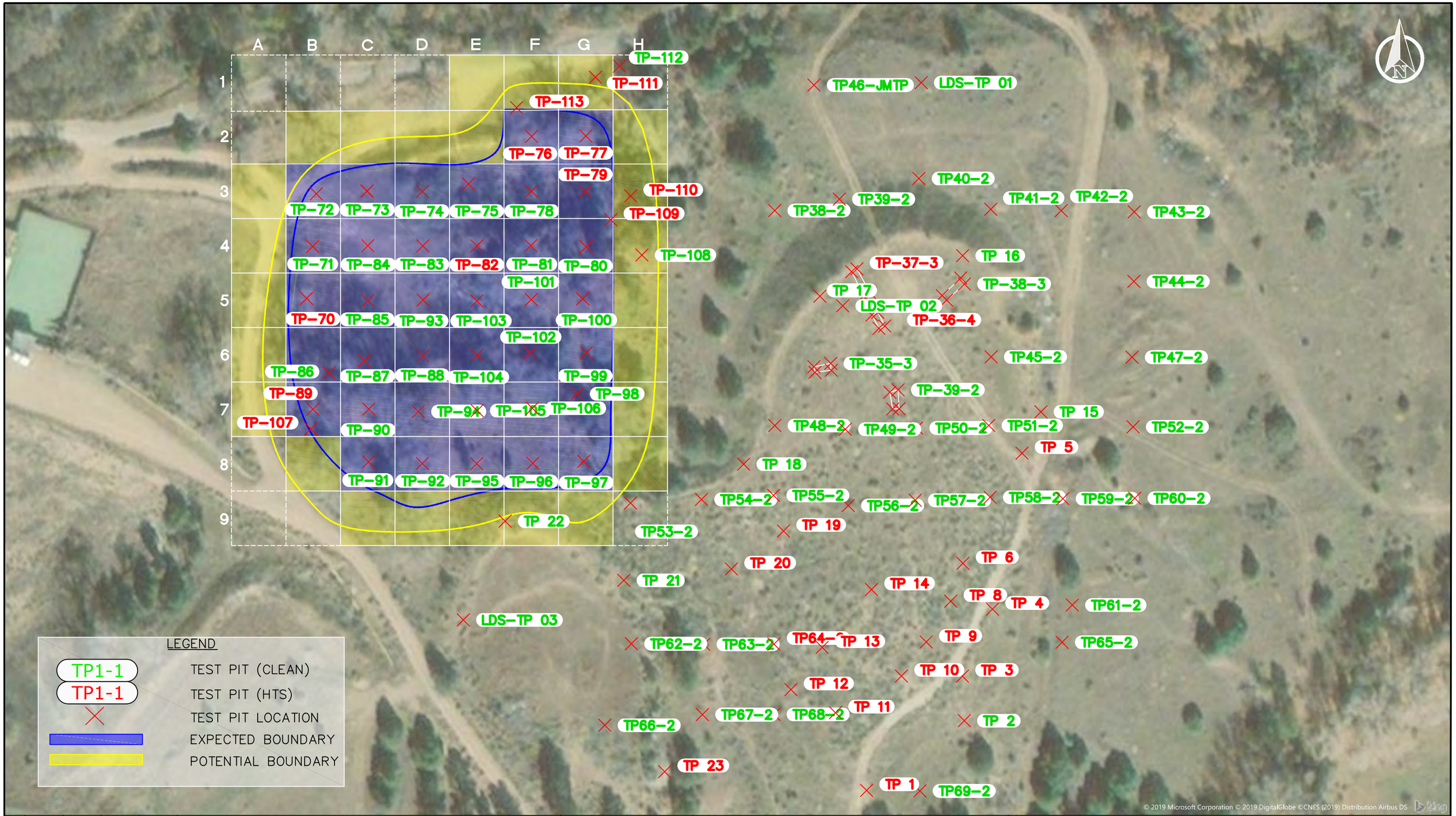
Test Pit ID	Photo ID#	Depth to Top of Tailings (in. BGS)	Depth to Bottom of Tailings (in. BGS)	Total Depth of Test Pit (in. BGS)
TP-80	• TP-80a • TP-80d • TP-80b • TP-80e • TP-80c • TP-80f	N/A	N/A	36"
TP-81	• TP-81a • TP-81d • TP-81b • TP-81e • TP-81c	N/A	N/A	38"
TP-86	• TP-86a • TP-86d • TP-86g • TP-86b • TP-86e • TP-86c • TP-86f	N/A	N/A	48"
TP-88	• TP-88a • TP-88d • TP-88b • TP-88e • TP-88c • TP-88f	N/A	N/A	36"
TP-89	• TP-89a • TP-89e • TP-89i • TP-89b • TP-89f • TP-89j • TP-89c • TP-89g • TP-89k • TP-89d • TP-89h • TP-89l	36"	60"	84"
TP-90	• TP-90a • TP-90d • TP-90b • TP-90e • TP-90c	N/A	N/A	36"
TP-91	• TP-91a • TP-91d • TP-91b • TP-91e • TP-91c	N/A	N/A	36"
TP-92	• TP-92a • TP-92d • TP-92b • TP-92c	N/A	N/A	40"
TP-94	• TP-94a • TP-94d • TP-94b • TP-94e • TP-94c	N/A	N/A	44"
TP-95	• TP-95a • TP-95d • TP-95b • TP-95e • TP-95c	N/A	N/A	36"
TP-96	• TP-96a • TP-96d • TP-96b • TP-96c	N/A	N/A	38"
TP-97	• TP-97a • TP-97b • TP-97c	N/A	N/A	36"

Test Pit Field Form

Date/Time: 6/5/2019

Personnel Present: A. Benjamin
C.J. White
B. Kraich

Test Pit ID	Photo ID#	Depth to Top of Tailings (in. BGS)	Depth to Bottom of Tailings (in. BGS)	Total Depth of Test Pit (in. BGS)
TP-98	• TP-98a • TP-98d • TP-98g • TP-98b • TP-98e • TP-98c • TP-98f	N/A	N/A	46"
TP-99	• TP-99a • TP-99c • TP-99e • TP-99b • TP-99d • TP-99f	N/A	N/A	42"
TP-105	• TP-105a • TP-105d • TP-105b • TP-105e • TP-105c • TP-105f	N/A	N/A	36"
TP-106	• TP-106a • TP-106c • TP-106e • TP-106b • TP-106d	N/A	N/A	48"
TP-107	• TP-107a • TP-107e • TP-107i • TP-107b • TP-107f • TP-107j • TP-107c • TP-107g • TP-107k • TP-107d • TP-107h	36"	48"	60"
TP-108	• TP-108a • TP-108c • TP-108e • TP-108b • TP-108d	N/A	N/A	36"
TP-109	• TP-109a • TP-109d • TP-109g • TP-109b • TP-109e • TP-109h • TP-109c • TP-109f • TP-109i	0" (surface)	108"	114"
TP-110	• TP-110a • TP-110f • TP-110j • TP-110b • TP-110g • TP-110k • TP-110c • TP-110h • TP-110l • TP-110d • TP-110i • TP-110m • TP-110e • TP-110j	0"	114"	120"
TP-111	• TP-111a • TP-111d • TP-111g • TP-111b • TP-111e • TP-111h • TP-111c • TP-111f	0" (surface)	42"	48"
TP-112	• TP-112a • TP-112e • TP-112i • TP-112b • TP-112f • TP-112j • TP-112c • TP-112g • TP-112k • TP-112d • TP-112h	N/A	N/A	46"
TP-113	• TP-113a • TP-113d • TP-113g • TP-113b • TP-113e • TP-113h • TP-113c • TP-113f • TP-113i	30"	36"	42"



REV	DATE	BY	CHK'D	APR'VD	DESCRIPTION

0 40 80 Feet

CLIENT

CHEVRON ENVIRONMENTAL MANAGEMENT
AND REAL ESTATE COMPANY
QUESTA MINE
QUESTA, NEW MEXICO

ENTACT

DRAWING NAME: LOWER DUMP SUMP TEST PITS

PROJECT NAME & LOCATION: LOWER DUMP SUMP DECOMMISSIONING
QUESTA, NM

DRAWN BY	B. KRAICH	APPROVED BY		REV	1
DATE	6/10/19	DATE		PROJECT NO.	XQ006-18

REV	DATE	BY	CHK'D	APR'VD	DESCRIPTION

CLIENT

CHEVRON ENVIRONMENTAL MANAGEMENT
AND REAL ESTATE COMPANY
QUESTA MINE
QUESTA, NEW MEXICO

ENTACT

DRAWING NAME: LOWER DUMP SUMP ADDITIONAL TEST PITS

PROJECT NAME & LOCATION: LOWER DUMP SUMP DECOMMISSIONING
QUESTA, NM

DRAWN BY	B. KRAICH	APPROVED BY		REV	1
DATE	6/10/19	DATE		PROJECT NO.	XQ006-18

Photo 1. TP-70a

Photo 2. TP-70b

Photo 3. TP-70c

Photo 4. TP-70d

Photo 5. TP-70e

Photo 6. TP-70f

Photo 7. TP-71a

Photo 8. TP-71b

Photo 9. TP-71c

Photo 10. TP-71d

Photo 11. TP-71e

Photo 12. TP-71f

Photo 13. TP-72a

Photo 14. TP-72b

Photo 15. TP-72c

Photo 16. TP-72d

Photo 17. TP-72e

Photo 18. TP-72f

Photo 19. TP-73a

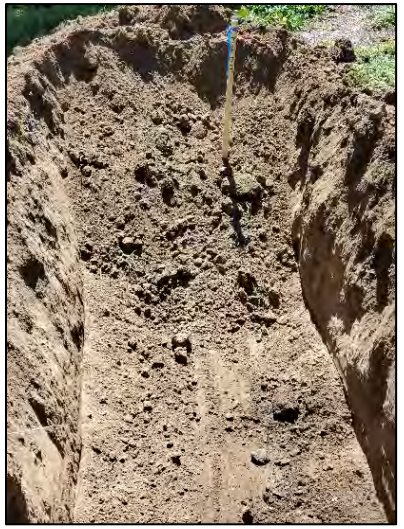


Photo 20. TP-73b

Photo 21. TP-73c

Photo 22. TP-73d

Photo 23. TP-74a

Photo 24. TP-74b

Photo 25. TP-74c

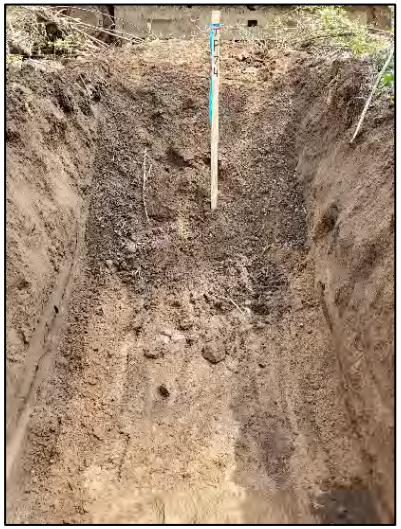


Photo 26. TP-74d

Photo 27. TP-74e

Photo 28. TP-74f

Photo 29. TP-74g

Photo 30. TP-75a

Photo 31. TP-75b

Photo 32. TP-75c

Photo 33. TP-75d

Photo 34. TP-75e

Photo 35. TP-76a

Photo 36. TP-76b

Photo 37. TP-76c

Photo 38. TP-76d

Photo 39. TP-77a

Photo 40. TP-77b

Photo 41. TP-77c

Photo 42. TP-77d

Photo 43. TP-77e

Photo 44. TP-77f

Photo 45. TP-77g

Photo 46. TP-77h

Photo 47. TP-77i

Photo 48. TP-78a

Photo 49. TP-78b

Photo 50. TP-78c

Photo 51. TP-78d

Photo 52. TP-78e

Photo 53. TP-78f

Photo 54. TP-79a

Photo 55. TP-79b

Photo 56. TP-79c

Photo 57. TP-79d

Photo 58. TP-79e

Photo 59. TP-79f

Photo 60. TP-80a

Photo 61. TP-80b

Photo 62. TP-80c

Photo 63. TP-80d

Photo 64. TP-80e

Photo 65. TP-80f

Photo 66. TP-81a

Photo 67. TP-81b

Photo 68. TP-81c

Photo 69. TP-81d

Photo 70. TP-81e

Photo 71. TP-82a

Photo 72. TP-82b

Photo 73. TP-82c

Photo 74. TP-82d

Photo 75. TP-82e

Photo 76. TP-82f

Photo 77. TP-83a

Photo 78. TP-83b

Photo 79. TP-83c

Photo 80. TP-83d

Photo 81. TP-83e

Photo 82. TP-83f

Photo 83. TP-83g

Photo 84. TP-84a

Photo 85. TP-84b

Photo 86. TP-84c

Photo 87. TP-84d

Photo 88. TP-84e

Photo 89. TP-84f

Photo 90. TP-84g

Photo 91. TP-85a

Photo 92. TP-85b

Photo 93. TP-85c

Photo 94. TP-85d

Photo 95. TP-85e

Photo 96. TP-85f

Photo 97. TP-86a

Photo 98. TP-86b

Photo 99. TP-86c

Photo 100. TP-86d

Photo 101. TP-86e

Photo 102. TP-86f

Photo 103. TP-86g

Photo 104. TP-87a

Photo 105. TP-87b

Photo 106. TP-87c

Photo 107. TP-87d

Photo 108. TP-87e

Photo 109. TP-87f

Photo 110. TP-88a

Photo 111. TP-88b

Photo 112. TP-88c

Photo 113. TP-88d

Photo 114. TP-88e

Photo 115. TP-88f

Photo 116. TP-89e

Photo 117. TP-89f

Photo 118. TP-89g

Photo 119. TP-89j

Photo 120. TP-89a

Photo 121. TP-90a

Photo 122. TP-90b

Photo 123. TP-90c

Photo 124. TP-90d

Photo 125. TP-90e

Photo 126. TP-91a

Photo 127. TP-91b

Photo 128. TP-91c

Photo 129. TP-91d

Photo 130. TP-91e

Photo 131. TP-92a

Photo 132. TP-92b

Photo 133. TP-92c

Photo 134. TP-92d

Photo 135. TP-93a

Photo 136. TP-93b

Photo 137. TP-93c

Photo 138. TP-93d

Photo 139. TP-93e

Photo 140. TP-93f

Photo 141. TP-94a

Photo 142. TP-94b

Photo 143. TP-94c

Photo 144. TP-94d

Photo 145. TP-94e

Photo 146. TP-95a

Photo 147. TP-95b

Photo 148. TP-95c

Photo 149. TP-95d

Photo 150. TP-95e

Photo 151. TP-96a

Photo 152. TP-96b

Photo 153. TP-96c

Photo 154. TP-96d

Photo 155. TP-97a

Photo 156. TP-97b

Photo 157. TP-97c

Photo 158. TP-98a

Photo 159. TP-98d

Photo 160. TP-98g

Photo 161. TP-99a

Photo 162. TP-99b

Photo 163. TP-99c

Photo 164. TP-99d

Photo 165. TP-99e

Photo 166. TP-99f

Photo 167. TP-100a

Photo 168. TP-100b

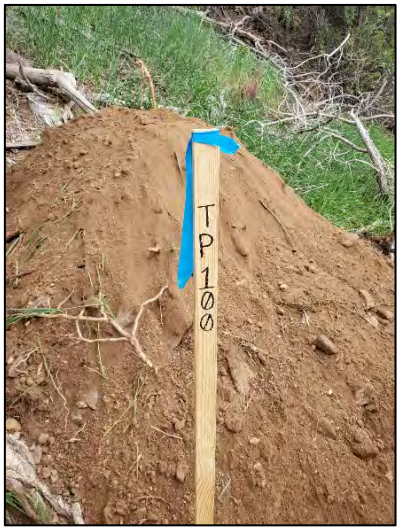


Photo 169. TP-100c

Photo 170. TP-100d

Photo 171. TP-100e

Photo 172. TP-100f

Photo 173. TP-101a

Photo 174. TP-101b

Photo 175. TP-101c

Photo 176. TP-101d

Photo 177. TP-101e

Photo 178. TP-101f

Photo 179. TP-101g

Photo 180. TP-102a

Photo 181. TP-102b

Photo 182. TP-102c

Photo 183. TP-10d

Photo 184. TP-102e

Photo 185. TP-103a

Photo 186. TP-103b

Photo 187. TP-103c

Photo 188. TP-103d

Photo 189. TP-103e

Photo 190. TP-103f

Photo 191. TP-104a

Photo 192. TP-104b

Photo 193. TP-104c

Photo 194. TP-104d

Photo 195. TP-104e

Photo 196. TP-105a

Photo 197. TP-105b

Photo 198. TP-105c

Photo 199. TP-105d

Photo 200. TP-105e

Photo 201. TP-105f

Photo 202. TP-106a

Photo 203. TP-106b

Photo 204. TP-106c

Photo 205. TP-106d

Photo 206. TP-106e

Photo 207. TP-107a

Photo 208. TP-107c

Photo 209. TP-107e

Photo 210. TP-107g

Photo 211. TP-107j

Photo 212. TP-107k

Photo 213. TP-108a

Photo 214. TP-108b

Photo 215. TP-108c

Photo 216. TP-108d

Photo 217. TP-108e

Photo 218. TP-109a

Photo 219. TP-109b

Photo 220. TP-109e

Photo 221. TP-110a

Photo 222. TP-110d

Photo 223. TP-110f

Photo 224. TP-110j

Photo 225. TP-111a

Photo 226. TP-111b

Photo 227. TP-111f

Photo 228. TP-111h

Photo 229. TP-112a

Photo 230. TP-112c

Photo 231. TP-112d

Photo 232. TP-112f

Photo 233. TP-112h

Photo 234. TP-113a

Photo 235. TP-113c

Photo 236. Tp-113d

Photo 237. TP-113e

Photo 238. TP-113g

APPENDIX F

BORROW AREA INFORMATION

ENTACT

Environmental and Geotechnical Construction Services

Sampling Documentation Report

CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY — QUESTA SPECIALTY PROJECT XQ006-18 Lower Dump Sump – Borrow Area Sampling Report

QUESTA, NEW MEXICO

Chevron

Prepared for:

Cynthia Gulde, Ph.D.
Project Manager
3.5 Miles, Highway 38
Questa, NM 87556
Mobile: (832) 586-5984

October 1, 2018

TABLE OF CONTENTS

KEY TERMS

Acronyms

BGS: Below Ground Surface

LDS: Lower Dump Sump

MBS: Mill Basin Swale

SECTION 1

Project Summary

2.1 Background

ENTACT was contracted to conduct composite soil sampling at locations that were anticipated to be used as borrow material to backfill excavations at the site. The areas identified as potential source material include:

- Mill Basin Stockpile
- Lower Dump Sump Berm & Borrow Areas

The scope of work included the collection of three representative soil samples from each of the areas.

2.2 Sample Collection

Prior to sample collection, the areas were cleared for utilities. At the Mill Basin stockpile, a hand shovel was utilized to remove the top 0-1 ft of soil to expose soil for sampling.

At the Lower Dump Sump, a 329 excavator was used to complete an excavation down to between 4 to 6 ft bgs. A bucket of material, representative of the soil encountered, was removed and placed to the side for sampling at each location, prior to backfilling the excavation.

Once the soil was excavated, a clean, metal hand trowel was used to scoop a representative sample of the soil into a 1-gallon plastic ziplock bag provided by the laboratory. The trowel was decontaminated between samples using Simple Green and distilled water.

The containers of soil were labeled and packaged into a cooler for transport. The samples were shipped via UPS to Energy Laboratories in Billings, Montana for analysis.

The table below summarizes the information for the samples.

No.	Sample ID	Date	Time	Depth (ft)	Excavation Method
Mill Basin Swale					
1	MBS-01	9/4/18	11:50	1-2	Hand Shovel
2	MBS-02	9/4/18	11:55	1-2	
3	MBS-03	9/4/18	12:00	1-2	
Lower Dump Sump					
1	LDS-TP-01	9/4/18	14:00	0-5.5	329 Excavator
2	LDS-TP-02	9/4/18	13:45	0-6	
3	LDS-TP-03	9/4/18	13:30	0-4	

The list of requested analyses is included in the table below.

Analyte	Method
Aluminum	E6010.20
Boron	E6010.20
Cadmium	E6010.20
Calcium, saturated paste	E6010.20
Calcium Carbonate	USDA23c
Conductivity, saturated paste	ASA10-3
Copper	E6010.20
Iron	E6010.20
Magnesium, saturated paste	E6010.20
Manganese	E6010.20
Molybdenum	E6010.20
Nitrate as N, KCL Extract	ASA33-8
pH, saturated paste	ASA10-3
Phosphorus, Olsen	ASA24-5
Potassium	E6010.20
Sodium Adsorption Ratio (SAR)	Calculation
Sodium, saturated paste	E6010.20
Sulphur	Sobek Modified
Total Organic Matter	Walkley-Black
Zinc	E6010.20
Moisture Content	D2974
Coarse Fragments	ASA15-3
Particle Size	ASA15-5

2.3 Sample Survey

Survey data was collected for each of the sample locations. For Lower Dump Sump, where excavations were conducted, survey points were collected for the surface and bottom of excavation elevations. The survey data for the soil sample locations can be found in the table below.

Survey Data Point ID	Northing	Easting	Elevation	Comments
Mill Basin Swale				
MBS-TP 01	22911.257	61871.174	8135.963	Stock Pile
MBS-TP 02	22966.62	61852.545	8138.72	Stock Pile
MBS-TP 03	22955.439	61814.45	8137.244	Stock Pile
Lower Dump Sump				
LDS-TP 01-SURF	22502.518	32972.035	7363.478	AUX PIT Surface
LDS-TP 01-EXC	22500.706	32970.457	7358.926	AUX PIT Excavation Depth
LDS-TP 02-SURF	22296.875	32899.257	7389.015	SITE 5 Surface
LDS-TP 02-EXC	22298.299	32898.315	7384.866	SITE 5 Excavation Depth
LDS-TP 03-SURF	22013.863	32546.618	7378.461	SITE 3 Surface
LDS-TP 03-EXC	22012.766	32547.888	7374.129	SITE 3 Excavation Depth

The survey data are presented on figures included in **Appendix A – Sample Location Maps**.

2.4 Sample Results

The analytical results were provided by the laboratory on September 20, 2018. One laboratory package was provided per area. The samples in the Lower Dump Sump set was qualified as "D" due to an increase in the reporting limit (RL) due to sample matrix interference. The RL on these samples was 0.2 mg/kg as compared to the 0.1 mg/kg RL on the Mill Basin Swale samples. In addition, the sample spike matrix for Molybdenum in both sets was qualified as "A" due to analyte levels greater than four times the spike level.

The laboratory analytical packages can be found in **Appendix B – Laboratory Analytical Results.**

SECTION 2

Photographs

2.1 Mill Basin Swale

Figure 1 – MBS - 01 Location on the southeastern side of stockpile

Figure 2– MBS-02 Location on the northern side of stockpile

Figure 3 – MBS-03 Location on the western side of stockpile

2.2 Lower Dump Sump

Figure 4 – LDS-TP-01 Location in the Auxiliary Borrow Area

Figure 5– LDS-TP-02 Location in the Site 5 Area

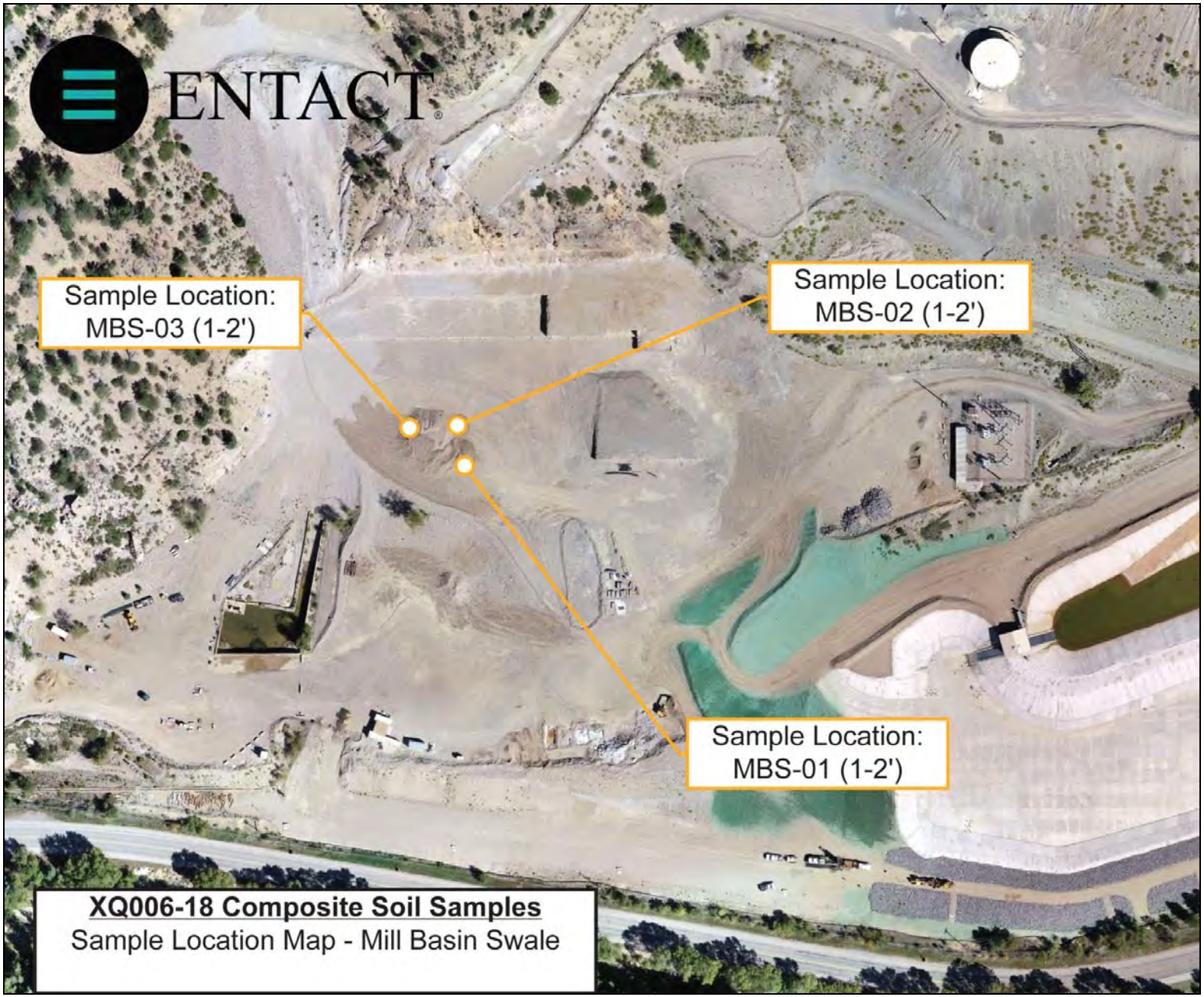
Figure 6 –View of LDS-TP-02 excavation

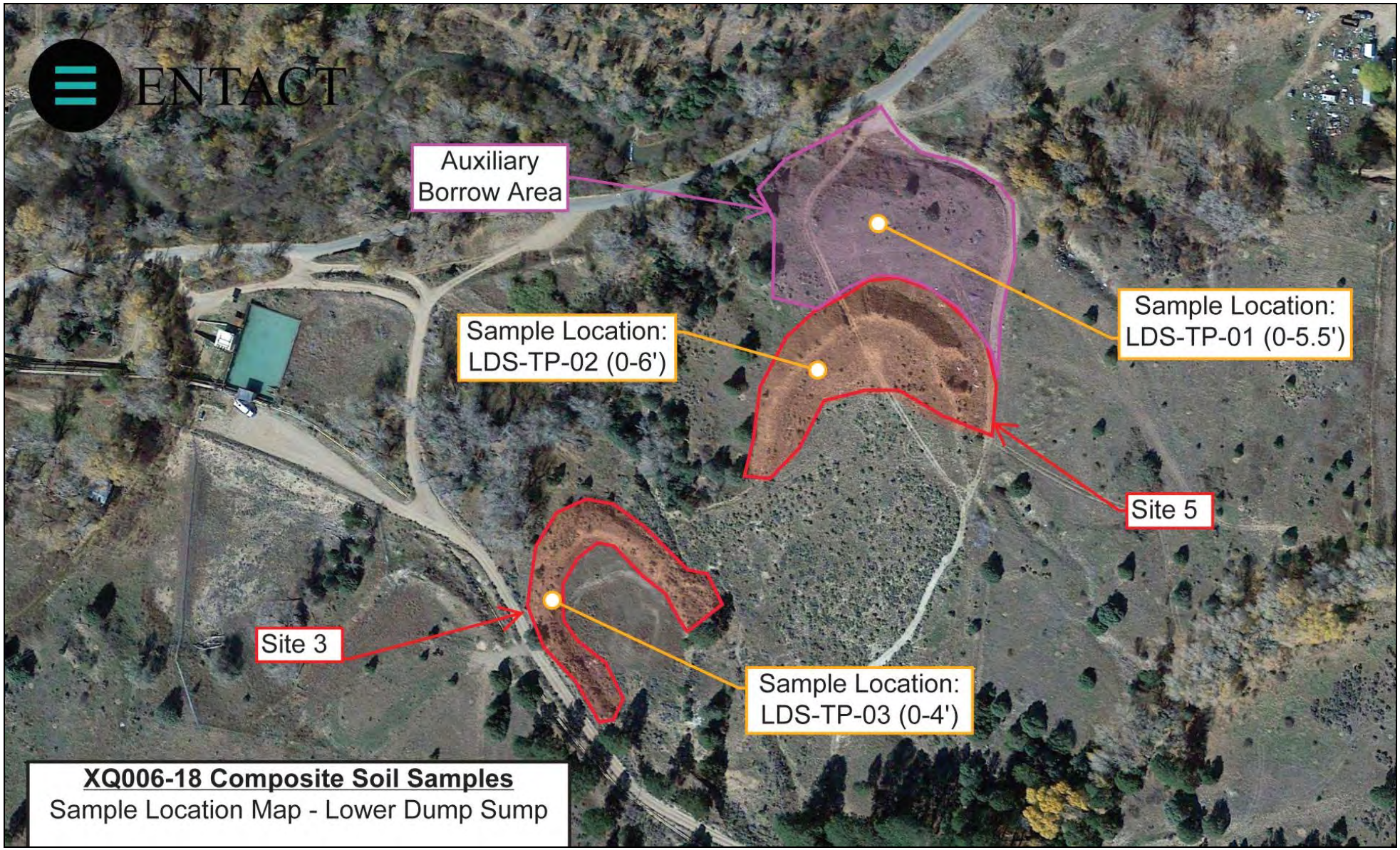
Figure 7 – LDS-TP-03 Location in the Site 3 Berm Area

APPENDICES

APPENDIX A

Sample Location Maps


ENTACT
Sample Location:
MBS-03 (1-2')
Sample Location:
MBS-02 (1-2')
Sample Location:
MBS-01 (1-2')
XQ006-18 Composite Soil Samples
Sample Location Map - Mill Basin Swale


ENTACT
Auxiliary Borrow Area
Sample Location: LDS-TP-01 (0-5.5')
Sample Location: LDS-TP-02 (0-6')
Site 5
Site 3
Sample Location: LDS-TP-03 (0-4')
XQ006-18 Composite Soil Samples
Sample Location Map - Lower Dump Sump

APPENDIX B

Laboratory Analytical Results

ANALYTICAL SUMMARY REPORT

September 20, 2018

Entact LLC
1 E Oakhill Dr Ste 102
Westmont, IL 60559-5540

Work Order: B18090552 Quote ID: B4681 - Chevron

Project Name: Mill Basin Swale Borrow Area

Energy Laboratories Inc Billings MT received the following 3 samples for Entact LLC on 9/7/2018 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B18090552-001	MBS-01	09/04/18 11:50	09/07/18	Soil	Metals, CACL2 Extractable DTPA Extractable Metals Metals, NH4OAC Extractable Metals, Ammonium Oxalate Extractable Metals, Saturated Paste Coarse Fragments Conductivity, Saturated Paste Extract Lime as CaCO3, % Moisture Nitrate as N, KCL Extract Organic Carbon/Matter Walkley-Black pH, Saturated Paste Phosphorus-Olsen CaCl2 Hot Water Soil Extraction ASA25-9 DTPA extraction for metals ASA19-3.3 Ammonium Acetate Extraction ASA13-3 Ammonium Oxalate Soil Extraction ASA74-2 Saturated Paste Extraction ASA Particle Size Analysis / Texture Sodium Adsorption Ratio Saturation Percentage Sulfur Forms
B18090552-002	MBS-02	09/04/18 11:55	09/07/18	Soil	Same As Above
B18090552-003	MBS-03	09/04/18 12:00	09/07/18	Soil	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Mill Basin Swale Borrow Area
Lab ID: B18090552-001
Client Sample ID: MBS-01

Report Date: 09/20/18
Collection Date: 09/04/18 11:50
DateReceived: 09/07/18
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Moisture (As Received)	6.9	wt%		0.2		D2974	09/12/18 08:53 / srm
Coarse Fragments	42	%		2		ASA15-3	09/13/18 15:08 / srm
PHYSICAL CHARACTERISTICS							
Sand	68	%		1		ASA15-5	09/14/18 11:46 / srm
Silt	23	%		1		ASA15-5	09/14/18 11:46 / srm
Clay	9	%		1		ASA15-5	09/14/18 11:46 / srm
Texture	SL			1		ASA15-5	09/14/18 11:46 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE EXTRACT							
pH, sat. paste	7.5	s.u.		0.1		ASA10-3	09/18/18 17:16 / srm
Conductivity, sat. paste	3.7	mmhos/cm		0.1		ASA10-3	09/18/18 17:16 / srm
Saturation	24.3	%		0.1		USDA27a	09/19/18 14:42 / srm
Calcium, sat. paste	34.2	meq/L		0.05		SW6010B	09/18/18 21:05 / rlh
Magnesium, sat. paste	4.24	meq/L		0.08		SW6010B	09/18/18 21:05 / rlh
Sodium, sat. paste	10.9	meq/L		0.04		SW6010B	09/18/18 21:05 / rlh
Sodium Adsorption Ratio (SAR)	2.48	unitless		0.01		Calculation	09/19/18 14:42 / srm
ACID-BASE ACCOUNTING							
Sulfur, Total	0.24	%		0.01		Sobek Modifie	09/19/18 12:52 / srm
CHEMICAL CHARACTERISTICS							
Organic Matter	1.9	%		0.2		ASA29-3	09/16/18 13:32 / srm
Lime as CaCO3	3.4	%		0.1		USDA23c	09/19/18 16:38 / srm
Phosphorus, Olsen	9	mg/kg		1		ASA24-5	09/13/18 11:36 / srm
Nitrate as N, KCL Extract	ND	mg/kg		1		ASA33-8	09/17/18 11:40 / srm
METALS, AMMONIUM OXALATE EXTRACTABLE							
Molybdenum	110	mg/kg		1.0		SW6020	09/17/18 13:55 / by
CACL2 EXTRACTABLE METALS							
Boron	ND	mg/kg		0.1		SW6010B	09/13/18 21:52 / rjh
METALS, AMMONIUM ACETATE EXTRACTABLE							
Potassium	108	mg/kg		1		SW6010B	09/13/18 22:58 / rjh
METALS, DTPA EXTRACTABLE							
Aluminum	0.2	mg/kg		0.1		SW6010B	09/17/18 16:58 / rlh
Cadmium	0.1	mg/kg		0.1		SW6010B	09/17/18 16:58 / rlh
Copper	3.2	mg/kg		0.1		SW6010B	09/17/18 16:58 / rlh
Iron	15	mg/kg		1		SW6010B	09/17/18 16:58 / rlh
Manganese	2.8	mg/kg		0.1		SW6010B	09/17/18 16:58 / rlh
Zinc	4.0	mg/kg		0.1		SW6010B	09/17/18 16:58 / rlh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Mill Basin Swale Borrow Area
Lab ID: B18090552-002
Client Sample ID: MBS-02

Report Date: 09/20/18
Collection Date: 09/04/18 11:55
DateReceived: 09/07/18
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Moisture (As Received)	8.1	wt%		0.2		D2974	09/12/18 08:53 / srm
Coarse Fragments	45	%		2		ASA15-3	09/13/18 15:08 / srm
PHYSICAL CHARACTERISTICS							
Sand	64	%		1		ASA15-5	09/14/18 11:46 / srm
Silt	26	%		1		ASA15-5	09/14/18 11:46 / srm
Clay	10	%		1		ASA15-5	09/14/18 11:46 / srm
Texture	SL			1		ASA15-5	09/14/18 11:46 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE EXTRACT							
pH, sat. paste	7.3	s.u.		0.1		ASA10-3	09/18/18 17:16 / srm
Conductivity, sat. paste	3.8	mmhos/cm		0.1		ASA10-3	09/18/18 17:16 / srm
Saturation	24.6	%		0.1		USDA27a	09/19/18 14:42 / srm
Calcium, sat. paste	33.8	meq/L		0.05		SW6010B	09/18/18 21:12 / rlh
Magnesium, sat. paste	4.21	meq/L		0.08		SW6010B	09/18/18 21:12 / rlh
Sodium, sat. paste	12.1	meq/L		0.04		SW6010B	09/18/18 21:12 / rlh
Sodium Adsorption Ratio (SAR)	2.77	unitless		0.01		Calculation	09/19/18 14:42 / srm
ACID-BASE ACCOUNTING							
Sulfur, Total	0.16	%		0.01		Sobek Modifie	09/19/18 12:52 / srm
CHEMICAL CHARACTERISTICS							
Organic Matter	1.8	%		0.2		ASA29-3	09/16/18 13:32 / srm
Lime as CaCO3	3.2	%		0.1		USDA23c	09/19/18 16:38 / srm
Phosphorus, Olsen	11	mg/kg		1		ASA24-5	09/13/18 11:38 / srm
Nitrate as N, KCL Extract	5	mg/kg		1		ASA33-8	09/17/18 11:41 / srm
METALS, AMMONIUM OXALATE EXTRACTABLE							
Molybdenum	68	mg/kg		1.0		SW6020	09/17/18 14:06 / by
CACL2 EXTRACTABLE METALS							
Boron	ND	mg/kg		0.1		SW6010B	09/13/18 22:07 / rjh
METALS, AMMONIUM ACETATE EXTRACTABLE							
Potassium	107	mg/kg		1		SW6010B	09/13/18 23:06 / rjh
METALS, DTPA EXTRACTABLE							
Aluminum	ND	mg/kg		0.1		SW6010B	09/17/18 17:06 / rlh
Cadmium	ND	mg/kg		0.1		SW6010B	09/17/18 17:06 / rlh
Copper	2.7	mg/kg		0.1		SW6010B	09/17/18 17:06 / rlh
Iron	17	mg/kg		1		SW6010B	09/17/18 17:06 / rlh
Manganese	2.2	mg/kg		0.1		SW6010B	09/17/18 17:06 / rlh
Zinc	3.1	mg/kg		0.1		SW6010B	09/17/18 17:06 / rlh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Mill Basin Swale Borrow Area
Lab ID: B18090552-003
Client Sample ID: MBS-03

Report Date: 09/20/18
Collection Date: 09/04/18 12:00
DateReceived: 09/07/18
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Moisture (As Received)	6.4	wt%		0.2		D2974	09/12/18 08:53 / srm
Coarse Fragments	46	%		2		ASA15-3	09/13/18 15:08 / srm
PHYSICAL CHARACTERISTICS							
Sand	60	%		1		ASA15-5	09/14/18 11:46 / srm
Silt	30	%		1		ASA15-5	09/14/18 11:46 / srm
Clay	10	%		1		ASA15-5	09/14/18 11:46 / srm
Texture	SL			1		ASA15-5	09/14/18 11:46 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE EXTRACT							
pH, sat. paste	7.3	s.u.		0.1		ASA10-3	09/18/18 17:16 / srm
Conductivity, sat. paste	4.8	mmhos/cm		0.1		ASA10-3	09/18/18 17:16 / srm
Saturation	24.6	%		0.1		USDA27a	09/19/18 14:42 / srm
Calcium, sat. paste	36.4	meq/L		0.05		SW6010B	09/18/18 21:20 / rlh
Magnesium, sat. paste	4.64	meq/L		0.08		SW6010B	09/18/18 21:20 / rlh
Sodium, sat. paste	20.1	meq/L		0.04		SW6010B	09/18/18 21:20 / rlh
Sodium Adsorption Ratio (SAR)	4.44	unitless		0.01		Calculation	09/19/18 14:42 / srm
ACID-BASE ACCOUNTING							
Sulfur, Total	0.14	%		0.01		Sobek Modifie	09/19/18 12:52 / srm
CHEMICAL CHARACTERISTICS							
Organic Matter	1.9	%		0.2		ASA29-3	09/16/18 13:32 / srm
Lime as CaCO3	3.3	%		0.1		USDA23c	09/19/18 16:38 / srm
Phosphorus, Olsen	11	mg/kg		1		ASA24-5	09/13/18 11:39 / srm
Nitrate as N, KCL Extract	9	mg/kg		1		ASA33-8	09/17/18 11:42 / srm
METALS, AMMONIUM OXALATE EXTRACTABLE							
Molybdenum	71	mg/kg		1.0		SW6020	09/17/18 14:09 / by
CACL2 EXTRACTABLE METALS							
Boron	0.1	mg/kg		0.1		SW6010B	09/13/18 22:15 / rjh
METALS, AMMONIUM ACETATE EXTRACTABLE							
Potassium	104	mg/kg		1		SW6010B	09/13/18 23:13 / rjh
METALS, DTPA EXTRACTABLE							
Aluminum	0.1	mg/kg		0.1		SW6010B	09/17/18 17:14 / rlh
Cadmium	ND	mg/kg		0.1		SW6010B	09/17/18 17:14 / rlh
Copper	2.7	mg/kg		0.1		SW6010B	09/17/18 17:14 / rlh
Iron	16	mg/kg		1		SW6010B	09/17/18 17:14 / rlh
Manganese	2.1	mg/kg		0.1		SW6010B	09/17/18 17:14 / rlh
Zinc	3.2	mg/kg		0.1		SW6010B	09/17/18 17:14 / rlh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Mill Basin Swale Borrow Area

Report Date: 09/20/18
Work Order: B18090552

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA10-3									Batch: 125587
Lab ID: B18090552-001A DUP	Sample Duplicate				Run: MISC-SOIL_180918B				09/18/18 17:16
Conductivity, sat. paste	3.67	mmhos/cm	0.10				0.8	30	
Lab ID: LCS-1809181716	Laboratory Control Sample				Run: MISC-SOIL_180918B				09/18/18 17:16
Conductivity, sat. paste	4.07	mmhos/cm	0.10	99	70	130			
Lab ID: B18090552-001A DUP	Sample Duplicate				Run: MISC-SOIL_180918B				09/18/18 17:16
pH, sat. paste	7.50	s.u.	0.10				0.0	10	
Lab ID: LCS-1809181716	Laboratory Control Sample				Run: MISC-SOIL_180918B				09/18/18 17:16
pH, sat. paste	7.10	s.u.	0.10	95	90	110			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Mill Basin Swale Borrow Area

Report Date: 09/20/18
Work Order: B18090552

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA15-5									Batch: R307356
Lab ID: B18090558-003A DUP	Sample Duplicate				Run: MISC-SOIL_180914A				09/14/18 11:46
Sand	61.0	%	1.0				1.7	30	
Silt	26.0	%	1.0				7.4	30	
Clay	13.0	%	1.0				8.0	30	
Lab ID: LCS-1809141146	Laboratory Control Sample				Run: MISC-SOIL_180914A				09/14/18 11:46
Sand	21.0	%	1.0	88	70	130			
Silt	58.0	%	1.0	107	70	130			
Clay	21.0	%	1.0	95	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Mill Basin Swale Borrow Area

Report Date: 09/20/18
Work Order: B18090552

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **ASA24-5**								Batch: OM_9-13-2018_11-19-16AMA	
Lab ID: **LCS**	Laboratory Control Sample				Run: FIA205-B_180913A			09/13/18 11:20	
Phosphorus, Olsen	48	mg/kg	1.0	108	70	130			
Lab ID: **B18090560-002ADUP**	Sample Duplicate				Run: FIA205-B_180913A			09/13/18 11:53	
Phosphorus, Olsen	4.8	mg/kg	1.0				7.1	30	
Lab ID: **B18090560-002AMS**	Sample Matrix Spike				Run: FIA205-B_180913A			09/13/18 11:55	
Phosphorus, Olsen	17	mg/kg	1.0	117	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Mill Basin Swale Borrow Area

Report Date: 09/20/18
Work Order: B18090552

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA29-3									Batch: R307406
Lab ID: B18090552-001A DUP	Sample Duplicate				Run: MISC-SOIL_180916A				09/16/18 13:32
Organic Matter	1.87	%	0.17				0.9	30	
Lab ID: LCS-1809161332	Laboratory Control Sample				Run: MISC-SOIL_180916A				09/16/18 13:32
Organic Matter	4.58	%	0.17	117	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Mill Basin Swale Borrow Area

Report Date: 09/20/18
Work Order: B18090552

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA33-8								Batch: OM_9-17-2018_11-28-59AM	
Lab ID: LCS	Laboratory Control Sample				Run: FIA205-B_180917A			09/17/18 11:30	
Nitrate as N, KCL Extract	10.8	mg/kg	1.0	100	70	130			
Lab ID: B18090560-003ADUP	Sample Duplicate				Run: FIA205-B_180917A			09/17/18 11:50	
Nitrate as N, KCL Extract	0.655	mg/kg	1.0					30	
Lab ID: B18090560-003AMS	Sample Matrix Spike				Run: FIA205-B_180917A			09/17/18 11:51	
Nitrate as N, KCL Extract	5.30	mg/kg	1.0	84	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Mill Basin Swale Borrow Area

Report Date: 09/20/18
Work Order: B18090552

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: Calculation									Batch: R307623
Lab ID: B18090552-001A DUP	Sample Duplicate				Run: MISC-SOIL_180919A				09/19/18 14:42
Sodium Adsorption Ratio (SAR)	2.53	unitless	0.010				2.0	30	
Lab ID: LCS-1809191442	Laboratory Control Sample				Run: MISC-SOIL_180919A				09/19/18 14:42
Sodium Adsorption Ratio (SAR)	8.44	unitless	0.010	90	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Mill Basin Swale Borrow Area

Report Date: 09/20/18
Work Order: B18090552

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: Sobek Modified									Batch: R307623
Lab ID: B18090552-001ADUP	Sample Duplicate				Run: MISC-SOIL_180919A				09/19/18 12:54
Sulfur, Total	0.220	%	0.010				6.6	50	
Lab ID: LCS-R307623	Laboratory Control Sample				Run: MISC-SOIL_180919A				09/19/18 13:03
Sulfur, Total	0.220	%	0.010	105	50	150			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Report Date: 09/20/18
Project: Mill Basin Swale Borrow Area
Work Order: B18090552

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B								Batch: 125412	
Lab ID: LCS-125412	Laboratory Control Sample				Run: ICP203-B_180913A			09/13/18 21:48	
Boron	0.420	mg/kg	0.10	117	70	130			
Lab ID: B18090552-001ADUP	Sample Duplicate				Run: ICP203-B_180913A			09/13/18 21:56	
Boron	0.0738	mg/kg	0.10					30	
Lab ID: B18090552-002AMS2	Sample Matrix Spike				Run: ICP203-B_180913A			09/13/18 22:11	
Boron	9.72	mg/kg	0.10	96	70	130			
Method: SW6010B								Batch: 125413	
Lab ID: LCS-125413	Laboratory Control Sample				Run: ICP203-B_180913A			09/13/18 22:54	
Potassium	400	mg/kg	1.4	104	70	130			
Lab ID: B18090552-001ADUP	Sample Duplicate				Run: ICP203-B_180913A			09/13/18 23:02	
Potassium	102	mg/kg	1.4				6.1	30	
Lab ID: B18090552-002AMS2	Sample Matrix Spike				Run: ICP203-B_180913A			09/13/18 23:10	
Potassium	4540	mg/kg	1.5	89	70	130			
Method: SW6010B								Batch: 125485	
Lab ID: LCS-125485	Laboratory Control Sample				Run: ICP203-B_180917A			09/17/18 16:29	
Cadmium	0.103	mg/kg	0.10	103	70	130			
Copper	2.86	mg/kg	0.10	86	70	130			
Iron	11.0	mg/kg	1.0	71	70	130			
Manganese	8.13	mg/kg	0.10	87	70	130			
Zinc	3.46	mg/kg	0.10	82	70	130			
Lab ID: B18090691-001AMS2	Sample Matrix Spike				Run: ICP203-B_180917A			09/17/18 16:45	
Aluminum	8.19	mg/kg	0.10	77	50	150			
Lab ID: B18090552-001A DUP	Sample Duplicate				Run: ICP203-B_180917A			09/17/18 17:02	
Aluminum	ND	mg/kg	0.10					30	
Cadmium	0.105	mg/kg	0.10				3.8	30	
Copper	3.28	mg/kg	0.10				1.4	30	
Iron	14.6	mg/kg	1.0				2.8	30	
Manganese	2.67	mg/kg	0.10				4.1	30	
Zinc	3.93	mg/kg	0.10				1.6	30	
Lab ID: B18090552-002AMS2	Sample Matrix Spike				Run: ICP203-B_180917A			09/17/18 17:10	
Cadmium	0.781	mg/kg	0.10	71	50	150			
Copper	4.50	mg/kg	0.10	90	50	150			
Iron	24.5	mg/kg	1.0	76	50	150			
Manganese	9.80	mg/kg	0.10	76	50	150			
Zinc	4.62	mg/kg	0.10	74	50	150			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Report Date: 09/20/18
Project: Mill Basin Swale Borrow Area
Work Order: B18090552

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B									Batch: 125587
Lab ID: LCS-125587	Laboratory Control Sample				Run: ICP204-B_180918A				09/18/18 21:01
Calcium, sat. paste	14.2	meq/L	0.050	122	70	130			
Magnesium, sat. paste	8.16	meq/L	0.082	112	70	130			
Sodium, sat. paste	28.2	meq/L	0.043	97	70	130			
Lab ID: B18090552-001A DUP	Sample Duplicate				Run: ICP204-B_180918A				09/18/18 21:08
Calcium, sat. paste	33.8	meq/L	0.050				1.2	30	
Magnesium, sat. paste	4.27	meq/L	0.082				0.8	30	
Sodium, sat. paste	11.1	meq/L	0.043				1.5	30	
Lab ID: B18090552-002AMS2	Sample Matrix Spike				Run: ICP204-B_180918A				09/18/18 21:16
Calcium, sat. paste	44.0	meq/L	0.050	82	70	130			
Magnesium, sat. paste	24.0	meq/L	0.082	96	70	130			
Sodium, sat. paste	22.1	meq/L	0.043	92	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Mill Basin Swale Borrow Area

Report Date: 09/20/18
Work Order: B18090552

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **SW6020**									Batch: 125484
Lab ID: **LCS-125484**	Laboratory Control Sample				Run: ICPMS202-B_180917A				09/17/18 13:50
Molybdenum	4.1	mg/kg	1.0	83	30	130			
Lab ID: **B18090552-001AMS**	Sample Matrix Spike				Run: ICPMS202-B_180917A				09/17/18 13:58
Molybdenum	11	mg/kg	1.0		70	130			A
Lab ID: **B18090552-001A DUP**	Sample Duplicate				Run: ICPMS202-B_180917A				09/17/18 14:03
Molybdenum	100	mg/kg	1.0				5.3	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Mill Basin Swale Borrow Area

Report Date: 09/20/18
Work Order: B18090552

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: USDA23c									Batch: R307636
Lab ID: B18090552-001A DUP	Sample Duplicate				Run: MISC-SOIL_180919B				09/19/18 16:38
Lime as CaCO3	3.20	%	0.10				6.1	30	
Lab ID: LCS-1809191638	Laboratory Control Sample				Run: MISC-SOIL_180919B				09/19/18 16:38
Lime as CaCO3	12.0	%	0.10	112	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Mill Basin Swale Borrow Area

Report Date: 09/20/18
Work Order: B18090552

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: USDA27a									Batch: R307623
Lab ID: B18090552-001A DUP	Sample Duplicate				Run: MISC-SOIL_180919A				09/19/18 14:42
Saturation	24.0	%	0.10				1.2	30	
Lab ID: LCS-1809191442	Laboratory Control Sample				Run: MISC-SOIL_180919A				09/19/18 14:42
Saturation	37.5	%	0.10	99	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

Entact LLC

B18090552

Login completed by: Tabitha Edwards
Date Received: 9/7/2018

Reviewed by: BL2000\raschim
Received by: bgs

Reviewed Date: 9/17/2018
Carrier name: Return-UPS NDA

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☐	No ☑	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	°C No Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

The temperature of the sample(s) for shipping container 1 was 20.6°C, shipping container 2 was 20.8°C and shipping container 3 was 17.6°C.

The sample container for MBS-02 was received torn. Placed sample container into another ziploc and proceeded with analysis per phone call with Sarah Miller.

Turnaround time changed to 10 days per Shari Endy, Energy Laboratories Project Manager.

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Account Information (Billing information)

Company/Name	Entact
Contact	Sarah Miller
Phone	
Mailing Address	1 E. Oak Hill Dr, Suite 102
City, State, Zip	Westmont, IL 60559
Email	smiller@entact.com
Receive Invoice	☐Hard Copy ☒Email
Receive Report	☐Hard Copy ☑Email
Purchase Order	XQ00618-523
Quote	B18821 modified
Bottle Order	112016

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐Hard Copy ☐Email

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

TAT 7 days per quote

Project Information

Project Name, PWSID, Permit, etc.	Mill Basin Swale Borrow Area
Sampler Name	S. Miller
Sampler Phone	302-388-3040
Sample Origin State	NM
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	MBS-01	9/4/18	1150	1	S	X	7	B18090552-001
2	MBS-02	9/4/18	1155	1	S	X	7	002
3	MBS-03	9/4/18	1200	1	S	X	7	003
4								
5								
6								
7								
8								
9								
10								

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Sarah Miller	9/5/18 0730		UPS 1Z598W1387	6824 7818	
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	Date/Time 9/7/18 0950	Signature

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check_____	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-12/16 v.1

Requested Analyses for Borrow Area Soil Samples submitted by ENTACT

Analyte	Method
Aluminum	E6010.20
Boron	E6010.20
Cadmium	E6010.20
Calcium, saturated paste	E6010.20
Calcium Carbonate	USDA23c
Conductivity, saturated paste	ASA10-3
Copper	E6010.20
Iron	E6010.20
Magnesium, saturated paste	E6010.20
Manganese	E6010.20
Molybdenum	E6010.20
Nitrate as N, KCL Extract	ASA33-8
pH, saturated paste	ASA10-3
Phosphorus, Olsen	ASA24-5
Potassium	E6010.20
Sodium Adsorption Ratio (SAR)	Calculation
Sodium, saturated paste	E6010.20
Sulphur	Sobek Modified
Total Organic Matter	Walkley-Black
Zinc	E6010.20
Moisture Content	D2974
Coarse Fragments	ASA15-3
Particle Size	ASA15-5

ANALYTICAL SUMMARY REPORT

September 20, 2018

Entact LLC
1 E Oakhill Dr Ste 102
Westmont, IL 60559-5540

Work Order: B18090560 Quote ID: B4681 - Chevron

Project Name: Lower Dump Sump Borrow Area

Energy Laboratories Inc Billings MT received the following 3 samples for Entact LLC on 9/7/2018 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B18090560-001	LDS-TP-03	09/04/18 13:30	09/07/18	Soil	Metals, CACL2 Extractable DTPA Extractable Metals Metals, NH4OAC Extractable Metals, Ammonium Oxalate Extractable Metals, Saturated Paste Coarse Fragments Conductivity, Saturated Paste Extract Lime as CaCO3, % Moisture Nitrate as N, KCL Extract Organic Carbon/Matter Walkley-Black pH, Saturated Paste Phosphorus-Olsen CaCl2 Hot Water Soil Extraction ASA25-9 DTPA extraction for metals ASA19-3.3 Ammonium Acetate Extraction ASA13-3 Ammonium Oxalate Soil Extraction ASA74-2 Saturated Paste Extraction ASA Particle Size Analysis / Texture Sodium Adsorption Ratio Saturation Percentage Sulfur Forms
B18090560-002	LDS-TP-02	09/04/18 13:45	09/07/18	Soil	Same As Above
B18090560-003	LDS-TP-01	09/04/18 14:00	09/07/18	Soil	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative.

The results as reported relate only to the item(s) submitted for testing.

If you have any questions regarding these test results, please call.

Report Approved By:

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Lower Dump Sump Borrow Area
Lab ID: B18090560-001
Client Sample ID: LDS-TP-03

Report Date: 09/20/18
Collection Date: 09/04/18 13:30
DateReceived: 09/07/18
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Moisture (As Received)	10.5	wt%		0.2		D2974	09/12/18 08:53 / srm
Coarse Fragments	24	%		2		ASA15-3	09/13/18 15:08 / srm
PHYSICAL CHARACTERISTICS							
Sand	66	%		1		ASA15-5	09/14/18 11:46 / srm
Silt	25	%		1		ASA15-5	09/14/18 11:46 / srm
Clay	9	%		1		ASA15-5	09/14/18 11:46 / srm
Texture	SL			1		ASA15-5	09/14/18 11:46 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE EXTRACT							
pH, sat. paste	7.1	s.u.		0.1		ASA10-3	09/18/18 17:16 / srm
Conductivity, sat. paste	0.4	mmhos/cm		0.1		ASA10-3	09/18/18 17:16 / srm
Saturation	19.5	%		0.1		USDA27a	09/19/18 14:42 / srm
Calcium, sat. paste	2.36	meq/L		0.05		SW6010B	09/18/18 21:43 / rlh
Magnesium, sat. paste	0.81	meq/L		0.08		SW6010B	09/18/18 21:43 / rlh
Sodium, sat. paste	0.49	meq/L		0.04		SW6010B	09/18/18 21:43 / rlh
Sodium Adsorption Ratio (SAR)	0.39	unitless		0.01		Calculation	09/19/18 14:42 / srm
ACID-BASE ACCOUNTING							
Sulfur, Total	ND	%		0.01		Sobek Modifie	09/19/18 12:52 / srm
CHEMICAL CHARACTERISTICS							
Organic Matter	1.4	%		0.2		ASA29-3	09/16/18 13:32 / srm
Lime as CaCO3	1.1	%		0.1		USDA23c	09/19/18 16:38 / srm
Phosphorus, Olsen	5	mg/kg		1		ASA24-5	09/13/18 11:50 / srm
Nitrate as N, KCL Extract	ND	mg/kg		1		ASA33-8	09/17/18 11:45 / srm
METALS, AMMONIUM OXALATE EXTRACTABLE							
Molybdenum	1.3	mg/kg		1.0		SW6020	09/17/18 14:31 / by
CACL2 EXTRACTABLE METALS							
Boron	ND	mg/kg		0.1		SW6010B	09/13/18 22:30 / rjh
METALS, AMMONIUM ACETATE EXTRACTABLE							
Potassium	72	mg/kg		1		SW6010B	09/13/18 23:29 / rjh
METALS, DTPA EXTRACTABLE							
Aluminum	0.1	mg/kg		0.1		SW6010B	09/17/18 17:38 / rlh
Cadmium	ND	mg/kg		0.1		SW6010B	09/17/18 17:38 / rlh
Copper	0.3	mg/kg		0.1		SW6010B	09/17/18 17:38 / rlh
Iron	4	mg/kg		1		SW6010B	09/17/18 17:38 / rlh
Manganese	1.6	mg/kg		0.1		SW6010B	09/17/18 17:38 / rlh
Zinc	1.0	mg/kg	D	0.2		SW6010B	09/17/18 17:38 / rlh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Lower Dump Sump Borrow Area
Lab ID: B18090560-002
Client Sample ID: LDS-TP-02

Report Date: 09/20/18
Collection Date: 09/04/18 13:45
DateReceived: 09/07/18
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Moisture (As Received)	9.1	wt%		0.2		D2974	09/12/18 08:53 / srm
Coarse Fragments	31	%		2		ASA15-3	09/13/18 15:08 / srm
PHYSICAL CHARACTERISTICS							
Sand	66	%		1		ASA15-5	09/14/18 11:46 / srm
Silt	22	%		1		ASA15-5	09/14/18 11:46 / srm
Clay	12	%		1		ASA15-5	09/14/18 11:46 / srm
Texture	SL			1		ASA15-5	09/14/18 11:46 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE EXTRACT							
pH, sat. paste	6.4	s.u.		0.1		ASA10-3	09/18/18 17:16 / srm
Conductivity, sat. paste	2.5	mmhos/cm		0.1		ASA10-3	09/18/18 17:16 / srm
Saturation	23.5	%		0.1		USDA27a	09/19/18 14:42 / srm
Calcium, sat. paste	28.5	meq/L		0.05		SW6010B	09/18/18 21:47 / rlh
Magnesium, sat. paste	8.06	meq/L		0.08		SW6010B	09/18/18 21:47 / rlh
Sodium, sat. paste	0.96	meq/L		0.04		SW6010B	09/18/18 21:47 / rlh
Sodium Adsorption Ratio (SAR)	0.22	unitless		0.01		Calculation	09/19/18 14:42 / srm
ACID-BASE ACCOUNTING							
Sulfur, Total	0.10	%		0.01		Sobek Modifie	09/19/18 12:52 / srm
CHEMICAL CHARACTERISTICS							
Organic Matter	0.7	%		0.2		ASA29-3	09/16/18 13:32 / srm
Lime as CaCO3	1.1	%		0.1		USDA23c	09/19/18 16:38 / srm
Phosphorus, Olsen	5	mg/kg		1		ASA24-5	09/13/18 11:52 / srm
Nitrate as N, KCL Extract	ND	mg/kg		1		ASA33-8	09/17/18 11:46 / srm
METALS, AMMONIUM OXALATE EXTRACTABLE							
Molybdenum	10	mg/kg		1.0		SW6020	09/17/18 14:33 / by
CACL2 EXTRACTABLE METALS							
Boron	ND	mg/kg		0.1		SW6010B	09/13/18 22:34 / rjh
METALS, AMMONIUM ACETATE EXTRACTABLE							
Potassium	81	mg/kg		1		SW6010B	09/14/18 00:08 / rjh
METALS, DTPA EXTRACTABLE							
Aluminum	ND	mg/kg		0.1		SW6010B	09/17/18 17:42 / rlh
Cadmium	ND	mg/kg		0.1		SW6010B	09/17/18 17:42 / rlh
Copper	1.1	mg/kg		0.1		SW6010B	09/17/18 17:42 / rlh
Iron	6	mg/kg		1		SW6010B	09/17/18 17:42 / rlh
Manganese	2.4	mg/kg		0.1		SW6010B	09/17/18 17:42 / rlh
Zinc	2.1	mg/kg	D	0.2		SW6010B	09/17/18 17:42 / rlh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Lower Dump Sump Borrow Area
Lab ID: B18090560-003
Client Sample ID: LDS-TP-01

Report Date: 09/20/18
Collection Date: 09/04/18 14:00
DateReceived: 09/07/18
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
PHYSICAL CHARACTERISTICS							
Moisture (As Received)	7.0	wt%		0.2		D2974	09/12/18 08:53 / srm
Coarse Fragments	32	%		2		ASA15-3	09/13/18 15:08 / srm
PHYSICAL CHARACTERISTICS							
Sand	74	%		1		ASA15-5	09/14/18 11:46 / srm
Silt	19	%		1		ASA15-5	09/14/18 11:46 / srm
Clay	7	%		1		ASA15-5	09/14/18 11:46 / srm
Texture	SL			1		ASA15-5	09/14/18 11:46 / srm
- C = Clay, S = Sand(y), Si = Silt(y), L = Loam(y)							
SATURATED PASTE EXTRACT							
pH, sat. paste	7.3	s.u.		0.1		ASA10-3	09/18/18 17:16 / srm
Conductivity, sat. paste	0.3	mmhos/cm		0.1		ASA10-3	09/18/18 17:16 / srm
Saturation	19.2	%		0.1		USDA27a	09/19/18 14:42 / srm
Calcium, sat. paste	2.41	meq/L		0.05		SW6010B	09/18/18 21:50 / rlh
Magnesium, sat. paste	0.59	meq/L		0.08		SW6010B	09/18/18 21:50 / rlh
Sodium, sat. paste	0.28	meq/L		0.04		SW6010B	09/18/18 21:50 / rlh
Sodium Adsorption Ratio (SAR)	0.23	unitless		0.01		Calculation	09/19/18 14:42 / srm
ACID-BASE ACCOUNTING							
Sulfur, Total	ND	%		0.01		Sobek Modifie	09/19/18 12:52 / srm
CHEMICAL CHARACTERISTICS							
Organic Matter	0.9	%		0.2		ASA29-3	09/16/18 13:32 / srm
Lime as CaCO3	1.4	%		0.1		USDA23c	09/19/18 16:38 / srm
Phosphorus, Olsen	3	mg/kg		1		ASA24-5	09/13/18 11:57 / srm
Nitrate as N, KCL Extract	ND	mg/kg		1		ASA33-8	09/17/18 11:49 / srm
METALS, AMMONIUM OXALATE EXTRACTABLE							
Molybdenum	ND	mg/kg		1.0		SW6020	09/17/18 14:36 / by
CACL2 EXTRACTABLE METALS							
Boron	ND	mg/kg		0.1		SW6010B	09/13/18 22:38 / rjh
METALS, AMMONIUM ACETATE EXTRACTABLE							
Potassium	87	mg/kg		1		SW6010B	09/14/18 00:12 / rjh
METALS, DTPA EXTRACTABLE							
Aluminum	ND	mg/kg		0.1		SW6010B	09/17/18 17:46 / rlh
Cadmium	ND	mg/kg		0.1		SW6010B	09/17/18 17:46 / rlh
Copper	0.3	mg/kg		0.1		SW6010B	09/17/18 17:46 / rlh
Iron	4	mg/kg		1		SW6010B	09/17/18 17:46 / rlh
Manganese	1.7	mg/kg		0.1		SW6010B	09/17/18 17:46 / rlh
Zinc	2.2	mg/kg	D	0.2		SW6010B	09/17/18 17:46 / rlh

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Report Date: 09/20/18
Project: Lower Dump Sump Borrow Area
Work Order: B18090560

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA10-3									Batch: 125587
Lab ID: B18090552-001A DUP	Sample Duplicate				Run: MISC-SOIL_180918B				09/18/18 17:16
Conductivity, sat. paste	3.67	mmhos/cm	0.10				0.8	30	
Lab ID: LCS-1809181716	Laboratory Control Sample				Run: MISC-SOIL_180918B				09/18/18 17:16
Conductivity, sat. paste	4.07	mmhos/cm	0.10	99	70	130			
Lab ID: B18090552-001A DUP	Sample Duplicate				Run: MISC-SOIL_180918B				09/18/18 17:16
pH, sat. paste	7.50	s.u.	0.10				0.0	10	
Lab ID: LCS-1809181716	Laboratory Control Sample				Run: MISC-SOIL_180918B				09/18/18 17:16
pH, sat. paste	7.10	s.u.	0.10	95	90	110			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Lower Dump Sump Borrow Area

Report Date: 09/20/18
Work Order: B18090560

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA15-5									Batch: R307356
Lab ID: B18090558-003A DUP	Sample Duplicate				Run: MISC-SOIL_180914A				09/14/18 11:46
Sand	61.0	%	1.0				1.7	30	
Silt	26.0	%	1.0				7.4	30	
Clay	13.0	%	1.0				8.0	30	
Lab ID: LCS-1809141146	Laboratory Control Sample				Run: MISC-SOIL_180914A				09/14/18 11:46
Sand	21.0	%	1.0	88	70	130			
Silt	58.0	%	1.0	107	70	130			
Clay	21.0	%	1.0	95	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Lower Dump Sump Borrow Area

Report Date: 09/20/18
Work Order: B18090560

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA24-5								Batch: OM_9-13-2018_11-19-16AMA	
Lab ID: LCS	Laboratory Control Sample				Run: FIA205-B_180913A			09/13/18 11:20	
Phosphorus, Olsen	48	mg/kg	1.0	108	70	130			
Lab ID: B18090560-002ADUP	Sample Duplicate				Run: FIA205-B_180913A			09/13/18 11:53	
Phosphorus, Olsen	4.8	mg/kg	1.0				7.1	30	
Lab ID: B18090560-002AMS	Sample Matrix Spike				Run: FIA205-B_180913A			09/13/18 11:55	
Phosphorus, Olsen	17	mg/kg	1.0	117	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Lower Dump Sump Borrow Area

Report Date: 09/20/18
Work Order: B18090560

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA29-3									Batch: R307406
Lab ID: B18090552-001A DUP	Sample Duplicate				Run: MISC-SOIL_180916A				09/16/18 13:32
Organic Matter	1.87	%	0.17				0.9	30	
Lab ID: LCS-1809161332	Laboratory Control Sample				Run: MISC-SOIL_180916A				09/16/18 13:32
Organic Matter	4.58	%	0.17	117	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Lower Dump Sump Borrow Area

Report Date: 09/20/18
Work Order: B18090560

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **ASA33-8**								Batch: OM_9-17-2018_11-28-59AM	
Lab ID: **LCS**	Laboratory Control Sample				Run: FIA205-B_180917A			09/17/18 11:30	
Nitrate as N, KCL Extract	10.8	mg/kg	1.0	100	70	130			
Lab ID: **B18090560-003ADUP**	Sample Duplicate				Run: FIA205-B_180917A			09/17/18 11:50	
Nitrate as N, KCL Extract	0.655	mg/kg	1.0					30	
Lab ID: **B18090560-003AMS**	Sample Matrix Spike				Run: FIA205-B_180917A			09/17/18 11:51	
Nitrate as N, KCL Extract	5.30	mg/kg	1.0	84	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Report Date: 09/20/18
Project: Lower Dump Sump Borrow Area
Work Order: B18090560

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: Calculation									Batch: R307623
Lab ID: B18090552-001A DUP	Sample Duplicate				Run: MISC-SOIL_180919A				09/19/18 14:42
Sodium Adsorption Ratio (SAR)	2.53	unitless	0.010				2.0	30	
Lab ID: LCS-1809191442	Laboratory Control Sample				Run: MISC-SOIL_180919A				09/19/18 14:42
Sodium Adsorption Ratio (SAR)	8.44	unitless	0.010	90	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Report Date: 09/20/18
Project: Lower Dump Sump Borrow Area
Work Order: B18090560

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: Sobek Modified									Batch: R307623
Lab ID: B18090552-001ADUP	Sample Duplicate				Run: MISC-SOIL_180919A				09/19/18 12:54
Sulfur, Total	0.220	%	0.010				6.6	50	
Lab ID: LCS-R307623	Laboratory Control Sample				Run: MISC-SOIL_180919A				09/19/18 13:03
Sulfur, Total	0.220	%	0.010	105	50	150			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Lower Dump Sump Borrow Area

Report Date: 09/20/18
Work Order: B18090560

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **SW6010B**									Batch: 125412
Lab ID: **LCS-125412**	Laboratory Control Sample				Run: ICP203-B_180913A				09/13/18 21:48
Boron	0.420	mg/kg	0.10	117	70	130			
Lab ID: **B18090552-001ADUP**	Sample Duplicate				Run: ICP203-B_180913A				09/13/18 21:56
Boron	0.0738	mg/kg	0.10					30	
Lab ID: **B18090552-002AMS2**	Sample Matrix Spike				Run: ICP203-B_180913A				09/13/18 22:11
Boron	9.72	mg/kg	0.10	96	70	130			
Method: **SW6010B**									Batch: 125413
Lab ID: **LCS-125413**	Laboratory Control Sample				Run: ICP203-B_180913A				09/13/18 22:54
Potassium	400	mg/kg	1.4	104	70	130			
Lab ID: **B18090552-001ADUP**	Sample Duplicate				Run: ICP203-B_180913A				09/13/18 23:02
Potassium	102	mg/kg	1.4				6.1	30	
Lab ID: **B18090552-002AMS2**	Sample Matrix Spike				Run: ICP203-B_180913A				09/13/18 23:10
Potassium	4540	mg/kg	1.5	89	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Report Date: 09/20/18
Project: Lower Dump Sump Borrow Area
Work Order: B18090560

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: SW6010B									Batch: 125485
Lab ID: LCS-125485	Laboratory Control Sample				Run: ICP203-B_180917A				09/17/18 16:29
Aluminum	ND	mg/kg	0.10		70	130			
Cadmium	0.103	mg/kg	0.10	103	70	130			
Copper	2.86	mg/kg	0.10	86	70	130			
Iron	11.0	mg/kg	1.0	71	70	130			
Manganese	8.13	mg/kg	0.10	87	70	130			
Zinc	3.46	mg/kg	0.10	82	70	130			
Lab ID: B18090691-001AMS2	Sample Matrix Spike				Run: ICP203-B_180917A				09/17/18 16:45
Aluminum	8.19	mg/kg	0.10	77	50	150			
Lab ID: B18090552-001A DUP	Sample Duplicate				Run: ICP203-B_180917A				09/17/18 17:02
Aluminum	ND	mg/kg	0.10					30	
Cadmium	0.105	mg/kg	0.10				3.8	30	
Copper	3.28	mg/kg	0.10				1.4	30	
Iron	14.6	mg/kg	1.0				2.8	30	
Manganese	2.67	mg/kg	0.10				4.1	30	
Zinc	3.93	mg/kg	0.10				1.6	30	
Lab ID: B18090552-002AMS2	Sample Matrix Spike				Run: ICP203-B_180917A				09/17/18 17:10
Cadmium	0.781	mg/kg	0.10	71	50	150			
Copper	4.50	mg/kg	0.10	90	50	150			
Iron	24.5	mg/kg	1.0	76	50	150			
Manganese	9.80	mg/kg	0.10	76	50	150			
Zinc	4.62	mg/kg	0.10	74	50	150			
Method: SW6010B									Batch: 125587
Lab ID: LCS-125587	Laboratory Control Sample				Run: ICP204-B_180918A				09/18/18 21:01
Calcium, sat. paste	14.2	meq/L	0.050	122	70	130			
Magnesium, sat. paste	8.16	meq/L	0.082	112	70	130			
Sodium, sat. paste	28.2	meq/L	0.043	97	70	130			
Lab ID: B18090552-001A DUP	Sample Duplicate				Run: ICP204-B_180918A				09/18/18 21:08
Calcium, sat. paste	33.8	meq/L	0.050				1.2	30	
Magnesium, sat. paste	4.27	meq/L	0.082				0.8	30	
Sodium, sat. paste	11.1	meq/L	0.043				1.5	30	
Lab ID: B18090552-002AMS2	Sample Matrix Spike				Run: ICP204-B_180918A				09/18/18 21:16
Calcium, sat. paste	44.0	meq/L	0.050	82	70	130			
Magnesium, sat. paste	24.0	meq/L	0.082	96	70	130			
Sodium, sat. paste	22.1	meq/L	0.043	92	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Lower Dump Sump Borrow Area

Report Date: 09/20/18
Work Order: B18090560

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: **SW6020**									Batch: 125484
Lab ID: **LCS-125484**	Laboratory Control Sample				Run: ICPMS202-B_180917A				09/17/18 13:50
Molybdenum	4.1	mg/kg	1.0	83	30	130			
Lab ID: **B18090552-001AMS**	Sample Matrix Spike				Run: ICPMS202-B_180917A				09/17/18 13:58
Molybdenum	11	mg/kg	1.0		70	130			A
Lab ID: **B18090552-001A DUP**	Sample Duplicate				Run: ICPMS202-B_180917A				09/17/18 14:03
Molybdenum	100	mg/kg	1.0				5.3	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

A - The analyte level was greater than four times the spike level. In accordance with the method % recovery is not calculated.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Project: Lower Dump Sump Borrow Area

Report Date: 09/20/18
Work Order: B18090560

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: USDA23c									Batch: R307636
Lab ID: B18090552-001A DUP	Sample Duplicate				Run: MISC-SOIL_180919B				09/19/18 16:38
Lime as CaCO3	3.20	%	0.10				6.1	30	
Lab ID: LCS-1809191638	Laboratory Control Sample				Run: MISC-SOIL_180919B				09/19/18 16:38
Lime as CaCO3	12.0	%	0.10	112	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Entact LLC
Report Date: 09/20/18
Project: Lower Dump Sump Borrow Area
Work Order: B18090560

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: USDA27a									Batch: R307623
Lab ID: B18090552-001A DUP	Sample Duplicate				Run: MISC-SOIL_180919A				09/19/18 14:42
Saturation	24.0	%	0.10				1.2	30	
Lab ID: LCS-1809191442	Laboratory Control Sample				Run: MISC-SOIL_180919A				09/19/18 14:42
Saturation	37.5	%	0.10	99	70	130			

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Work Order Receipt Checklist

Entact LLC

B18090560

Login completed by: Tabitha Edwards
Date Received: 9/7/2018

Reviewed by: BL2000\raschim
Received by: bgs

Reviewed Date: 9/17/2018
Carrier name: Return-UPS NDA N/C

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☐	No ☑	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☐	No ☑	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☑	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☑	Not Applicable ☐
Container/Temp Blank temperature:	°C No Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☑
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☑

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Contact and Corrective Action Comments:

The temperature of the sample(s) for shipping container 1 was 20.6°C, shipping container 2 was 20.8°C and shipping container 3 was 17.6°C.

The sample container for LDS-TP-03 was received torn. Placed sample container into another ziploc and proceeded with analysis per phone call with Sarah Miller.

Turnaround time changed to 10 days per Shari Endy, Energy Laboratories Project Manager.

The sample identification indicated on the container label for sample LDS-TP-01 is LDS-TP-03 and on the Chain of Custody it is LDS-TP-01 however the collection date/time matched from the container label to the Chain of Custody. Proceeded with the sample identification as indicated on the Chain of Custody.

ENERGY LABORATORIES
Trust our People. Trust our Data.

Chain of Custody & Analytical Request Record

www.energylab.com

Page 1 of 1

Account Information (Billing information)

Company/Name	Entact
Contact	Sarah Miller
Phone	
Mailing Address	1 E. Oakhill Dr, Suite 102
City, State, Zip	Westmont, IL 60559
Email	smiller@entact.com
Receive Invoice	☐Hard Copy ☒Email
Receive Report	☐Hard Copy ☒Email
Purchase Order	XQ006-18-503
Quote	B4881 modified
Bottle Order	1260116

Report Information (if different than Account Information)

Company/Name	
Contact	
Phone	
Mailing Address	
City, State, Zip	
Email	
Receive Report	☐Hard Copy ☐Email

Special Report/Formats: ☐ LEVEL IV ☐ NELAC ☐ EDD/EDT (contact laboratory) ☐ Other_____

Comments

TAT 7days per quote

Project Information

Project Name, PWSID, Permit, etc.	Lower Dump Sump Borrow Area
Sampler Name	S. Miller
Sampler Phone	302-388-3040
Sample Origin State	NM
EPA/State Compliance	☐ Yes ☐ No

MINING CLIENTS, please indicate sample type.
*If ore has been processed or refined, call before sending.
☐ Byproduct 11 (e)2 material ☐ Unprocessed ore (NOT ground or refined)*

Matrix Codes
A - Air
W - Water
S - Soils/Solids
V - Vegetation
B - Bioassay
O - Other
DW - Drinking Water

All turnaround times are standard unless marked as RUSH.
Energy Laboratories MUST be contacted prior to RUSH sample submittal for charges and scheduling – See Instructions Page

	Sample Identification (Name, Location, Interval, etc.)	Collection Date	Collection Time	Number of Containers	Matrix (See Codes Above)	See Attached	RUSH TAT	ELI LAB ID (Laboratory Use Only)
1	LDS-TP-03	9/4/18	1330	1	S	X	7	B18090560-001
2	LDS-TP-02	9/4/18	1345	1	S	X	7	002
3	LDS-TP-01	9/4/18	1400	1	S	X	7	003
4								
5								
6								
7								
8								
9								
10								

Custody Record MUST be signed	Relinquished by (print)	Date/Time	Signature	Received by (print)	Date/Time	Signature
	Sarah Miller	9/5/18 0730		DPS1259831387677006023		
	Relinquished by (print)	Date/Time	Signature	Received by Laboratory (print)	9/7/18 0950	Signature

LABORATORY USE ONLY

Shipped By	Cooler ID(s)	Custody Seals Y N C B	Intact Y N	Receipt Temp °C	Temp Blank Y N	On Ice Y N	Payment Type CC Cash Check_____	Amount $	Receipt Number (cash/check only)

In certain circumstances, samples submitted to Energy Laboratories, Inc. may be subcontracted to other certified laboratories in order to complete the analysis requested. This serves as notice of this possibility. All subcontracted data will be clearly notated on your analytical report.

ELI-COC-12/16 v.1

Requested Analyses for Borrow Area Soil Samples submitted by ENTACT

Analyte	Method
Aluminum	E6010.20
Boron	E6010.20
Cadmium	E6010.20
Calcium, saturated paste	E6010.20
Calcium Carbonate	USDA23c
Conductivity, saturated paste	ASA10-3
Copper	E6010.20
Iron	E6010.20
Magnesium, saturated paste	E6010.20
Manganese	E6010.20
Molybdenum	E6010.20
Nitrate as N, KCL Extract	ASA33-8
pH, saturated paste	ASA10-3
Phosphorus, Olsen	ASA24-5
Potassium	E6010.20
Sodium Adsorption Ratio (SAR)	Calculation
Sodium, saturated paste	E6010.20
Sulphur	Sobek Modified
Total Organic Matter	Walkley-Black
Zinc	E6010.20
Moisture Content	D2974
Coarse Fragments	ASA15-3
Particle Size	ASA15-5

ENTACT

BORROW AREAS

EST. 13 ACRES

EST. 24 ACRES

SOLAR FACILITY

EASTERN DIVERSION CHANNEL

DAM 2

Gonzales Rd

Wildcat Rd

Vistas De Questa Rd

Abra Rd

Manview Rd

Old Hwy 3

522

N

1000 ft

Google Earth

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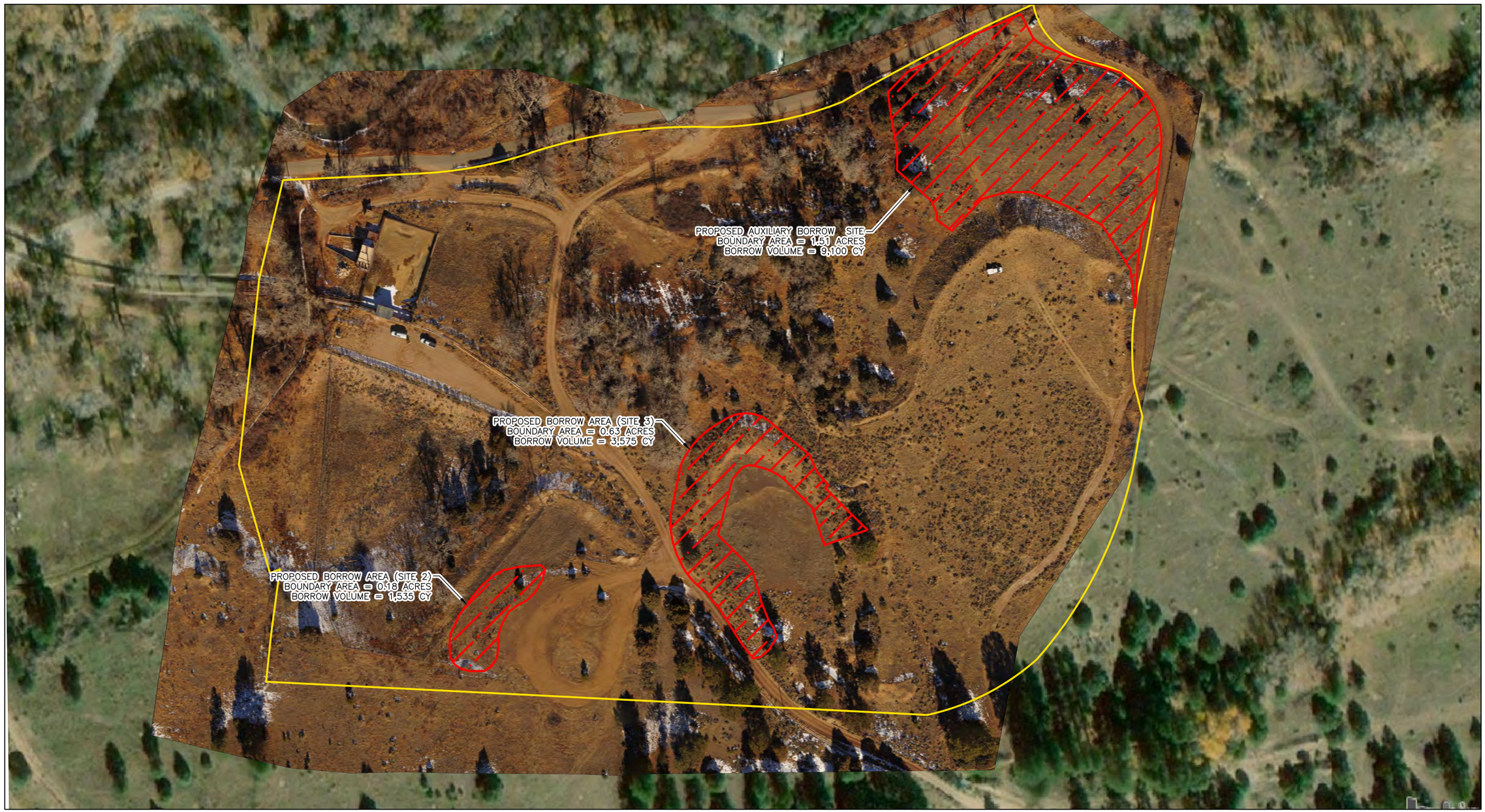


BORROW SITE SUMMARY

SITE	DISTURBANCE (ACRES)	VOLUME (CY)
SITE 2 BORROW AREA	0.18	1,535
SITE 3 BORROW AREA	0.63	3,575
AUXILIARY BORROW SITE	1.51	9,100

EXPLANATION

EXPANDED SITE BOUNDARY

PROPOSED BORROW AREA

N

0 100'

Trihydro CORPORATION
1252 Commerce Drive
Laramie, Wyoming 82070
www.trihydro.com
(P) 307/745.7474 (F) 307/745.7729

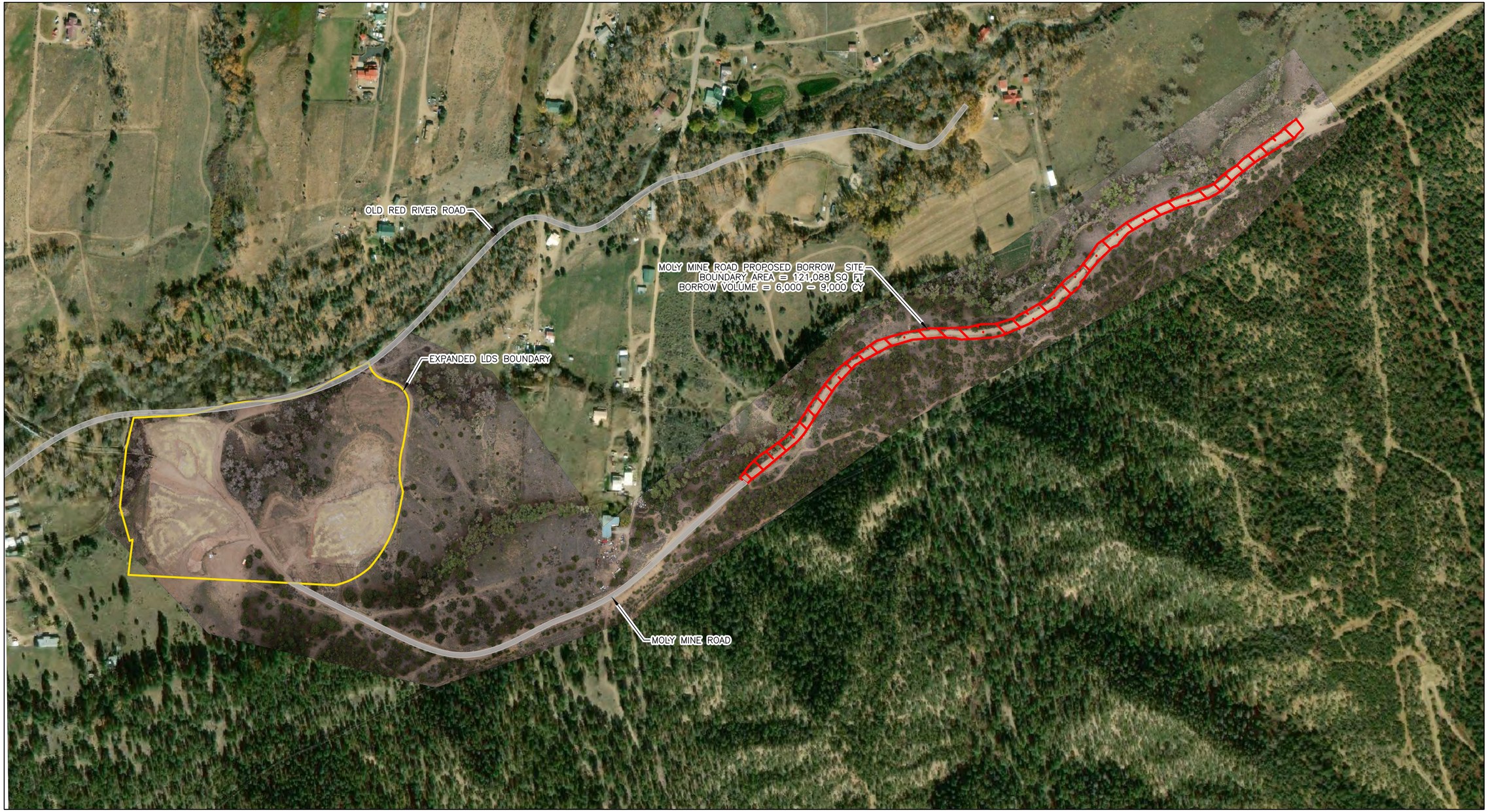
FIGURE F-2

LOWER DUMP SUMP
PROPOSED BORROW LOCATIONS

QUESTA MINE
CHEVRON MINING
QUESTA, NEW MEXICO

Drawn By: KCW	Checked By: SL	Scale: AS SHOWN	Date: 6/17/19	File: LDS_TAILINGSBORROW_2019

M:\CHEVRON\CEMC_MINING\QUESTAMINE_PIPELINE\CADD\WORKING\LOWERDUMPSUMP\FIGURES\20190626_TAILINGSGRID\LDS_TAILINGSBORROW_2019



ADDITIONAL BORROW SITE SUMMARY		
SITE	DISTURBANCE (ACRES)	VOLUME (CY)
MOLY MINE ROAD RECLAMATION	2.8	6,000-9,000

EXPLANATION

- EXPANDED LDS BOUNDARY
- PROPOSED BORROW AREA
- EXISTING ACCESS ROADS

N

0 100'

Trihydro CORPORATION
1252 Commerce Drive
Laramie, Wyoming 82070
www.trihydro.com
(P) 307/745.7474 (F) 307/745.7729

FIGURE F-3

LOWER DUMP SUMP
PROPOSED BORROW LOCATIONS

QUESTA MINE
CHEVRON MINING
QUESTA, NEW MEXICO

Drawn By: KCW | Checked By: SL | Scale: AS SHOWN | Date: 6/21/19 | File: LDS_TAILINGSBORROW-V2_2019

M:\CHEVRON\CEMC_MINING\QUESTAMINE_PIPELINE\CADD\WORKING\LOWERDUMPSUMP\FIGURES\201906_TAILINGSGRID\LDS_TAILINGSBORROW-V2_2019

APPENDIX G

HEATH AND SAFETY FORMS

Pre-Fieldwork Safety-Readiness Review Form

For all field projects

Names and initials of required participants:

1. BUL, BUM, or TL:
2. Project Director:
3. Project Manager:
4. Field Supervisor:
5. Safety Officer/Lead:

Business unit name:
Client name:
Project name and number:
Date review performed:
Scheduled project-start date:
Scheduled project-end date:

Names and initials of other participants:

1. Project-team members:
2. Contractor(s):
3. Subcontractor(s):

Work-Scope Tasks	Work-Related Hazards (refer to the 3x5 Hazard-Assessment Triangle)	Anticipated Hazard-Mitigation Measures

	Pre-Fieldwork Safety-Readiness Review Checklist	Yes	No	N/A	CAN
1	Has the project team secured the necessary safety and other work permits required to complete the proposed work?				
2	Has a project-specific or site-specific HASP been prepared and/or updated, and have all project-team members reviewed the HASP?				
3	If a contractor(s) will be used on this project, have they prepared and/or updated their HASP and JSA forms?				
4	Has the project team been reminded that JSAs need to be prepared by the project's subject-matter experts, reviewed by all members of the project team, and marked up where appropriate before starting and during work each day?				
5	If this project involves one or more lone workers, is a plan to manage lone worker safety in place and communicated with the project team?				
6	Do we know if the project site has reliable cell-phone coverage? [*If not, request a phone booster from Autumn Bainer .*]				
7	Has a hand-safety evaluation been completed for this project?				
8	Has each work space been evaluated (and documented) for the possible presence of confined-space work conditions?				
9	Have team members--including contractors and subcontractors--reviewed and understand the project-site hazards and requirements?				
10	Do all project-team members--including contractors and subcontractors--understand Stop Work Authority and the "Slow Down" approach?				
11	Have all applicable PPE (e.g., PID, FID, H2S detector, etc.) and emergency-response equipment been secured and checked for this project?				
12	Have suitable vehicles been secured and are team members familiar with the vehicle types and operation?				
13	If a client site-specific orientation is required, have all team members completed the required training?				
14	Have SSE mentors been assigned and provided with instructions for overseeing each SSE team member?				
15	Is a plan in-place and assignments made to provide oversight of "low-use" or special contractor/subcontractor team members?				
16	Have topics been developed and assignments made for the daily project-safety meetings, including discussing potential daily- and task-specific hazards?				
17	Has the plan for performing and reporting observations, near misses, and incidents been communicated?				
18	Has the project team been reminded that journey-management plans (JMPs) should be used during the project where appropriate?				
19	Is a traffic-management plan needed for this project and has it been completed and communicated to the project team?				
20	Have procedures for work in or near hazardous areas (e.g., trenches, confined spaces, active units) been communicated?				
21	Have procedures for work in or around equipment (e.g., lockout / tag out, swinging, rotating, backing) been communicated?				
22	Has the Trihydro Excavation, Drilling, and Utility-Locating Checklist been completed for each drilling/excavation project?				
23	Have all employees expecting to oversee or perform drilling/excavation work completed the Trihydro "Subsurface Utility Location and Excavation Safety Best Practices" training session?				
24	Have utility locates been assigned and/or performed in accordance with Trihydro and client procedures?				
25	Is a plan in place for communicating, managing, and reporting changed conditions (e.g., hazards, weather, team roles)?				
26	Is a plan in place for transitioning and training changes in personnel on this project?				
27	Has the project team assessed potential task- or site-specific hazards and developed a plan(s) to eliminate or mitigate the hazards?				
28	Is a BUL, BUM, TL, or Senior Manager scheduled to be on site for the onboarding, kickoff, and initial stages of each major field project (e.g., projects involving subcontractors, complex or different work types, > one week duration, etc.)? If so, please indicate the name of the BUL, BUM, TL, or Senior Manager and the date she or he is scheduled to be on site in the "Review / Non-CAN Item Comments" box below.				
29	Have all contractors/subcontractors been evaluated, qualified, selected, and approved by the BUL based on Trihydro and/or client-specific requirements?				
30	Is a safety audit with a Senior Manager planned for the early stages of all major field projects? If so, please indicate the Senior Manager's name and the date he or she plans to perform the safety audit in the "Review / Non-CAN Item Comments" box below.				

Findings / Corrective-Action Needed (CAN) Summary

CAN Item No. (i.e., 1 through 30 from the checklist above)	Description of CAN Item	Responsible Person	Target Date	Completed Date	Initials

Review / Non-CAN Item Comments:

Pre-Fieldwork Safety-Readiness Review Form

For all field projects

Instructions:

1. While using this form, attempts should be made to address or correct the items warranting Corrective Action Needed (CAN) at the time of the evaluation. If this is not practical, each CAN item / finding should be documented above, including assignment of an individual responsible for addressing the CAN item and a target completion date. Once all of the CAN items have been completed, the Project Manager should review them with the responsible TL, BUM, or BUL and secure sign-off initials that each CAN item has been addressed satisfactorily.

2. Copies of this form should be retained by the responsible TL, BUM, and/or BUL and submitted to the Trihydro H&S Team via e-mail HealthSafety@Trihydro.com or fax (307) 755-4959. Please contact the Trihydro H&S Team for help conducting pre-fieldwork safety-readiness reviews, or if you have questions, suggestions, or comments about the forms.

JOB SAFETY ANALYSIS

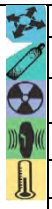
JSA Version Date: February 29, 2012		
Job Description: Driving		
Project: Questa	Site Location: Site wide	

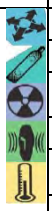
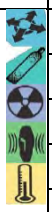
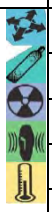
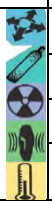
Development Team Please include the team members employer and email if not employed by Trihydro Corporation:	**Position/Title:**	**Primary Contact**
1. Pat Henricks	Geologist	(307) 760-9447
2.		
3.		

Reviewed By Please include the reviewers employer and email if not employed by Trihydro Corporation:	**Position**	**Review Date (MM/DD/YYYY)**
1. Todd Forry	Health and Safety Manager	10/25/2012
2. Torrey Fox	Geologist	6/10/11
3.		

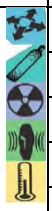
Personal Protective Equipment (PPE) Needed:

Eye and Face Protection	***Body Protection***	***Fall Protection***
☐ Safety Glasses	☐ Fire Retardant Coveralls	☐ Barriers/Guard Rails
☐ Face Shield	☐ Poly-coated Tyvek Coveralls	☐ Safety Net
☐ Chemical Goggles	☐ Chemical Resistant Coveralls	☐ Personal Fall Arrest System
Head Protection	☐ Chemical Resistant Apron	***Respiratory Protection***
☐ Hard Hat	☐ Reflective Safety Vest	☐ Half-Face Air Purifying Respirator
Hearing Protection	☐ Cooling Vest	☐ Full-Face Air Purifying Respirator
☐ Ear Plugs	☐ Long sleeved shirt	☐ Chemical Cartridge
☐ Ear Muffs	***Biological Protection***	☐ Particulate Filter
Hand Protection	☐ Snake Gaiters	☐ Cartridge/Filter Combo
☐ Industrial Work Gloves	☐ Sunscreen	☐ Ammonia Cartridge
☐ Chemical Resistant Gloves	☐ Insect Repellant	☐ H2S Escape Cartridge
☐ Laceration Resistant Gloves	***Hazardous Atmosphere Protection***	☐ Asbestos Filter (P-100)
Foot Protection	☐ Air Monitoring Equipment	☐ Powered Air Purifying Respirator (PAPR) **(contact H&S dept.)**
☐ Leather Boots	☐ Ventilation Fan	
☐ Steel-Toed Boots	☐ Level C	☐ Supplied Air Respirator (SAR) **(contact H&S dept.)**
☐ Chemical Resistant Boots	☐ Level B **(contact H&S dept.)**	
Water Safety	☐ Level A **(contact H&S dept.)**	☐ Self-Contained Breathing Apparatus (SCBA) **(contact H&S dept.)**
☐ Personal Flotation Device	***Decontamination Materials***	
☐ Waders	☐ Equipment Decontamination	
☒ ***Other:*** Fire extinguisher	☐ Personnel Decontamination	☐ ***Other:***
☒ ***Other:*** First aid/vehicle kit	☒ ***Other:*** GOAL cones	☐ ***Other:***

Job Steps	Hazard(s)				Potential Hazard(s)	Critical Action(s)	Responsible Person
Routine or non-routine journey management plan (JMP) – check (all drivers)				x	A. Personal Injury (Gravity) B. Property damage or physical injury (Motion)	A. Check the JMP before proceeding to the vehicle. B. Assess if journey is needed due to weather conditions (e.g., snow, ice, rain, wind). Check before each vehicle trip around the site since work areas can be changed throughout the day.	
		x					
Perform vehicle inspection (all drivers)				x	A. Vehicle failure; Accident or injury (Gravity) (Motion)	A. Fill out vehicle inspection form for any vehicles used for the day. DO NOT use vehicle until issues are addressed. • Clean mirrors and windows. Inspect the interior of the vehicle; including seat belts and gauges. • Remove any clutter or items that may affect your driving, visibility or pedal control. • Follow appropriate maintenance schedule for your vehicle. • Verify insurance card, registration, and inspection. • Refer to the owner/operator manual generally kept in the glove box. • Verify presence of spill kit, first aid kit, and fire extinguisher within inspection period	
		x					
4. Pre vehicle entry				x	A. Personal Injury or accident;	A. GOAL: before entering your	

Job Steps	Hazard(s)				Potential Hazard(s)	Critical Action(s)	Responsible Person
				x			
Configure seating and controls and lock doors (all drivers)				x	A. Personal Injury Visibility; poor driver ergonomics and/or poor driver control (Motion)	A. Adjust seating to a comfortable position and so that you can easily reach the pedals and steering wheel. • Adjust all mirrors. • Wear seat belt. • If you haven't operated this vehicle before, become familiar with all the controls and where everything is located in the vehicle. • Look for blind spots in your viewing area. • Refer to the owner's manual if necessary.	
Starting vehicle (all drivers)				x	A. Unexpected vehicle movement; engine damage or failure (Motion)	A. Before starting, ensure that the vehicle is in park and the parking brake is applied. • After starting, check all gauges for proper temperatures, pressures, etc.	
Pulling away from parked area (all drivers)		x		x	A. Collision with other vehicles, objects or persons (Gravity) (Motion)	A. Check mirrors and over the shoulder before pulling away. • Vehicle should be situated so the first movement is forward, however if backing, either use a spotter or blow horn to warn others. • Proceed cautiously.	
Driving (all drivers)		x x		x	A. Vehicle strikes; vehicle accidents; equipment damage (Gravity) (Motion) B. Collision with wildlife (Biological)	A. Follow JMP applicable to your journey. Review driving JSA. Plan your route, review maps before leaving. • Obey all laws of the land as well as site procedures.	

Job Steps	Hazard(s)				Potential Hazard(s)	Critical Action(s)	Responsible Person
						Follow posted speed limit. • Be prepared to 'expect the unexpected'. You never know what someone else (or animals) might do. • NEVER drive under the influence of drugs or alcohol. • Follow posted signs at other locations. • Never operate the vehicle if you are abnormally tired. • Cell phone usage is prohibited while driving a vehicle, including hands free devices such as headset and speaker phones. • Implement 'first move forward' by backing into locations upon arrival. • Be observant of pedestrians (main field office area) and other traffic around you. • Engage parking brake once vehicle is parked. Do not place equipment/supplies above mirror line of sight (i.e., inside cab and or truck bed). • Pull off the road if necessary during bad weather. B. Scan the area for wildlife including dogs, cats, deer, cows, horses, elk, coyotes, fox's, badgers, and prairie dogs while traveling on site. Watch road sides for movement and pull vehicle to side of road if animal observed. Be particularly aware of animals present in roadway during dusk and morning.	
Parking (all drivers)		 x		x 	A. Pedestrian collision / Property damage(Gravity)(Motion)	A. Use pull through parking spots when available • Use signals before pulling from curb and during any change of lane or turn	

Job Steps	Hazard(s)				Potential Hazard(s)	Critical Action(s)	Responsible Person
						• Back into parking space when possible and safe • Maintain a cushion of safety from fixed objects when parking • Set parking brake if on incline; chock wheels if working on steep slopes	
Post drive (all drivers)		 **x** x 		**x** 	A. Personal Injury / Property damage (Gravity)(Motion)	A. Report vehicle problems to company representative or rental car agency.	

As the Supervisor my signature below indicates that the requirements, conditions, and procedures listed above are in place and have been verified and reviewed with the affected personnel prior to the start of work.

Supervisor Name (print):	**Signature**	**Date**

Prior to work, I have read and understand the PPE, safety tools/equipment/instruments, and associated permits needed for this task. I also understand the job steps, potential hazards, and critical actions identified for employee task and hazard awareness. I agree to have this JSA on site and identify daily variances and understand I can make pen and ink changes to meet those variances. JSAs used at the task site that contain pen-and-ink changes ("dirtying up") are to be kept in the project folder for record.

Name (print):	**Signature**	**Date**

END OF DAY

REVISIONS TO JSA
(Any tasks that were "dirtied up")

Date	Job Step #	REVISION	Does JSA need to be updated permanently?		Responsible Person
			Yes	No	

DAILY TAILGATE SAFETY MEETING

NOTE: A new tailgate meeting must be conducted if conditions, location, or personnel change.

Date: _____ Time: _____ ☐ a.m. ☐ p.m. Location: _____(city, state)

Project Name: _____ Client: _____

Current Objective/Description: _____

_____

Commitment to Safety

1. I will protect myself for me, my family, Trihydro, clients, and contractors by watching for and mitigating risky behaviors, exercising stop-work authority to prevent incidents and injuries and by complying with Trihydro and client policies, procedures, and JSAs/JLAs
2. I understand that safety is my personal responsibility and that working safely is a key component in providing quality work.
3. I will set an example for my fellow employees, contractors, clients, and family by working safely.
4. I will drive defensively and "Safely for My Family," abiding by Trihydro and client policies and applicable laws and regulations.
5. I will "slow down" appropriately to work at a pace that will allow me and others to complete each task efficiently and safely.
6. I will hold myself accountable for my safety and the safety of those around me. I will think about the safety of me, my coworkers, contractors, and our clients before I conduct each task.

** Stop Work Authority (SWA) – "Everyone has the authority and obligation to immediately stop all unsafe work."*

Identify High-Hazard Work:

- ☐ Hot Work
- ☐ LOTO
- ☐ Confined Space Entry
- ☐ Elevated/overhead work
- ☐ Excavations - any
- ☐ Drilling - any
- ☐ Boat / over-water operations
- ☐ Demolition, removal of pipelines and buried structures
- ☐ Work involving equipment within 15' of active overhead electrical line or pole supporting an electric line

Associated and Identified Hazards:

- ☐ Abrasions, cuts, scrapes
- ☐ Allergies (self & co-workers)
- ☐ Asbestos
- ☐ Biological
- ☐ Buried utilities
- ☐ Burn hazards
- ☐ Chemical exposure
- ☐ Cold stress
- ☐ Compressed gases
- ☐ Crane or lifting equipment
- ☐ Drilling in area?
- ☐ Earthquake
- ☐ Electrical
- ☐ Equipment failure
- ☐ Ergonomic
- ☐ Excavations in area?
- ☐ Falling
- ☐ Fire/explosion
- ☐ H_2S
- ☐ Hand injury
- ☐ Heat stress
- ☐ Heavy equipment
- ☐ High-pressure processes
- ☐ High-temperature processes
- ☐ High wind
- ☐ Laceration
- ☐ Lightning
- ☐ Loud noise
- ☐ Machine guarding
- ☐ Motor vehicle crash
- ☐ No locking/fixed blades
- ☐ Overexertion
- ☐ Overhead utilities
- ☐ Pedestrian
- ☐ Pinch points
- ☐ Power tools
- ☐ Pulled into
- ☐ Radiation/X-ray
- ☐ Security
- ☐ Severe weather
- ☐ Scaffolds
- ☐ Slips, trips, falls
- ☐ Subsurface utilities
- ☐ Traffic
- ☐ Water
- ☐ Other: _____

See it! Identify Current Objective Hazards:

Assess Trihydro's 3 Most Serious Risks

- ☐ Traffic/Heavy Equipment
- ☐ Hazardous Atmosphere
- ☐ Utility Contact

Assess Trihydro's 5 Most Frequent Risks

- ☐ Hand Injuries
- ☐ Lifting
- ☐ Biological Hazards
- ☐ Chemical Exposure
- ☐ Slips, trips, falls

Other Hazards

- ☐ Weather
- ☐ Working at Heights

Personal Protective Equipment (PPE):

- ☐ Hard hat
- ☐ Safety glasses
- ☐ Safety toed boots
- ☐ Ear plugs (as needed)
- ☐ Face shield
- ☐ Fall protection
- ☐ Gloves (as needed)
- ☐ Arm sleeves
- ☐ High visibility vest
- ☐ Rain gear
- ☐ Rubber boots
- ☐ SCBA
- ☐ Snake chaps
- ☐ Sunscreen (as needed)
- ☐ Dust mask
- ☐ Respirator
  Cartridges/filters:
  - ☐ VOC/H_2S escape
- ☐ H_2S monitor
  - ☐ Bump test
- ☐ FRCs/Nomex
- ☐ Tyvek®
- ☐ Insect repellant
  Do not apply DEET to FRCs

Other special equipment:

- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____
- ☐ _____

Before Beginning Work:

- ☐ Sign in and out of process unit ☐ N/A
- ☐ HASP reviewed & acknowledged
- ☐ Locate the nearest evacuation point and a secondary location
- ☐ Identify the nearest fire extinguisher, eyewash station, first aid kit, and Material Safety Data Sheets (MSDS)
- ☐ Identify CPR/AED/first aid certified employees
- ☐ If lone worker, implement lone worker procedures ☐ N/A
- ☐ Identify SSE, visitor(s), or guest(s) ☐ N/A
- ☐ Determine and acquire necessary permits ☐ N/A
  Permit required: _____
- ☐ Review the JSA and "dirty up" if necessary
- ☐ Weather forecast: ☐ Hot ☐ Cold ☐ Inclement
  Wind Direction: _____
- ☐ Employee(s) are wearing proper PPE
- ☐ Perform a "self check" on each personal H_2S monitor
- ☐ Perform a Work-Site Self Assessment (WSSA)
- ☐ Review the dashboard emergency flyer for the specific site; place in a visible location inside vehicle
- ☐ Barricade work zone (as needed)
- ☐ Review WorkCare Injury Accident Program card
- ☐ PPE Action Levels (PID: 10ppm)

Safe Vehicle Use:

- ☐ Pre-inspection complete
- ☐ Seat belt
- ☐ Follow all speed and traffic rules
- ☐ Emergency brake used
- ☐ Keys left in vehicle
- ☐ Trailer Safety Inspection form
- ☐ Mileage sheet filled out
- ☐ No cell phones used while driving
- ☐ Parked in a safe location
- ☐ Orange cone used
- ☐ Chock tires (if needed)
- ☐ Other: _____
- ☐ GOAL sticker in window
- ☐ Spotter used (if available)
- ☐ First move forward, backed in
- ☐ Load secured in vehicle
- ☐ 3D-Driving (every 2 years)
- ☐ Other: _____

Site-Specific Comments:_____

_____

Positive Reinforcement (R+):_____

Signatures:

Meeting Conducted By: _____ (designated project on-site safety responder) Company:

Printed Name	Signature	Company	Attended Mid-Day Safety Focus	Is this worker new on-site?
1.			☐ Yes ☐ No	☐ Yes ☐ No
2.			☐ Yes ☐ No	☐ Yes ☐ No
3.			☐ Yes ☐ No	☐ Yes ☐ No
4.			☐ Yes ☐ No	☐ Yes ☐ No
5.			☐ Yes ☐ No	☐ Yes ☐ No
6.			☐ Yes ☐ No	☐ Yes ☐ No
7.			☐ Yes ☐ No	☐ Yes ☐ No
8.			☐ Yes ☐ No	☐ Yes ☐ No

JOURNEY MANAGEMENT PLAN

Date: _____ Project Number: _____ Driver: _____

Destination: _____ Driver Cell Number: _____

Departure Time: _____ Anticipated Arrival Time: _____

Total Hours (not to exceed 16 hours): _____ = Work Hrs _____ + Driving Hrs _____

Plan the journey and notify personnel at destination of your plans. Notify arrival contact if you will not arrive at scheduled time. Keep a copy of this plan with you. Trihydro's main phone number is 307-745-7474. Normal business hours are 8am-5pm, M-F.

In case of an emergency or incident, contact the Health & Safety Response Team at (307) 755-4888.

Purpose of Trip _____

Hazards

_____

Pre-Trip Questions

Is this trip necessary?	☐ Yes	☐ No
Is there an alternative that does not involve driving?	☐ Yes	☐ No
If yes, by what means: _____		
Is someone else already going to the same destination?	☐ Yes	☐ No
Do I have a map to my destination?	☐ Yes	☐ No
Has the proper vehicle been selected?	☐ Yes	☐ No
Is the vehicle equipped with emergency supplies?	☐ Yes	☐ No
Do I have current driver training for this trip?	☐ Yes	☐ No
Am I well rested and alert for the journey?	☐ Yes	☐ No
Do I have effective means of communications during my journey?	☐ Yes	☐ No
Has a pre-trip vehicle inspection been completed and documented?	☐ Yes	☐ No
Have road condition reports been reviewed prior to the journey?	☐ Yes	☐ No

Weather: ☐ Dry ☐ Windy ☐ Rain ☐ Snow ☐ Icy ☐ Fog ☐ Dust

Road Conditions: ☐ Dirt Road ☐ Construction ☐ Paved Road ☐ Mixed Conditions

Night Driving: ☐ Yes ☐ No Is it essential? ☐ Yes ☐ No

Vehicle: ☐ Fleet Vehicle ☐ Rental Vehicle ☐ Personal Vehicle

Make*: _____ Model*: _____ Year*: _____ Color*: _____

VIN* or Fleet Number: _____ License Plate State/Number*: _____

Condition: ☐ Satisfactory

Vehicle Inspection Form Completed? ☐ Yes ☐ No

Vehicle preventive maintenance up to date? ☐ Yes ☐ No

When traveling to the site, contact your supervisor/project manager to confirm your safe arrival.
On return journey, contact your supervisor/project manager when you depart from site and upon arrival back to start point to confirm your safe travels.

**For rental or personal vehicle, if available.*

For Overnight Stays	Hotel Name: _____	Telephone: _____
	City: _____	State: _____

Route Planned (Auto route, train information, and/or flight information):

☐ Route/Information Attached Separately ☐ Map Attached Separately

Unconventional Travel

☐ Helicopter — Verify the following:

- Name is on the aircraft manifest
- Pilot performs safety briefing prior to takeoff
- Hats are not worn on flight line
- Do not approach aircraft from the rear; approach from front quadrant or side
- Stay clear of tail rotor

☐ Private Aircraft — Verify the following:

- Name is on the aircraft manifest
- Pilot performs safety briefing prior to takeoff
- Hats are not worn on flight line
- Do not approach aircraft from the rear; approach from front quadrant or side

☐ Watercraft — Verify the following:

- Registration number is on the watercraft manifest
- Captain performs safety briefing prior to launch
- Personal flotation devices are available/worn
- Notify supervisor of vessel number

☐ Other:

Supervisor/PM Approval: _____ Date: _____

Employee site arrival: Date: _____ Time: _____

Employee site departure: Date: _____ Time: _____

Employee home arrival: Date: _____ Time: _____

EXAMPLE FIELD DIRECT OBSERVATION FORM

Observer

Date 11/21/2012 Contract Day

Temperature Work Day

Sky Work Start

Wind Work Stop

Font Paragraph

Health and Safety

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Remarks

Font Paragraph

Work Observation

Personnel	Role

Add

Equipment	Count

Add

Bid Number	Bid Item	Unit	Estimate Quantity	DAILY WORK PERFORMED
J-1	Mobilization/Demobilization	LS	1	
J-2	Partnering	Day	1	
K-1	Motor Grader w/Ripper	Hour	30	
K-2	Track Dozer w/Ripper	Hour	100	
K-3	Scraper	Hour	120	
K-4	End Dump Truck	Hour	30	
K-5	Tracked Excavator w/Hydraulic Thumb	Hour	120	
K-6	Track Excavator w/9500 Ft-lbs Hydraulic Hammer	Hour	100	
K-7	Excavation	CY	900,500	
K-8	Basement Backfill	LS	1	
K-9	Finish Grading	Acre	57.0	
K-10	Topsoil/Coversoil	CY	29,000	
L-1	Dewatering	Million Gallons	28	
M-1	Erosion Control Sediment Logs	LF	2,950	
M-2	Fabric Sediment Fence	LF	400	
N-1	Pre-ripping	Acre	63.0	
N-2	Fertilizing	Acre	63.0	
N-3	Composted Manure	Acre	63.0	
N-4	Agricultural Disking	Acre	63.0	
N-5	Mycorrhizal Fungi Inoculating	Acre	63.0	
N-6	Pitting and Seeding	Acre	63.0	
O-1	Miscellaneous Force Account	Force Account	50,000	
Q-1	Wire Fence	LF	5,800	
Q-2	Grouse Flight Diverters	Panel	350	

ACCIDENT/INCIDENT REPORTING FORM

General Information

Incident Type: ***Incident*** ☐ ***Near Miss*** ☐

Primary Incident Type: ***Injury/Illness*** ☐ ***Motor Vehicle Accident*** ☐ ***Property / Equipment Damage*** ☐

Environmental ☐ ***Exposure*** ☐ ***Other*** ☐

Occurrence Date: _____ Occurrence Time: _____ ☐ AM ☐ PM

Date Reported: _____ Time Reported _____ ☐ AM ☐ PM

Reported By: _____ Telephone: _____

Occurrence Location: _____ On Site: ☐ Off Site: ☐

Stop Work Involved: ***Yes*** ☐ ***No*** ☐ SSE Involved: ***Yes*** ☐ ***No*** ☐

Police Notified: ***N/A*** ☐ ***Yes*** ☐ ***No*** ☐

Transportation to medical facility: ***N/A*** ☐ ***Yes*** ☐ ***No*** ☐

If yes, provide the following Facility Name: _____

Medical treatment received: ***N/A*** ☐ ***Yes*** ☐ ***No*** ☐

Description of Incident: _____

_____

_____

_____

Individuals involved (Company Employee, Subcontractor Employee, Client Employee, Member of the Public, Witnesses)

Name	*Organization*	*Title*	*Telephone*

Vehicle Incident Details:

Check any that apply: ***Company Vehicle Involved*** ☐ ***Non-Company Vehicle Involved*** ☐

Vehicle Information:
Vehicle #: _____ Vehicle VIN: _____
License Plate #: _____ Vehicle Make/Model: _____
Vehicle Year _____ Vehicle Color:
If Rental Vehicle, Rental Company: _____
# of Passengers: _____ Names: _____

Driver Information
First Name: _____ Last Name: _____
Address: _____
City _____ State: _____ Zip Code: _____
Phone # 1: _____ Phone # 2: _____
License Plate #: _____ Vehicle VIN: _____
Vehicle Year _____ Vehicle Make/Model: _____
Vehicle Color: _____ Driver License #: _____
# of Passengers: _____ Names: _____
Insurance Company: _____ Phone: _____
Insurance Agent: _____ Phone: _____
Policy # _____ Exp. Date: _____

Details:
Weather: Clear ☐ Rain ☐ Fog ☐ Wind ☐ Other ☐
Road Condition: Clear ☐ Wet ☐ Icy ☐ Debris ☐ Other ☐
Light Condition: Dawn ☐ Day: ☐ Dusk ☐ Dark ☐
Estimated Speeds _____ _____

Attending Police:
Office Name: _____ Badge #: _____
Division: _____ Phone # _____

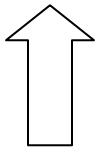
Tow Truck Operator:
Company: _____ Phone #: _____
Drivers Name: _____
Address Towed To: _____

Citation Issued: ***Yes*** ☐ ***No*** ☐

Diagram: include streets, traffic controls, visual obstacles, etc.

1 Vehicle 1

2 Vehicle 2



N

Environmental/Exposure Incident Details:

Agent: Chemical/Substance ☐ Explosion ☐ Noise ☐ Radiation ☐ Vibration ☐

Medium: Air ☐ Soil ☐ Ground Water ☐ Surface Water ☐

Effect On: People ☐ Vegetation ☐ Animals ☐ Structures ☐ Equipment ☐ Materials ☐

Substance Information:

Name of Substance	Amount	Unit of Measure

PPE Worn: ***Yes*** ☐ ***No*** ☐

List PPE: _____

Response Details:

_____

_____

_____

_____

With any incident/accident:

Initial Notifications must be made to:

- Police, Ambulance, 911 (if applicable)
- H&S Team
- Risk Management
- Project Manager (PM)
- Supervisor
- Client (as directed by the PM)
- Site Managers (as directed by the PM)

If medical treatment is needed:

- Contact WorkCare at (888) 449-7787

Coordinate drug/alcohol testing within 3 hours

Complete the Accident/Incident Reporting Form and requested investigation items for submittal to the H&S Team.

If after hours, contact the Safety Response number at (307) 755-4888.