Salero Mine Closure Work Plan (DRAFT)

Prepared for:

ASARCO Multi-State Environmental Custodial Trust

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Santa Cruz County, Arizona

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1.0 INTRODUCTION

This document presents on behalf of the ASARCO Multi-State Environmental Custodial Trust Trustee ("Trust"), the comprehensive work plan anticipated to achieve No Further Action (NFA) status (per Arizona Revised Statute (A.R.S.) § 49-175) for the soil at the Trust's Salero Ranch Mine Site property located in Patagonia, Santa Cruz County, Arizona ("Site") (Figure 1 in Appendix B). The Site was accepted into the Arizona Department of Environmental Quality (ADEQ) Voluntary Remediation Program (VRP) on April 20, 2010 and is site number 504964-01. During 2013, Tetra Tech has conducted monitoring and maintenance at the Site and completed studies and investigations of the waste rock and adit discharges with adit plug closure specialists. This work, in concert with input from the Trust and ADEQ VRP, has clarified the closure objectives sufficiently to allow the identification of a closure strategy and provide an estimate of budgeting requirements. The closure of this site will be completed in accordance with the steps outlined in this plan and other applicable Federal and State regulations discussed in Section 3.1. A proposed closure schedule and closure cost estimate is included. The financial assurance documentation required as part of the deed restriction process is included in Section 5.0.

1.1 Closure Objectives

During the development of the closure strategy, the following closure objectives were identified as the most crucial to mitigate the highest risk environmental impacts in order to achieve permanent closure of the Site:

1. Backfill exposed and open underground stopes, shafts and winzes with mine waste and re-contouring surface topography to eliminate recharge of the shallow groundwater aquifer.

2. Reduce or eliminate infiltration of precipitation, surface water run-off and shallow groundwater migration through open surface exposures of mine workings that mobilizes contaminants for subsequent discharges through adit portals.

3. Reduce Acid Rock Drainage (ARD) being generated in the Alto Group workings connected to the Long Contact Adit by approximately 75 percent, from an average flow of 1.5 gallons per minute (gpm) to less than 0.5 gpm.

4. Eliminate ARD discharging from the Long Contact and Bland Adits using hydraulic adit plugs.

5. Reduce or eliminate contaminant migration from exposed waste rock.

6. ARD pipeline removal.

7. Evaporation pond closure.

Specific tasks have been identified to achieve each of these objectives for the entire Site. These tasks have been prioritized in order to achieve the project objectives in the most cost effective and timely manner. Overall, backfilling waste rock into underground stopes, shafts, and winzes will reduce the volume of material exposed at the surface and will optimally allow the site to achieve NFA status for soil using the soil remediation goals that will be established as part of the site-specific risk assessment.

1.2 Closure Plan Development

The closure objectives and approach were presented in August 2013 to the ADEQ VRP and a representative from the Arizona Attorney General's Office. That presentation highlighted conceptual closure approaches and estimated budgeting that required additional work in order to finalize a closure plan and provide more accurate engineering requirements and cost estimates for the work. Between September and December 2013, Tetra Tech, in conjunction with an underground mine subcontractor, and external and internal construction specialists, confirmed methods to access and remediate the waste rock disposal areas on steep terrain, and to install concrete hydraulic adit plugs in the Long Contact and Bland Adits to minimize discharges of ARD. This revised approach with better defined engineering approaches and cost estimates was presented to the same audience on December 5, 2013. The results of the meeting indicated that Tetra Tech, on behalf of the Trust, should complete documentation of the closure plan and estimated budget requirements for formal review by the ADEQ VRP in order to secure funding for activities beginning in Q1 2014.

2.0 SUMMARY OF SITE ASSESSMENT AND CHARACTERIZATION

This closure plan was developed from a review of data generated during previous investigative studies supplemented by more recent investigations conducted by Tetra Tech in 2013. Data sets from material characterization studies that were reviewed and/or analyzed in detail include:

- Soil from areas of ARD pipeline leaks by Tetra Tech in 2013 (Tetra Tech 2013a);
- Waste rock characterization data from the largest waste rock areas on-Site by Tetra Tech in 2013 and ASARCO in 2001 documented in the summary table (Tetra Tech 2013b) and in the ENVIRON Stage 1 report dated August 2012 (ENVIRON 2012);
- Sediment from Alto Gulch in the ENVIRON August 2012 Stage 1 Report (ENVIRON 2012);
- Sediment from the evaporation ponds by Tetra Tech in December 2013 (Turner 2014); and
- Water quality and volume data from the evaporation ponds, Long Contact Adit, Bland Adit, Waste Rock 5 area adit, shafts in Waste Rock areas 2 and 4, and surface water in Alto Gulch by Tetra Tech in 2013 (Turner 2013) and ENVIRON in 2010 (ENVIRON 2012).

Waste rock data was available from samples collected by ASARCO in 2001 as presented in the ENVIRON August 2012 Stage 1 Report and samples collected and analyzed by Tetra Tech in 2013. These results are summarized on the waste rock data table (Table 1) in Appendix A. A summary of soil data from ARD pipeline leaks is presented in Appendix A and was included in the Soil Sampling at Salero Mine Site Technical Memorandum submitted in draft to ADEQ on September 25, 2013. Alto Gulch sediment data and surface and adit water quality and volume data was presented in the ENVIRON 2012 Stage 1 Report. Evaporation pond sediment data and water quality data from the adits and shafts are presented in analytical data packages from Turner Laboratories which are included in Appendix A.

3.0 CLOSURE TASKS

Listed in order of priority and scheduled execution, the comprehensive list of major tasks that are required to achieve objectives and NFA status for soil for the Site include:

1. Subcontractor Selection and Coordination;
2. Risk Assessment;
3. Evaporation Pond Liner Repair;
4. Waste Rock Areas No. 1, 2, 3, and 4 Closure;
5. Long Contact and Bland Adit Hydraulic Adit Plugging;
6. Waste Rock Area No. 5 Closure;
7. Evaporation Pond Closure;
8. Upper Bland Waste Rock Closure;
9. Upper Royal Blue Waste Rock Closure;
10. Complete Declaration of Environmental Use Restrictions (DEUR)(to be facilitated by the Trust); and
11. Preparation and submittal of NFA documentation.

Specific tasks and individual implementation plans are presented in the following sections. All work described will be supervised by Tetra Tech and conducted by Tetra Tech and/or its selected subcontractors. The plan and budget provides for limited repair of previously reclaimed areas.

3.1 Health and Safety or Regulatory Requirements

There a number of ancillary requirements that Tetra Tech will comply with including Mine Safety and Health Administration (MSHA) and Occupational Safety and Health Administration (OSHA) HAZWOPER regulations, even though the site is not directly regulated by MSHA. Tetra Tech and their subcontractors will prepare separate Health and Safety Plans for Site work that will include as a minimum job safety analyses for each task and phase. Tetra Tech, on behalf of the Trust, has an Arizona Pollution Discharge Elimination System (AZPDES) multi-sector general mining permit for stormwater discharges from the Site per A.R.S., Section 49, Chapter 2, Article 3.1, the Arizona Administrative Code (A.A.C.) Title 18, Chapter 9, Article 9 and Chapter 11, Article 1, and the Clean Water Act. The existing Stormwater Pollution Prevention Plan (SWPPP) will be updated as necessary to address construction and excavation activities prior to or during their occurrence at the site. The closure of the evaporation ponds with waste rock will be completed in compliance with Aquifer Protection Permit (APP) requirements defined in A.R.S. § 49-241 through § 49-252 and A.A.C. R18-9-101 through R18-9-403 as necessary. Depending on the nature of the closure task, Tetra Tech will prepare a Spill Prevention, Control and Countermeasures (SPCC) Plan as necessary per Title 40 Code of Federal Regulations (CFR) Part 112 for the storage and handling of more than 1,320 gallons of petroleum for heavy equipment during excavation and construction work. Tetra Tech will evaluate the on-site natural

resources to comply with the National Environmental Policy Act (NEPA) and activity in the on-site drainages for compliance with Section 404 of the Clean Water Act. The preparation of this work plan addresses the requirements in A.R.S. § 49-175; the community involvement plan dated September 2013 addresses requirements of A.R.S. § 49-176, and the risk assessment will be conducted and remediation goals identified in order to address the requirements of A.R.S. § 49-152. Execution of all closure tasks will be completed in accordance with all applicable federal and state regulations.

None of the proposed closure activities involve backfilling open mine workings on adjacent land owned by the United States Forest Service (USFS). This will not impact the closure objectives including successful closure and stemming of ARD flow from the Long Contact Adit.

3.2 Subcontractor Selection and Coordination

3.2.1 Qualified Contractor List

Tetra Tech will initially issue a request for Statement of Qualifications (SOQs) from contractors regarding the remediation of the waste rock and rehabilitation or construction of new access roads on steep terrain. Submitted SOQs will be reviewed by Tetra Tech and the applicant list will be reduced to the five most qualified contractors. Qualifications will be based on the contractor's technical ability to perform the work, and their documented ability to perform the work safely. Depending on the nature of the work, contractors shall have at a minimum, the following credentials: Occupational Safety and Health Administration (OSHA) and Hazardous Waste Operations and Emergency Response (HAZWOPER) Training, Mine Safety and Health Administration (MHSA) Surface Miner Certification for those involved in waste rock backfill closures of open mine workings, and MSHA Underground Miner Certifications for those involved in underground mine rehabilitation and concrete adit plug construction. The five most qualified contractors will be placed on a Qualified Contractors List (QCL). These contractors will be required to attend Site visits, where they will receive a detailed scope of work for each task. Multiple Site visits and bids may be conducted over the course of the two-year closure project schedule to obtain bids for upcoming work. Each contractor will submit in advance of the work needing to be completed, detailed Technical Proposals specifying their management and technical approach as to how they intend to complete each of the tasks. The contractors will submit preliminary cost estimates with their technical proposals. The contractor proposing the best technical approach in combination with the lowest costs will be selected to complete the work.

3.2.2 Bid Package Preparation

In order to promote accurate and competitive bidding, Tetra Tech will prepare individual bid packages for each individual closure task. Bid packages will include a summary of the final statement of work including project objectives, scope of work, specifications, and pictures and conceptual design drawings necessary to clearly describe the work to be performed. The bid packages will be prepared as a communication medium so that Tetra Tech engineers and the contractor are clear on the purpose, objectives, goals, and coordination of activities required to complete the task.

3.2.3 Bid Walk and Bid Evaluations

Individual bid walks may be required for each task, as access to certain waste rock areas is extremely difficult. Enough time must be allotted for contractors to thoroughly walk and become familiar with the Site to ensure that accurate bids are submitted. Tetra Tech will answer any

questions from contractors and provide clarifications about the project as necessary. Bids will be evaluated based on construction approach, price, and scheduling. Tetra Tech will receive prior authorization from the Trust before final selection of the contractor.

3.3 Risk Assessment

Tetra Tech will determine the site-specific remediation goals by completing a risk assessment. The results and findings of the site-specific risk assessment will be documented in a memorandum that documents how the site-specific remediation goals were determined and the risk-based factors that were defined. The memorandum will follow the requirements in A.R.S. § 49-152 and US EPA guidance for risk assessments. Site-specific remediation goals will be established for arsenic, copper and lead that are protective of receptors for soil exposure (dermal contact), ingestion, and inhalation, and protective of surface and groundwater quality. The overall closure plan for remediation and reclamation is protective of surface water as the waste rock with more elevated concentrations of metals will be placed into the open mine workings, along with the waste rock, and area soil with lower concentrations of metals will be used as a drainage control soil cap for the shafts and waste rock areas. Specific implementation of engineering controls and guidelines are documented in this work plan and will be documented in an engineering control plan completed for the DEUR.

3.4 Evaporation Pond Liner Repair

During 2013, Tetra Tech characterized contaminated liquid present in the leak collection and recovery system (LCRS) sumps of both evaporation ponds. This indicated that both evaporation ponds have leaks in their primary liners. The recovery system sumps for the secondary liners and containment system contain liquid and appear to be functioning to provide secondary containment. Liner repairs have been deferred until implementation of the final evaporation pond closure plan due to the need for water to test the liner systems which will be obtained from dewatering of the adits, and the need to prevent the ponds from drying up and risk the seams cracking in the dryness and heat. Dewatering of the adits will be conducted using the ponds in their current state with some preliminary testing and continued monitoring of the sumps to determine whether any additional primary liner leaks or any indications that the secondary liners might be leaking. This work and use of the ponds for liquids storage is anticipated to be completed by December 2014 or early 2015. The double-lined pond's use in the closure plan in 2015 as an impoundment of waste rock from Waste Rock Area No. 5 necessitates that the liners be intact and water tight prior to the addition of the waste rock. The pond liners will be tested, repaired and confirmed after the repair prior to adding the waste rock on top of the pond liners.

3.4.1 Bland and Long Contact Adit Dewatering

The Long Contact and Bland Adits will be dewatered to the greatest extent possible to provide water in the evaporation ponds for leak identification, repair and testing. There is a significant amount of water near the entrances of the Bland and Long Contact Adits, which can be pumped using submersible pumps that will convey water to the evaporation ponds via the existing ARD pipeline. The goal for the Long Contact Adit will be to pump the majority of water that has accumulated behind a ferric-hydroxide mud dam (approximately 6 feet in height) located about 650 feet from the portal. The water behind the mud dam will be released using safe and appropriate methods as deemed feasible by the concrete plug closure subcontractor and a Tetra Tech underground mine specialist. Water can also be pumped from the Bland Adit as needed to the evaporation ponds. All dewatering activities and natural discharges from the adit

will make use of the existing ARD pipeline. Temporary fittings or valves may be installed into the pipeline to accommodate pumping conditions.

3.4.2 Pond Liner Repair

Prior to the pond liner repair, sludge accumulated at the bottom of the pond shall be cleaned and removed to the extent necessary to identify the location of leaks. The sludge which was characterized as non-hazardous material will be staged on liner for drying and returned to the ponds prior to waste rock filling. The leak will be identified using geophysical (electrical) leak detection methods which require some water to be present in the pond and some saturated fill sediments in between the primary and secondary liners. The repair will be conducted by systematically adding and removing water from each pond. Once the leak areas are marked, the water can be reused and transferred into the other pond to allow for testing and repairs. Repairs will be made with high-density polyethylene patches that are extrusion welded to the primary liner. Vacuum box or other testing will be performed to verify patch integrity.

3.5 Waste Rock Areas No. 1 through No. 4 Closure

3.5.1 Access Road Construction

Waste Rock Areas No. 1, 2, 3, and 4 are located on a ridge approximately 800 feet above the evaporation ponds and lower portion of the main access road. Access to Waste Rock Areas No. 1, 2, 3, and 4 will likely require the creation of a private access road unless a one-time allowance for use of existing roads can be obtained from the United States Forest Service (USFS) who owns the land directly north of Waste Rock Areas No. 1, 2, 3, and 4. A proposed alignment of the access road to reach Waste Rock Areas No. 1, 2, 3, and 4 is shown in Figure 2 (Appendix B). This access road has a total length of approximately 3,300 linear feet, and the alignment attempts to avoid rock outcrops while not exceeding a 30 percent grade. The actual alignment of the access road may vary and will be determined by the contractor based on field surveys, equipment selection, and actual conditions encountered during construction. All road construction will attempt to minimize disturbance of the natural ground. Additionally, the topsoil and road cut spoils will be salvaged where practical to be used as a soil cap and vegetative cover.

3.5.2 Waste Rock Areas No. 2 through No. 4 Backfill and Reclamation

Waste Rock Areas No. 2, 3, and 4 have waste rock on the slope estimated at 600 cubic yards, 1,300 cubic yards, and 2,600 cubic yards respectively. Initial estimates of Waste Rock Areas No. 2, 3, and 4 show that the open mine workings have adequate capacity to accept the estimated waste rock quantities as backfill. The backfilling of waste rock into open mine workings is allowed per the Aquifer Protection Permit (APP) exclusion in A.R.S. § 49-250. This section states that returning mining overburden to excavations or shafts and open pits is allowed. If needed, waste rock material from the Waste Rock Area No. 1 can be transferred to shafts in Waste Rock Areas No. 2, 3, and 4 to ensure complete backfill, proper compaction and drainage. The open mine workings will be backfilled, compacted and mounded to create positive surface drainage away from the mine openings. Backfilling procedures will be directed by Tetra Tech engineers who will determine which material should be backfilled first and which material should be placed at the surface. Tetra Tech will ensure that the surface material or cap in each backfilled area after remediation and reclamation will have arsenic, copper, and lead at concentrations less than the remediation goals defined in the risk assessment memorandum. The cap may consist of either waste rock or soil or a combination of both. The determination of

waste rock and soil to use as cap material will be completed by Tetra Tech engineers using a portable x-ray fluorescence (XRF) instrument on samples from the area. Due to the plan to measure the metal content of the various types of waste rock and local soil used for cover materials, this plan has budgeted to use available local materials for capping if necessary and does not include costs for importing soil from off-site.

After backfilling and capping is complete, the exposed Waste Rock Areas No. 2, 3, and 4 will be amended and seeded. All disturbed areas will be scarified and seeded by hand using a USFS approved seed mixture. The native seed mixture to be used was developed specifically for southern Arizona regions and will consist of the following species: sideoats grama, blue grama, plains bristlegrass, cane beardgrass, green sprangletop, Arizona cottontop and curly mesquite. If needed, a soil cover borrow area specified by Tetra Tech engineers may be used. The soil cover and all disturbed areas will be seeded, and proper erosion control measures using Best Management Practices (BMPs) will be installed. Surface water diversion ditches around waste rock piles may also be constructed as needed and as determined by Tetra Tech engineers.

3.5.3 Waste Rock Areas No. 1 Backfill and Reclamation

Waste Rock Area No. 1 has the largest estimate of waste rock volume on the Site at 6,000 cubic yards. The open mine workings in the area will be backfilled, compacted and mounded to create positive surface drainage away from the mine openings. Backfilling procedures will be directed by Tetra Tech engineers who will determine which material should be backfilled first and which material should be placed closer to the surface. Tetra Tech will ensure that the surface material or cap in each area after remediation and reclamation will have arsenic, copper, and lead at concentrations less than the remediation goals defined in the risk assessment memorandum. The cap may consist of either waste rock or soil. The determination of waste rock and soil to use as cap material will be completed by Tetra Tech engineers using a portable XRF instrument for samples from the area.

The material at Waste Rock Area No. 1 will likely exceed the capacity of the open shafts. Therefore, remaining waste rock material that cannot be transferred to open mine workings in Waste Rock Areas No. 2, 3, and 4 will be reclaimed in place on the slope with a soil cap as necessary to achieve the remediation goals and erosion control. Conceptual engineering design plans will be prepared by Tetra Tech and the subcontractor. The concept will identify minimum slope requirements, locations of interim benches, drainage directions and the locations of surface water diversion ditches. The concept will be field-fit in accordance with observed field conditions as the amount of waste rock is variable due to uncertainties in shaft capacities. The waste rock footprint and disturbance area will be minimized. After the waste rock is graded, a soil cover may be placed, amended and seeded as necessary. Proper erosion control measures will be installed as needed.

3.6 Bland and Long Contact Adit Plugging

3.6.1 Plug Sequencing

Site inspections and monitoring efforts have demonstrated a strong correlation between rainfall events and increases of ARD flows generated from the Long Contact Adit. ARD flows into the pond are typically 1.3 liters per minute during non-rain periods and increase to more than 2 liters per minute during monsoon and heavy rain periods. This indicates an established hydraulic connection between subsurface out-flows generated from the Long Contact Adit and high precipitation and surface water run-off events. This hydraulic connection is most likely the result

of an interconnection of the workings of the Long Contact Adit and open mine workings associated with Waste Rock Areas No. 1, 2, 3, and 4. Thus, it is anticipated that backfilling of the surface workings in the waste rock areas would significantly reduce ARD out-flows generated from the Long Contact Adit.

The backfilling of shafts from Waste Rock Areas No. 1, 2, 3, and 4 will be completed in June 2014 prior to the monsoon season. This will allow observation/monitoring of the ARD generation from the Long Contact Adit during the three months during monsoon when work cannot readily be conducted due to severe thunderstorms and flash flood run-off events. During the three months of monitoring, the reduced amount of out-flow from the Long Contact Adit may represent how much of an effect that the backfilling of the waste rock areas have had on ARD generation in order for the underground mine concrete plug specialists to determine how much hydraulic pressure could be expected to build up behind the concrete plugs. This will provide more insight into the final plug design, adit backfilling and adit portal reclamation design. Concrete plug installation is planned to begin after September 2014 when the monsoon season has ended.

3.6.2 Access Road and Portal Patio Engineering

Engineering efforts will be required prior to any construction activities associated with the plugging of the Long Contact and Bland Adits. Short access road segments will have to be designed to access the Long Contact and Bland Adit portal area. Additionally, a flattened, but well-drained ‘portal patio’ area (approximately 100 feet by 100 feet) will be required near the adit portals to accommodate general laydown requirements, allow equipment staging and provide an area for equipment storage. Tetra Tech, in conjunction with the adit plug subcontractor, will prepare engineering drawings for the access roads, portal patios and portal area drainage. Survey crews will generate and provide a current topographic mapping of the areas near the adit entrances prior to engineering efforts.

The portal pads will be designed to serve multiple purposes. The pads will be large enough to accommodate equipment requirements as specified by the plug contractor and will also accommodate staging areas for solid wastes, muds, and slimes that are removed from the adits. Dry solid wastes will be stored directly on the pad area while muds and slimes will be stored on a temporary lined area until dry. All waste rock, muds and dried slimes will be placed back underground between the two plugs (Long Contact Adit) and behind the single plug (Bland Adit) in final closure. Additionally, the designs will accommodate temporary lined storage basins that collect ARD from the adits if necessary prior to its discharge into the existing ARD pipeline to the evaporation ponds. Temporary storage/laydown areas for timber and miscellaneous debris will also be identified on the engineering plans.

The portal patio may temporarily (during construction) encroach on existing drainages. Temporary diversion ditches or culverts may be installed to control storm-water runoff during the adit work. Additionally, existing reclaimed waste rock slopes may be disturbed or modified to accommodate portal patio construction and access. Some of this waste rock will be placed into the underground area. Disturbances and/or modifications will be minimized, and any disturbed waste rock slopes will be reclaimed after plug installation. Material for portal patio construction will come from both existing mine waste piles and excess material that is removed from the slopes adjacent to the adit portals. Loose material on the slopes directly adjacent to the adit portals will be stripped down to competent rock to ensure a safe and stabilized portal area.

3.6.3 Alto Gulch Access Road Improvements and Portal Patio Area Construction

Plugging of the Long Contact and Bland Adits will require concrete trucks and a concrete pumper truck to gain access to the adit portal areas. The current condition of the access road (along Alto Gulch) will not allow concrete truck access due to steep and/or narrow sections with loose rock. Road improvements including, but not limited to, elimination of side-sloping road cross sections, widening, smoothing and grade reduction will be completed prior to adit plugging activities. Necessary improvement areas will be determined by Tetra Tech engineers and the mining and concrete supply subcontractors.

Portal patio areas will be constructed in accordance with Tetra Tech's engineering drawing as described in the previous section. The construction of the portal patio will be validated by the plug subcontractor prior to mobilization to the Site.

3.6.4 Adit Plug Engineering

The concrete plugs will be engineered to withstand the maximum potential hydrostatic pressure that could be generated behind the innermost plug. This maximum pressure is estimated at 200 pounds per square inch (psi) and is based on a maximum water column height of about 500 feet, the difference in elevation between the Long Contact adit portal and the open workings in the vicinity of Waste Rock Areas 1 through 4. Preliminary work in the Long Contact Adit suggests the closure will consist of two (inner and outer) 10 to 20 foot long hydraulic plugs. The inner plug will be located at approximately 470 feet from the portal, outboard of the ferric-hydroxide dam deposit at 600 feet and outboard of most significant inflows into the adit. The inner plug will be placed in competent, low fracture-density rock with enough burden overhead to prevent hydraulic jacking at about 190 feet from the portal. The outer plug may be designed to resist lower pressures than the inner plug. The Bland Adit will have one plug set about 200 feet from the portal that is capable of resisting the largest potential hydrostatic pressure that may be generated behind it.

Detailed Plug construction drawings cannot be finalized until rehabilitating and widening of the adits for equipment access is nearing completion. Adit rehabilitation will allow the location of more competent rock which will allow the final location of the plugs to be identified. After the adit plug location is finalized, the adit plug construction drawings will be finalized.

3.6.5 Bland Adit Plug Installation and Construction

The Bland Adit itself will have to be widened and over-excavated to accommodate equipment access. The adit back (ceiling) and ribs (walls) will need to be stabilized due to the fractured rock present in the adit. The adit will be over excavated to an approximate width of 6 feet and a minimum height of 7 feet to accommodate equipment access. Any ferric-hydroxide mud accumulation in the adit will be removed and staged on an appropriate containment area outside the adit. Mine waste removed from the mine (including dried ferric hydroxide mud) will be placed back underground behind the portal plug in final closure. The adit will be cleared of any muck and loose material up to about 200 feet into the adit. Ground stability will be maintained as the reclamation advances by a combination of scaling, bolting, screening, shotcrete, and if required timber or steel sets. Any steel or wood will be removed and separated from the rock and mud for proper disposal. The subcontractor will minimize or prevent contamination of the Site or other areas when handling and disposing of wastes.

The adit rehabilitation will also ensure that the concrete plug is in contact with a competent rock surface with a minimum number of fractures. The ribs of the adit (walls) that will be in contact

with the concrete plug will have to be prepared (barred-down and washed) by the adit plug subcontractor and inspected by the Tetra Tech underground mine engineers and specialists prior to plug installation. The Bland Adit will have one plug installed approximately 200 feet from the adit entrance. The concrete plug will be roughly 6 feet wide by 7-10 feet high (arched in the center of the plug station) and 16 feet long. The entire plug station will taper toward the portal. Tetra Tech underground mine specialists will be present during all plugging activities and will approve final plug construction. Additionally, Tetra Tech personnel will be present during plug station cleaning, bulkhead construction, concrete pouring, and pressure grouting (if required) for all hydraulic adit plugs.

3.6.6 Long Contact Adit Plug Installation and Construction

The Long Contact Adit portal will also be stabilized to allow safe entry and exit from the adit during removal of ferric hydroxide mud and adit rehabilitation. The adit will require widening in places to allow access of equipment and to establish areas for the concrete plugs. The waste rock and ferric hydroxide mud will be removed from the adit and staged on an appropriate containment area outside the adit. The adit will be cleared of any muck and loose material up to about 550 feet into the adit. Any steel or wood will be removed and separated from the rock and mud for proper disposal. Ground stability will be maintained as the reclamation advances by a combination of scaling, bolting, screening, shotcrete, and if required timber or steel sets.

The Long Contact Adit will have two plugs installed due to the larger hydraulic pressures anticipated. One plug will be installed at approximately 470 feet from the adit entrance and will be roughly 6 feet wide by 7-10 feet high (arched in the center of the plug station) and 20 feet long. The entire plug station will taper toward the portal. The second plug will be installed at approximately 190 feet from the adit entrance. This concrete plug will be roughly 6 feet wide by 7-10 feet high (arched in the center of the plug station) and 20 feet long. The entire plug station will taper toward the portal. Mine waste removed from the mine (including dried ferric hydroxide mud and waste rock) will be placed underground between the two hydraulic adit plugs or behind the portal plug.

3.6.7 Adit Backfill, Slope Reclamation and Pipeline Removal

After the concrete plugs are installed, any remaining waste rock and dried mud will be placed back into the adits behind the portal plug. Any minor remaining flow (if any) will be diverted to a buried infiltration basin constructed below grade at the portal. The adit entrances will be backfilled and covered to the most practical extent. The entrances will be covered and re-graded to match the existing slopes. The slopes will be covered by any salvaged topsoil (from road and pad construction) and will be reseeded with native vegetation. Encroached drainages will be reopened and restored. Waddles will be placed on slopes to reduce erosion until vegetation can be re-established. The ARD pipeline will be removed off-site and recycled.

3.7 Waste Rock Area No. 5 Reclamation

Waste Rock Area No 5 has several problematic issues including waste rock on a very steep slope and three adits. Two of the adits are short/shallow adits that require simple backfilling. One of the adits, which has rock partially blocking the entrance, is a large adit that goes back at least 300 feet into the ridge. This adit contains approximately two feet of water on the floor (sill) of the adit.

Tetra Tech determined that the most feasible and practical means to reclaim Waste Rock Area No. 5 is to fully remove the mine waste material from the steep slope and place it into the

empty, dry evaporation ponds that will be prepared for closure. This will be achieved via the construction of an access road from the evaporation ponds to the lower section of the waste rock. An estimated 6,000 cubic yards of waste rock material would be conveyed from the slope down to the evaporation pond area. The waste rock material would be temporarily stored near the evaporation pond area to separate the finer materials from the larger materials prior to pond filling.

This removal concept will be presented to contractors during the bidding process, but contractors will be encouraged to propose innovative and cost effective methods to remove the waste rock material.

3.7.1 Access Road and Staging Area Construction

An access road will be constructed to reach the lower portion of the waste rock area. A preliminary alignment of the Waste Rock Area No. 5 access road is shown in Figure 2 (Appendix B). The road as shown has maximum grades of roughly 30 percent. The actual alignment of the access road will be determined by the subcontractor based on field surveys, equipment selection and actual conditions encountered during construction. Tetra Tech anticipates that an additional access route will be required in order to get machinery to the top of the waste rock pile to allow material to be pushed downward. A preliminary alignment of this access route requires access via Waste Rock Areas No. 1, 2, 3, and 4 as shown on Figure 2. All road construction will attempt to minimize disturbance of the natural ground. Additionally, the topsoil and road cut spoils will be salvaged where practical to be used as a soil cap and vegetative cover for evaporation pond closure requirements. This material will be stockpiled near the evaporation ponds.

The access road (from the evaporation ponds) will lead to a temporary staging area to be constructed near the lowest portion of the waste rock pile. This area will be large enough to accommodate loading of waste rock material into a rock truck with a hydraulic excavator or tracked loader.

3.7.2 Waste Rock Removal

Waste rock material from Waste Rock Area No. 5 will be removed from the mountainside via the newly constructed access road from the evaporation ponds. The waste rock material will be removed by using a bulldozer that has accessed the waste rock material from the top of the ridge. The bulldozer will push the waste rock material down to the staging area located at bottom of the of the waste rock pile. A hydraulic excavator will load the rock truck with material which will be hauled down to the evaporation ponds staging area. This method will remove as much of the waste rock material on the mountainside as possible. Tetra Tech will ensure that the remaining surface material after remediation and reclamation will have arsenic, copper, and lead at concentrations less than the remediation goals defined in the risk assessment memorandum. Tetra Tech engineers will determine this using a portable XRF instrument for samples from the area. Tetra Tech will not attempt to remove past solid rock on the slope of Waste Rock Area No.5.

3.7.3 Foam Plug Installation and Adit Backfill

Dewatering of the larger open adit will be required prior to foam plugging of the portal, with excess water being discharged into the evaporation ponds as needed. Prior to the full removal of the waste rock material from the mountainside (or as determined by the subcontractor), a foam plug will be installed approximately 25 to 50 feet from the adit entrance. The foam plug will

be at a minimum 10 feet thick and will seal off the entire adit. The adit will be backfilled with waste rock material, and the entrance of the adit will be completely backfilled and graded to match existing slopes.

3.8 Evaporation Pond Closure

Once the Long Contact and Bland Adits are plugged, no further discharges will be directed to the evaporation ponds. Once the water from these adits has evaporated from the ponds, the only remaining liquid for evaporation will be potential water from the Waste Rock Area No. 5 adit. Closure of the evaporation ponds will commence when the Waste Rock Area No. 5 adit has been dewatered, and the waste rock material has been removed and is available for backfill.

3.8.1 Conceptual Engineering

A conceptual engineering plan for pond closure will be developed to guide reclamation construction. The engineering plan will be developed in accordance with ADEQs Best Available Demonstrated Control Technology (BADCT) methodology for surface pond closure (or approved equivalent). Tetra Tech will obtain approval for the concept engineering plan from ADEQ prior to construction. The concept plan will be based on the amount of material that is removed from the Waste Rock Area No. 5. The volume of material removed will determine how much material is available to re-grade and re-contour the pond area. Additionally, the amount of spoil material removed from road construction will determine the soil cover depth. Rocks will be used as riprap for drainage control as needed.

3.8.2 Pond Evaporation

Prior to backfilling of the evaporation pond with waste rock material, the ponds must be completely dry. The ponds can either be emptied using evaporation emitters installed in the ponds, or the remaining water can be applied and processed into the waste rock material before backfill. The water content of the waste rock shall not exceed 15 percent (by weight).

3.8.3 Pond Backfill and Reclamation

Once the pond water has evaporated, the waste rock material can be placed into the pond. A one foot thick protective layer of 3/8 inch minus waste rock material shall be placed along the bottom of the pond prior to backfilling to prevent puncturing of the liner during placement of the waste rock. Once the protective layer is placed, the remainder of the waste rock material can be placed on the liner. The waste rock material shall be placed to meet the intent of the engineered grading plan. Waste rock material will be mounded within the ponds liner limits if the volume of material exceeds the pond’s crest. After the waste rock material is placed in the pond, a six (6) inch thick bedding fill layer will be placed over the waste rock material to allow placement of a geosynthetic clay liner (GCL). After the GCL is placed, a one (1) foot thick minimum soil cover of 3/8 minus material will be placed over the liner. Finally a one foot thick vegetative growth media will be placed over the soil cover. Depending on the engineering plans, additional soil cover may be required in certain areas to accommodate proper drainage. The borrow source areas will be determined and approved by Tetra Tech Engineers. When grading is completed, the soil cover will be reseeded, and proper erosion control measures will be installed.

3.9 Upper Bland Waste Rock Reclamation

The Upper Bland consists of one waste rock area located on the top of a steep ridge. There are approximately 300 cubic yards of waste rock material adjacent to an open excavation probably a collapsed shallow shaft. The Upper Bland is not located near an access road.

The reclamation of the Upper Bland waste rock piles assumes that equipment can access the waste rock area via a constructed access road. The waste rock pile will be backfilled into the available shaft/excavation, and the remaining waste rock material will be re-graded, capped with a soil cover and reseeded. Tetra Tech will ensure that the surface material or cap in each area after remediation and reclamation will have arsenic, copper, and lead at concentrations less than the remediation goals for covers defined in the risk assessment memorandum. The cap may consist of either waste rock or soil. The determination of waste rock and soil to use as cap material will be completed by Tetra Tech engineers using a portable XRF instrument on samples from the area. Due to the plan to measure the metal content of the various types of waste rock and local soil, this plan has budgeted to use available local soil for capping if necessary but does not include costs for importing soil from off-site. This reclamation concept will be presented to contractors during the bidding process, but contractors will be encouraged to propose innovative and cost effective methods to reclaim the waste rock piles. The backfilling of waste rock into open mine shafts is allowed per the APP exclusion in A.R.S. § 49-250. This section of the rule, states that returning mining overburden to the excavations or shafts and open pits is allowed.

3.9.1 Access Road Construction

An access road may be constructed to reach the Upper Bland waste rock area. A preliminary alignment of the access road to reach the Upper Bland waste rock area is shown in Figure 2 (Appendix B). The actual alignment of the access road may vary and will be determined by the subcontractor based on field surveys, equipment selection and actual conditions encountered during construction. All road construction will attempt to minimize disturbance of the natural ground. Additionally, the topsoil and road cut spoils will be salvaged where practical to be used as a soil cap and vegetative cover.

3.9.2 Shaft Backfill and Reclamation

The waste rock will be backfilled into the available collapsed shaft/excavation. The collapsed shaft/excavation may be over excavated as necessary to create additional capacity for waste rock placement. Reclamation of the Upper Bland will attempt to transfer all of the waste rock off the slope and either into the excavation/collapsed shaft or on the top of the ridge, to prevent runoff and erosion of the waste rock at the surface. Any remaining waste rock will be re-graded in place and mounded to minimize erosion as determined by Tetra Tech Engineers. A soil cover will be placed over the remaining exposed waste rock areas. The soil cover will be amended and seeded, and proper erosion control measures will be installed.

3.10 Upper Royal Blue Waste Rock Reclamation

The Upper Royal Blue consists of three waste rock areas on a steep slope with one shaft that likely exceeds 50 feet in depth. There is approximately 4,000 cubic yards of material between the waste rock piles. Two of the waste rock areas are located proximal and downslope of the shaft, but one area is located approximately 400 feet southeast of the other two areas. The reclamation of the Upper Royal Blue waste rock piles assumes that the equipment can access

the waste rock areas via a constructed access road. The waste rock piles will be backfilled into the available shaft, and the remaining waste rock material will be re-graded, capped with a soil cover, and reseeded. Tetra Tech will ensure that the surface material or cap in each area after remediation and reclamation will have arsenic, copper, and lead at concentrations that are less than the remediation goals defined in the tier 2 risk assessment memorandum. The cap may consist of either waste rock or soil cover. The determination of waste rock and soil to use as cap material will be completed by Tetra Tech engineers using a portable XRF instrument for samples from the area. Due to the plan to measure the metal content of the various types of waste rock and local soil, this plan has budgeted to use available local soil for capping if necessary but the budget does not include importing soil from off-site. The backfilling of waste rock into open mine shafts is allowed per the APP exclusion in A.R.S. § 49-250. This rule states that returning mining overburden to the shafts and open pits is allowed.

This reclamation concept will be presented to contractors during the bidding process, but contractors will be encouraged to propose innovative and cost effective methods to reclaim the waste rock piles.

3.10.1 Access Road Construction

An access road will be constructed to reach the Upper Royal Blue waste rock areas. A preliminary alignment of the access road to the Upper Royal Blue waste rock area is shown in Figure 2 (Appendix B). The alignment shown makes use of an existing trail from the Alto Gulch to the waste rock area. The actual alignment of the access road may vary and will be determined by the contractor based on field surveys, equipment selection and actual conditions encountered during construction. All road construction will attempt to minimize disturbance of the natural ground. Additionally, the topsoil and road cut spoils will be salvaged where practical to be used as a soil cap and vegetative cover.

3.10.2 Shaft Backfill and Reclamation

The waste rock will be backfilled into the available shaft. The shaft may be over excavated as necessary to create additional capacity for waste rock placement. Any remaining waste rock will be re-graded and mounded to mitigate erosion as determined by the Tetra Tech engineers. Tetra Tech will ensure that the surface material or cap in each area after remediation and reclamation will have arsenic, copper, and lead that are less than the remediation goals defined in the tier 2 risk assessment memorandum. The cap may consist of either waste rock or soil cover. The determination of waste rock and soil to use as cap material will be completed by Tetra Tech engineers using a portable x-ray fluorescence (XRF) instrument for samples from the area. Due to the plan to measure the metal content of the various types of waste rock and local soil, this plan has budgeted to use available local soil for capping if necessary, but the budget does not include importing soil from off-site. The cap will be amended and seeded, and proper erosion control measures will be installed.

3.11 NFA for Soil Preparation

In order to achieve and document the NFA status for the soils from the site, Tetra Tech will prepare documentation to submit to the ADEQ. Tetra Tech will prepare a Site Characterization and Closure Report to document the requirements in A.R.S. § 49-181 upon achieving the remediation levels and controls determined for use as closure objectives for the Site, Tetra Tech, on behalf of the Trust, will document and complete the following applicable items for the NFA:

1. A description of the specific contaminants for which a no further action determination is being sought.

2. A description of the actions taken to achieve remediation levels or controls determined in accordance with A.R.S. § 49-175, subsection B.

3. A description of any soil, water, or soil and water treatment systems used as part of the remediation.

4. Whenever institutional or engineering controls are placed on the site:

    a. A demonstration that any engineering control or combination of engineering controls has been constructed, is functioning, and will be maintained.

    b. A description of the proposed land use for the site, and a demonstration that the use will not compromise the integrity of the engineering controls and will be in accordance with any institutional controls.

5. If post remediation monitoring is proposed, a description of the type of monitoring, monitoring locations, contaminants to be monitored, monitoring frequency and sampling procedures will be provided.

6. A description of community involvement activities undertaken to meet the requirements of A.R.S. § 49-176.

7. A list of permits under this title obtained for the remedial action or held by the applicant pertaining to the site.

Tetra Tech anticipates that item 1 specific contaminants will be arsenic, copper, and lead concentrations posed by mining-related wastes on the surface at the Site. Tetra Tech will ensure that the surface material in each area remediated and reclaimed will have arsenic, copper, and lead at concentrations at the surface, less than the remediation goals defined in the tier 2 risk assessment memorandum. In order to verify achievement of a cover that warrants a positive NFA determination, Tetra Tech will complete soil sample monitoring after completion of backfilling waste rock into the shafts and providing waste rock and/or soil cover. Soil sampling will be completed in the areas previously covered by mining-related wastes. The number of soil samples will be dependent upon the size of each area remediated and reclaimed and will be approximately 2 to 3 soil samples per 1,000 square feet. Tetra Tech will utilize a portable instrument XRF to analyze 100 percent of the samples from each remediated area. Tetra Tech will send 25% of the soil samples from each area (minimum of two samples from each area) to a state-certified laboratory to verify the results of the XRF. The goal of the verification analyses will be to document that the concentrations of the site-specific contaminants in cover soils (i.e. arsenic, copper and lead) are less than the remediation goals which are protective of receptors for soil ingestion and inhalation, and also protective of surface water or groundwater quality. Additional soil from nearby borrow areas where the soil was confirmed as having concentrations less than the remediation goals will be utilized in order to cover any areas that are found to have concentrations of site-specific contaminants greater than the remediation goals.

Tetra Tech anticipates that items 3 and 5 for the NFA will not apply as no treatment is expected to be conducted nor is there expected to be any post-remediation monitoring to be conducted for soil. Item 4 will include an Engineering Control Plan for monitoring and maintenance of the caps and re-vegetation for the remediated and reclaimed waste rock areas, and other

documentation and fee payment for a DEUR for the property. The DEUR will establish a restrictive covenant that runs with and burdens the property regarding the existing controls. Completing the DEUR will include payment of fees per A.A.C. R18-7-604. The aforementioned requirements and documentation will be completed and submitted to the ADEQ upon completion of the tasks identified in Section 2.0 of this plan.

4.0 COMMUNITY INVOLVEMENT

A community involvement plan (CIP) was developed in July 2013 to address the requirements in A.R.S. § 49-176 for the Site as part of a group of ASARCO Trust projects. The Salero Mine section of the CIP has been updated to address the broader requirements in preparation for the remedial action. The CIP included the provision for the following:

- Establishment of a document repository at the Patagonia Post Office during normal business hours and on the Town of Patagonia website,
- Notice of the work plan and an opportunity for public comments published in a local newspaper of general circulation, to affected water providers, affected well owners, local government agencies, adjacent residents (Salero Ranch Homeowners Association) and the department of water resources,
- Provision of general notices in the form of fact sheets regarding the nature and progress of the action to local government agencies, persons within the community surrounding the site (Salero Ranch Homeowners Association), other persons who have requested information regarding the site, and affected water providers,
- Updating for the on-site sign providing brief descriptive information about the site remediation project,

General notices/fact sheets will be generated at the end of 2014 to document the work completed and again in 2015 after completion of the remaining tasks. Posting of the work plan and fact sheets will also occur on the Salero Ranch Homeowners Association website.

5.0 SCHEDULE AND BUDGET

The following section presents a schedule during which the various project tasks will be completed. Timing for some of the tasks is critical in order to complete work prior to the monsoon and to avoid creating any surface disturbance during the monsoon season.

5.1 Schedule

The execution of the tasks described in section 3 above will follow the schedule in Table 1. Progress reports and updates will be provided during monthly conference calls with the Trust and ADEQ. Meeting notes from these calls will be prepared documenting the accomplishments during the course of the remediation and reclamation over the next two years.

Table 1. Project Schedule

Task	Timeline
Subcontractor Selection and Coordination	Jan 2014 – June 2015
Risk Assessment	January 2014-June 2014
Evaporation Pond Liner Repair	October 2014 and October 2015
Waste Rock Areas No. 1, 2, 3, and 4 Closure	May 2014 – June 2014
Long Contact and Bland Adit Plugging	October 2014 – February 2015
Waste Rock Area No. 5 Closure	October 2015 – January 2016
Evaporation Pond Closure	January 2016 – May 2016
Upper Bland Waste Rock Closure	October 2015-May 2016
Upper Royal Blue Waste Rock Closure	October 2015 – May 2016
Complete DEUR and NFA documentation	May 2016 – September 2016

5.2 Budget

As of the date of this Work Plan (March 2014), engineering and construction cost estimates have been assembled to complete all of the closure tasks presented in Section 2.0 and subsequently described in greater detail later in this document (Section 3.0).

Specific and detailed budgets for this project have been redacted from this document due to the ongoing contractor bidding process.

6.0 REFERENCES

ENVIRON, 2012. Salero Site, Patagonia, Arizona Stage 1 Report, VRP Site Code 504964-01: dated August 2012.

Tetra Tech, 2013a. Salero Mine Pipeline Leak Analytical Results Summary Tables 1-4: dated September 25, 2013.

Tetra Tech, 2013b. Salero Mine Site Waste Rock Analytical Data Summary: dated November 18, 2013.

Turner Laboratories, Inc, 2013. Salero AMD/Surface Water/Ground Water Work Order Sample Summary, Work Order 13I0482: dated October 8, 2013.

Turner Laboratories, Inc., 2014. Salero Sediment Work Order Sample Summary, Work Order 13L0703: dated January 24, 2014.

APPENDIX A
SITE ASSESSMENT AND CHARACTERIZATION REPORTS AND DATA

Salero MIne Site
Waste Rock Analytical Data Summary

Sample ID	D-613	WR-01	D-608	WR-02	D-602	WR-03	D-624	WR-4	D-202	WR-5	Upper Royal WR1	Upper Royal WR2	Upper Bland WR1
Sample Date	6/29/1999	7/9/2013	5/17/1999	7/9/2013	2/1/2002	7/9/2013	2/1/2002	7/9/2013	5/18/1999	7/9/2013	10/29/2013	10/29/2013	10/29/2013
ENVIRON TERM	A. Grp-1 Dump (Middle Dump by Headframe)	A. Grp-1 Dump (Middle Dump by Headframe)	Alto Dump 2	Alto Dump 2	Alto Grp-3	Alto Grp-3	Alto Grp-4	Alto Grp-4	Alto Tailings	Alto Tailings	N/A	N/A	NA
TETRA TECH TERM	Waste Rock Area 1	Waste Rock Area 1	Waste Rock Area 2	Waste Rock Area 2	Waste Rock Area 3	Waste Rock Area 3	Waste Rock Area 4	Waste Rock Area 4	Waste Rock Area 5	Waste Rock Area 5	Upper Royal WR1	Upper Royal WR2	Upper Bland WR1
Lat/Long of Samples	31° 36' 40.774" N 110° 51' 39.107" W	Composite	31° 36' 40.050" N 110° 51' 45.140" W	Composite	31° 36' 40.036" N 110° 51' 48.204" W	Composite	31° 36' 40.824" N 110° 51' 53.680" W	Composite	31° 36' 39.589" N 110° 52' 07.727" W	Composite	513127 E 3496602- composite of two waste rock piles east and northeast of the shaft and other piles	513038 E 3496709 N- composite from 3 waste rock piles below the shaft	514368 E 3496598 N
Total Metals													
Units		mg/Kg unless noted	ug/g unless noted	mg/Kg unless noted		mg/Kg unless noted		mg/Kg unless noted	ug/g unless noted	mg/Kg unless noted	mg/Kg unless noted	mg/Kg unless noted	mg/Kg unless noted
Silver	23 ppm	62		2.4		15		16	<10	17	160	ND	75
Aluminum	7.26%		5787						22470				
Arsenic	0.12%	510	768	320		590		290	188	250	380	140	440
Barium	396 ppm	19	95	55		4.4		39	107	15	28	70	39
Beryllium	<50 ppm		<10						<10				
Cadmium	<50 ppm	4.2	<10	3.8		20		4.1	<10	11	36	3	27
Calcium	0.48%												
Cobalt	<50 ppm		<10						13				
Chromium	<50 ppm	<.75	15	2.1		1.1		1.5	30	<.75	2.6	ND	6.4
Copper	0.14%		2030						833		6200	400	4400
Iron	9.36%		54660						36200				
Magnesium	0.22%		312						5791				
Manganese	0.23%		380						319				
Molybdenum	<50 ppm		<10						<10				
Sodium			530						354				
Nickel	<50 ppm		<10						22				
Lead	0.43%	30000	21090	4400		35000		9100	827	31000	7200	2200	24000
pH	2.2		2.3						3.1				
Antimony	500 ppm		872						35				
Selenium	<50 ppm	<1.0	<10	<1.0		<1.0		<1.0	<10	<1.0	ND	ND	ND
Thallium			<10						<10				
Vanadium	<50 ppm		11						80				
Zinc	0.22%		1328						495		4100	260	300

Salero MIne Site
Waste Rock Analytical Data Summary

Sample ID	D-613	WR-01	D-608	WR-02	D-602	WR-03	D-624	WR-4	D-202	WR-5	Upper Royal WR1	Upper Royal WR2	Upper Bland WR1
Sample Date	6/29/1999	7/9/2013	5/17/1999	7/9/2013	2/1/2002	7/9/2013	2/1/2002	7/9/2013	5/18/1999	7/9/2013	10/29/2013	10/29/2013	10/29/2013
SPLP	ppm	mg/L	ppm	mg/L	ppm	mg/L	ppm	mg/L	ppm	mg/L	mg/L	mg/L	mg/L
Silver	<0.05	0.0038	<0.05	0.0025	<0.05	0.002	<0.05	0.005	<0.05	0.0023	ND	ND	ND
Arsenic	<0.10	0.043	<0.10	0.082	<0.10	0.038	<0.10	0.047	<0.10	0.017	ND	ND	ND
Barium	<0.10	0.049	<0.10	0.096	<0.10	0.047	<0.10	0.45	<0.10	0.049	ND	ND	ND
Cadmium	<0.05	0.014	<0.05	0.039	0.13	0.035	<0.05	0.031	<0.05	0.032	ND	ND	ND
Chromium	<0.10	0.0029	<0.10	0.0032	<0.10	0.0015	<0.10	0.0027	<0.10	0.0024	ND	ND	ND
Mercury (ppb)	2.6	1.2	2.5	0.19	<0.50	0.82	1.4	0.67	<0.50	ND	ND	ND	ND
Lead	4.6	8.3	5	5.6	3.8	26	17	16	2.5	11	ND	ND	9.7
Copper		4.8		5.9		1.2		6.1		0.65	ND	ND	0.56
Selenium		ND		ND		ND		ND		ND	ND	ND	ND
Zinc		3.4		4.6		5.2		6.9		6.1	ND	ND	ND
pH	2.3		3.5		3.8		4.2		3.6				
SE	<0.10		<0.10		<0.10		<0.10		<0.10				
Net Acid Generation (PH=4.5) Kg H2So4/tonne	33.9		2.2		0.7		0.1		0.3				
Net Acid Generation (PH=7) Kg (H2So4/tonne)	4.61		1.93		1.04		1.34		4.01				
Acid Generation Potential (Calc on Sulfur Total)		80		48		48		20		77	35.4	30.1	40.2
Acid Neutralization Potential		0		0		2		11		0	10.3	11.7	<0.3
Acid-Base Potential (calc on Sulfur Total)		-80		-48		-46		-9		-77	-25.2	-18.3	-40.2

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Table 1. Salero Mine Pipeline Leak Analytical Results Summary for ICP Total Metals

				Parameter							
				Arsenic	**Barium**	**Cadmium**	**Chromium**	**Lead**	**Mercury**	**Selenium**	**Silver**
Arizona Soil Remediation Levels (non-residential) (mg/kg)				10	170,000	510	1,000,000	800	310	5,100	5,100
Arizona Groundwater Protection Levels (mg/kg)				290	12,000	29	590	290	12	290	NA
Sample Collection Date	**Sample Type**	**Sample I.D.**	**Sample Depth (inches bgs)**	**Sample Results (mg/kg)**							
7-Feb-13	Stained Soil	Salero LA1	0-8	**150**	84	0.92	4.7	**310**	< 0.10	< 5.0	< 2.5
		Salero LA2	0-8	**35**	93	4.0	5.1	**760**	0.14	< 5.0	4.6
		Salero LA3	0-8	**46**	110	4.8	4.6	**700**	0.11	< 5.0	12
		Salero Slope SL1	0-8	**92**	74	1.2	5.9	**300**	< 0.10	< 5.0	< 2.5
		Salero Slope SL2	0-8	**28**	45	2.3	5.3	**570**	< 0.10	< 5.0	< 2.5
11-Jun-13		Sal-STN-01	0-8	7.3	100	5.0	5.2	**500**	< 0.050	< 1.0	0.91
		Sal-STN-02	0-8	**200**	100	3.5	5.7	**320**	0.051	< 1.0	< 0.25
		Sal-STN-03	0-8	**45**	89	2.9	5.0	**340**	0.067	< 1.0	< 0.25
9-Jul-13	Stained Soil at Depth	Sal-SS1-610	6-10	**78**	110	2.7	6.1	**580**	0.22	< 1.0	4.6
		Sal-SS2-612	6-12	**43**	85	2.5	6.0	**460**	< 0.050	< 1.0	< 0.25
		Sal-SS2-1216	12-16	**27**	73	2.3	8.6	**410**	< 0.050	< 1.0	< 0.25

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Table 2. Salero Mine Background Soil Analytical Results Summary for ICP Total Metals

			Parameter							
			Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Arizona Soil Remediation Levels (non-residential) (mg/kg)			10	170,000	510	1,000,000	800	310	5,100	5,100
Arizona Groundwater Protection Levels (mg/kg)			290	12,000	29	590	290	12	290	NA
Sample Collection Date	**Sample Type**	**Sample I.D.**	**Sample Results (mg/kg)**							
7-Feb-13	Nearby Background	Salero BG	3.2 J	81	1.9	4.3	70	< 0.10	< 5.0	< 2.5
11-Jun-13	Background (Collected from 0-8 inches bgs)	Sal-STD-01	**52**	79	1.5	5.1	**1000**	0.057	< 1.0	0.59
		Sal-STD-02	7.4	51	2.1	10	180	< 0.050	< 1.0	< 0.25
		Sal-STD-03	**11**	48	4.7	5.6	**790**	0.064	< 1.0	< 0.25
		Sal-STD-04	3.0	26	1.2	6.4	18	< 0.050	< 1.0	< 0.25
		Sal-STD-05	1.7	56	3.0	12	60	< 0.050	< 1.0	< 0.25
		Sal-STD-06	2.7	100	1.2	11	32	< 0.050	< 1.0	< 0.25
		Sal-STD-07	< 1.0	52	2.6	13	11	< 0.050	< 1.0	< 0.25
		Sal-STD-08	4.5	41	1.5	2.3	78	< 0.050	< 1.0	< 0.25
		Mean	3.36	58.14	1.93	8.43	64.14	0.06	1.57	0.25

J = Result was below the RDL and was estimated.

Note: Samples Salero STD-01 and STD-03 were excluded from the mean calculation.

TETRA TECH

Table 3. Salero Mine Pipeline Leak Area and Background Soil Analytical Results Summary for ICP Metals, TCLP Leached

			Parameter							
			Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
EPA TCLP Disposal Limits (mg/L)			5.0	100	1.0	5.0	5.0	0.2	1.0	5.0
Sample Collection Date	Sample Type	Sample I.D.	Sample Results (mg/L)							
11-Jun-13	Stained Soil	Sal-STN-01	< 0.40	0.70	0.040	< 0.30	< 0.40	< 0.0010	< 0.40	< 0.10
		Sal-STN-02	< 0.40	< 0.50	0.021	< 0.30	< 0.40	< 0.0010	< 0.40	< 0.10
		Sal-STN-03	< 0.40	< 0.50	0.064	< 0.30	< 0.40	< 0.0010	< 0.40	< 0.10
	Background	Sal-STD-07	< 0.40	1.2	< 0.020	< 0.30	< 0.40	< 0.0010	< 0.40	< 0.10
		Sal-STD-08	< 0.40	1.0	< 0.020	< 0.30	< 0.40	< 0.0010	< 0.40	< 0.10

Table 4. Salero Mine Pipeline Leak Area and Background Soil Analytical Results Summary for ICP Metals, SPLP Leached

			Parameter							
			Arsenic	Barium	Cadmium	Chromium	Lead	Mercury	Selenium	Silver
Sample Collection Date	Sample Type	Sample I.D.	Sample Results (mg/L)							
11-Jun-13	Stained Soil	Sal-STN-01	< 0.040	0.33	0.0036	< 0.030	0.49	< 0.0010	< 0.040	0.0093
		Sal-STN-02	< 0.040	0.15	0.0096	< 0.030	< 0.040	< 0.0010	< 0.040	0.0077
		Sal-STN-03	< 0.040	0.11	0.031	< 0.030	0.15	< 0.0010	< 0.040	0.010
	Background	Sal-STD-07	< 0.040	0.57	< 0.0020	< 0.030	0.061	< 0.0010	< 0.040	0.0091
		Sal-STD-08	< 0.040	0.39	< 0.0020	< 0.030	0.21	< 0.0010	< 0.040	0.0081

January 24, 2014

Eric Larsen
Tetra Tech
2015 West River Road, Suite 141
Tucson, AZ 85704

TEL (520) 297-7723
FAX (520) 297-7724

Work Order No.: 13L0703

RE: Salero Sediment

Dear Eric Larsen,

Turner Laboratories, Inc. received 2 sample(s) on 12/30/2013 for the analyses presented in the following report.

All results are intended to be considered in their entirety, and Turner Laboratories, Inc. is not responsible for use of less than the complete report. Results apply only to the samples analyzed. Samples will be disposed of 30 days after issue of our report unless special arrangements are made.

The pages that follow may contain sensitive, privileged or confidential information intended solely for the addressee named above. If you receive this message and are not the agent or employee of the addressee, this communication has been sent in error. Please do not disseminate or copy any of the attached and notify the sender immediately by telephone. Please also return the attached sheet(s) to the sender by mail.

Please call if you have any questions.

Respectfully submitted,

Turner Laboratories, Inc.
ADHS License AZ0066

Terri L. Garcia

Terri Garcia
Technical Director

Client: Tetra Tech
Project: Salero Sediment
Work Order: 13L0703
Date Received: 12/30/2013

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date/Time
13L0703-01	EP-01	Soil	12/30/2013 0935
13L0703-02	EP-02	Soil	12/30/2013 0940

Client: Tetra Tech
Project: Salero Sediment
Work Order: 13L0703
Date Received: 12/30/2013

Case Narrative

EPA 8081 TCLP: The TCMX surrogate recovery we below acceptance limits in the Matrix Spike. Recovery in the Laboratory Control Sample and Duplicate and Matrix Spike Duplicate was acceptable. Suspect matrix interferences.

The TCLP Herbicides analysis was performed by ALS Environmental in Kelso, WA.

M2	Matrix spike recovery was low; the associated LCS/LCSD was acceptable.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated LCS/LCSD recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the calculation does not provide useful information. The associated LCS/LCSD recovery was acceptable.
M7	Matrix spike recovery was low. Data reported per ADEQ policy 0154.000. Matrix interference was confirmed.
N1	See case narrative.
R4	MS/MSD RPD exceeded the method acceptance limit. Recovery met the acceptance criteria.

All soil, sludge, and solid matrix determinations are reported on a wet weight basis unless otherwise noted.

ND	Not Detected at or above the PQL
PQL	Practical Quantitation Limit
DF	Dilution Factor

Turner Laboratories, Inc.

Date: 01/24/2014

Client: Tetra Tech
Project: Salero Sediment
Work Order: 13L0703
Lab Sample ID: 13L0703-01

Client Sample ID: EP-01
Collection Date/Time: 12/30/2013 0935
Matrix: Soil

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
CVAA Total Mercury-SW 7471A								
Mercury	0.078	0.050		mg/Kg	1	01/08/2014 1010	01/08/2014 1453	RAD
ICP Total Metals-SW6010B								
Aluminum	17000	500		mg/Kg	10	01/02/2014 0815	01/03/2014 1037	RAD
Antimony	ND	5.0		mg/Kg	1	01/02/2014 0815	01/03/2014 1123	RAD
Arsenic	160	10		mg/Kg	10	01/02/2014 0815	01/03/2014 1037	RAD
Barium	190	13		mg/Kg	10	01/02/2014 0815	01/03/2014 1037	RAD
Beryllium	ND	0.050		mg/Kg	1	01/02/2014 0815	01/03/2014 1123	RAD
Boron	55	25		mg/Kg	10	01/02/2014 0815	01/03/2014 1037	RAD
Cadmium	1.3	0.50		mg/Kg	10	01/02/2014 0815	01/03/2014 1037	RAD
Chromium	52	7.5		mg/Kg	10	01/02/2014 0815	01/03/2014 1037	RAD
Copper	170	5.0		mg/Kg	10	01/02/2014 0815	01/03/2014 1037	RAD
Iron	44000	75		mg/Kg	10	01/02/2014 0815	01/03/2014 1037	RAD
Lead	56	10		mg/Kg	10	01/02/2014 0815	01/03/2014 1037	RAD
Manganese	290	5.0		mg/Kg	10	01/02/2014 0815	01/03/2014 1037	RAD
Nickel	26	18		mg/Kg	10	01/02/2014 0815	01/03/2014 1037	RAD
Selenium	ND	1.0		mg/Kg	1	01/02/2014 0815	01/03/2014 1123	RAD
Silver	ND	0.25		mg/Kg	1	01/02/2014 0815	01/03/2014 1123	RAD
Thallium	ND	1.3		mg/Kg	1	01/02/2014 0815	01/03/2014 1123	RAD
Zinc	190	10		mg/Kg	10	01/02/2014 0815	01/03/2014 1037	RAD

Turner Laboratories, Inc.

Date: 01/24/2014

Client: Tetra Tech
Project: Salero Sediment
Work Order: 13L0703
Lab Sample ID: 13L0703-02

Client Sample ID: EP-02
Collection Date/Time: 12/30/2013 0940
Matrix: Soil

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Mercury, TCLP Leached by SW 1311-SW 1311/7471A								
Mercury	ND	0.0010		mg/L	1	01/22/2014 1140	01/23/2014 0932	RAD
ICP Metals, TCLP Leached by SW 1311-SW 6010B								
Arsenic	ND	0.40		mg/L	10	01/14/2014 0855	01/15/2014 1402	RAD
Barium	ND	0.50		mg/L	10	01/14/2014 0855	01/15/2014 1402	RAD
Cadmium	0.064	0.020		mg/L	10	01/14/2014 0855	01/15/2014 1402	RAD
Chromium	ND	0.30		mg/L	10	01/14/2014 0855	01/15/2014 1402	RAD
Lead	ND	0.40		mg/L	10	01/14/2014 0855	01/15/2014 1402	RAD
Selenium	ND	0.40		mg/L	10	01/14/2014 0855	01/15/2014 1402	RAD
Silver	ND	0.10		mg/L	10	01/14/2014 0855	01/15/2014 1402	RAD
CVAA Total Mercury-SW 7471A								
Mercury	0.22	0.050		mg/Kg	1	01/08/2014 1010	01/08/2014 1500	RAD
Ignitability-SW1030								
Ignitability	Not Ignitable			mm/second	1	01/03/2014 0850	01/03/2014 0905	EW
Semivolatile Organic Cmpds, TCLP Leached by SW1311-SW1311/8270C								
2,4,5-Trichlorophenol	ND	0.10		mg/L	1	01/07/2014 1358	01/08/2014 2013	MD
2,4,6-Trichlorophenol	ND	0.10		mg/L	1	01/07/2014 1358	01/08/2014 2013	MD
2,4-Dinitrotoluene	ND	0.10		mg/L	1	01/07/2014 1358	01/08/2014 2013	MD
Cresols, Total	ND	0.30		mg/L	1	01/07/2014 1358	01/08/2014 2013	MD
Hexachlorobenzene	ND	0.10		mg/L	1	01/07/2014 1358	01/08/2014 2013	MD
Hexachlorobutadiene	ND	0.10		mg/L	1	01/07/2014 1358	01/08/2014 2013	MD
Hexachloroethane	ND	0.10		mg/L	1	01/07/2014 1358	01/08/2014 2013	MD
Nitrobenzene	ND	0.10		mg/L	1	01/07/2014 1358	01/08/2014 2013	MD
Pentachlorophenol	ND	0.10		mg/L	1	01/07/2014 1358	01/08/2014 2013	MD
Pyridine	ND	0.10		mg/L	1	01/07/2014 1358	01/08/2014 2013	MD
Surr: 2,4,6-Tribromophenol	*88*	*36.9-116.7*		*%REC*	*1*	*01/07/2014 1358*	*01/08/2014 2013*	*MD*
Surr: 2-Fluorobiphenyl	*97*	*16.3-132.4*		*%REC*	*1*	*01/07/2014 1358*	*01/08/2014 2013*	*MD*
Surr: 2-Fluorophenol	*39*	*16.3-132.4*		*%REC*	*1*	*01/07/2014 1358*	*01/08/2014 2013*	*MD*
Surr: 4-Terphenyl-d14	*77*	*38.4-106.1*		*%REC*	*1*	*01/07/2014 1358*	*01/08/2014 2013*	*MD*
Surr: Nitrobenzene-d5	*89*	*37.3-102.9*		*%REC*	*1*	*01/07/2014 1358*	*01/08/2014 2013*	*MD*
Surr: Phenol-d6	*58*	*0-73*		*%REC*	*1*	*01/07/2014 1358*	*01/08/2014 2013*	*MD*
ICP Total Metals-SW6010B								
Aluminum	18000	500		mg/Kg	10	01/02/2014 0815	01/03/2014 1049	RAD
Antimony	ND	5.0		mg/Kg	1	01/02/2014 0815	01/03/2014 1143	RAD

Turner Laboratories, Inc.

Date: 01/24/2014

Client: Tetra Tech
Project: Salero Sediment
Work Order: 13L0703
Lab Sample ID: 13L0703-02

Client Sample ID: EP-02
Collection Date/Time: 12/30/2013 0940
Matrix: Soil

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Arsenic	150	10		mg/Kg	10	01/02/2014 0815	01/03/2014 1049	RAD
Barium	200	13		mg/Kg	10	01/02/2014 0815	01/03/2014 1049	RAD
Beryllium	ND	0.050		mg/Kg	1	01/02/2014 0815	01/03/2014 1143	RAD
Boron	57	25		mg/Kg	10	01/02/2014 0815	01/03/2014 1049	RAD
Cadmium	2.6	0.50		mg/Kg	10	01/02/2014 0815	01/03/2014 1049	RAD
Chromium	37	7.5		mg/Kg	10	01/02/2014 0815	01/03/2014 1049	RAD
Copper	390	5.0		mg/Kg	10	01/02/2014 0815	01/03/2014 1049	RAD
Iron	45000	75		mg/Kg	10	01/02/2014 0815	01/03/2014 1049	RAD
Lead	62	10		mg/Kg	10	01/02/2014 0815	01/03/2014 1049	RAD
Manganese	320	5.0		mg/Kg	10	01/02/2014 0815	01/03/2014 1049	RAD
Nickel	18	18		mg/Kg	10	01/02/2014 0815	01/03/2014 1049	RAD
Selenium	ND	1.0		mg/Kg	1	01/02/2014 0815	01/03/2014 1143	RAD
Silver	ND	0.25		mg/Kg	1	01/02/2014 0815	01/03/2014 1143	RAD
Thallium	ND	1.3		mg/Kg	1	01/02/2014 0815	01/03/2014 1143	RAD
Zinc	420	10		mg/Kg	10	01/02/2014 0815	01/03/2014 1049	RAD
Organochlorine Pesticides, TCLP Leached by SW 1311-SW8081A								
Chlordane	ND	0.010		mg/L	1	01/07/2014 1359	01/08/2014 1850	MD
Endrin	ND	0.0010		mg/L	1	01/07/2014 1359	01/08/2014 1850	MD
gamma-BHC	ND	0.0010		mg/L	1	01/07/2014 1359	01/08/2014 1850	MD
Heptachlor	ND	0.0010		mg/L	1	01/07/2014 1359	01/08/2014 1850	MD
Heptachlor epoxide	ND	0.0010		mg/L	1	01/07/2014 1359	01/08/2014 1850	MD
Methoxychlor	ND	0.0010		mg/L	1	01/07/2014 1359	01/08/2014 1850	MD
Toxaphene	ND	0.010		mg/L	1	01/07/2014 1359	01/08/2014 1850	MD
Surr: Decachlorobiphenyl	*92*	*58.5-104*		*%REC*	*1*	*01/07/2014 1359*	*01/08/2014 1850*	*MD*
Surr: Tetrachloro-m-xylene	*74*	*38-86.9*		*%REC*	*1*	*01/07/2014 1359*	*01/08/2014 1850*	*MD*
Volatile Organic Cmpds, TCLP Leached by SW 1311-SW8260B								
1,1-Dichloroethene	ND	0.050		mg/L	1	01/09/2014 1537	01/09/2014 1921	KP
1,2-Dichloroethane	ND	0.050		mg/L	1	01/09/2014 1537	01/09/2014 1921	KP
1,4-Dichlorobenzene	ND	0.050		mg/L	1	01/09/2014 1537	01/09/2014 1921	KP
2-Butanone	ND	0.50		mg/L	1	01/09/2014 1537	01/09/2014 1921	KP
Benzene	ND	0.050		mg/L	1	01/09/2014 1537	01/09/2014 1921	KP
Carbon tetrachloride	ND	0.050		mg/L	1	01/09/2014 1537	01/09/2014 1921	KP
Chlorobenzene	ND	0.050		mg/L	1	01/09/2014 1537	01/09/2014 1921	KP
Chloroform	ND	0.050		mg/L	1	01/09/2014 1537	01/09/2014 1921	KP
Tetrachloroethene	ND	0.050		mg/L	1	01/09/2014 1537	01/09/2014 1921	KP
Trichloroethene	ND	0.050		mg/L	1	01/09/2014 1537	01/09/2014 1921	KP
Vinyl chloride	ND	0.050		mg/L	1	01/09/2014 1537	01/09/2014 1921	KP
Surr: 4-Bromofluorobenzene	*102*	*70-130*		*%REC*	*1*	*01/09/2014 1537*	*01/09/2014 1921*	*KP*
Surr: Dibromofluoromethane	*95*	*70-130*		*%REC*	*1*	*01/09/2014 1537*	*01/09/2014 1921*	*KP*

Turner Laboratories, Inc.

Date: 01/24/2014

Client: Tetra Tech
Project: Salero Sediment
Work Order: 13L0703
Lab Sample ID: 13L0703-02

Client Sample ID: EP-02
Collection Date/Time: 12/30/2013 0940
Matrix: Soil

Analyses	Result	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Surr: Toluene-d8	*92*	*70-130*		*%REC*	*1*	*01/09/2014 1537*	*01/09/2014 1921*	*KP*
pH-SW9045D								
pH (pH Units)	2.7	0.0		-	1	12/31/2013 1000	12/31/2013 1123	WS
Temperature (°C)	21			-	1	12/31/2013 1000	12/31/2013 1123	WS
Paint Filter Liquids Test-SW9095B								
Free Liquid	No Free Liq	0.0		DET/ND	1	01/06/2014 0900	01/06/2014 0905	EW

Client: Tetra Tech
Project: Salero Sediment
Work Order: 13L0703
Date Received: 12/30/2013

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1401086 - SW8260B										
Blank (1401086-BLK1)				Prepared & Analyzed: 01/09/2014						
1,1-Dichloroethene	ND	0.050	mg/L							
1,2-Dichloroethane	ND	0.050	mg/L							
1,4-Dichlorobenzene	ND	0.050	mg/L							
2-Butanone	ND	0.50	mg/L							
Benzene	ND	0.050	mg/L							
Carbon tetrachloride	ND	0.050	mg/L							
Chlorobenzene	ND	0.050	mg/L							
Chloroform	ND	0.050	mg/L							
Tetrachloroethene	ND	0.050	mg/L							
Trichloroethene	ND	0.050	mg/L							
Vinyl chloride	ND	0.050	mg/L							
Surrogate: 4-Bromofluorobenzene	*31.8*		*ug/L*	*35.00*		*91*	*70-130*			
Surrogate: Dibromofluoromethane	*28.7*		*ug/L*	*35.00*		*82*	*70-130*			
Surrogate: Toluene-d8	*29.2*		*ug/L*	*35.00*		*83*	*70-130*			
Matrix Spike (1401086-MS1)		**Source: 13L0703-02**		Prepared & Analyzed: 01/09/2014						
1,1-Dichloroethene	44		ug/L	50.00	0.72	86	70-130			
1,2-Dichloroethane	46		ug/L	50.00	0.0	92	70-130			
1,4-Dichlorobenzene	47		ug/L	50.00	0.0	94	70-130			
2-Butanone	100		ug/L	100.0	0.0	101	70-130			
Benzene	46		ug/L	50.00	0.0	92	70-130			
Carbon tetrachloride	42		ug/L	50.00	0.0	84	70-130			
Chlorobenzene	48		ug/L	50.00	0.0	96	70-130			
Chloroform	46		ug/L	50.00	0.0	92	70-130			
Tetrachloroethene	44		ug/L	50.00	0.0	88	70-130			
Trichloroethene	45		ug/L	50.00	0.0	90	70-130			
Vinyl chloride	39		ug/L	50.00	0.0	78	70-130			
Surrogate: 4-Bromofluorobenzene	*33.9*		*ug/L*	*35.00*		*97*	*70-130*			
Surrogate: Dibromofluoromethane	*33.5*		*ug/L*	*35.00*		*96*	*70-130*			
Surrogate: Toluene-d8	*32.4*		*ug/L*	*35.00*		*93*	*70-130*			

Client: Tetra Tech
Project: Salero Sediment
Work Order: 13L0703
Date Received: 12/30/2013

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1401023 - SW6010B										
Blank (1401023-BLK1)				Prepared: 01/02/2014 Analyzed: 01/03/2014						
Aluminum	ND	50	mg/Kg							
Antimony	ND	5.0	mg/Kg							
Arsenic	ND	1.0	mg/Kg							
Barium	ND	1.3	mg/Kg							
Beryllium	ND	0.050	mg/Kg							
Boron	ND	2.5	mg/Kg							
Cadmium	ND	0.050	mg/Kg							
Chromium	ND	0.75	mg/Kg							
Copper	ND	0.50	mg/Kg							
Iron	ND	7.5	mg/Kg							
Lead	ND	1.0	mg/Kg							
Manganese	ND	0.50	mg/Kg							
Nickel	ND	1.8	mg/Kg							
Selenium	ND	1.0	mg/Kg							
Silver	ND	0.25	mg/Kg							
Thallium	ND	1.3	mg/Kg							
Zinc	ND	1.0	mg/Kg							
LCS (1401023-BS1)				Prepared: 01/02/2014 Analyzed: 01/03/2014						
Aluminum	51	50	mg/Kg	50.00		102	80-120			
Antimony	48	5.0	mg/Kg	50.00		95	80-120			
Arsenic	49	1.0	mg/Kg	50.00		98	80-120			
Barium	48	1.3	mg/Kg	50.00		96	80-120			
Beryllium	47	0.050	mg/Kg	50.00		94	80-120			
Boron	43	2.5	mg/Kg	50.00		87	80-120			
Cadmium	49	0.050	mg/Kg	50.00		98	80-120			
Chromium	51	0.75	mg/Kg	50.00		103	80-120			
Copper	49	0.50	mg/Kg	50.00		98	80-120			
Iron	51	7.5	mg/Kg	50.00		101	80-120			
Lead	49	1.0	mg/Kg	50.00		98	80-120			
Manganese	51	0.50	mg/Kg	50.00		103	80-120			
Nickel	50	1.8	mg/Kg	50.00		99	80-120			
Selenium	49	1.0	mg/Kg	50.00		98	80-120			
Silver	21	0.25	mg/Kg	25.00		85	80-120			
Thallium	44	1.3	mg/Kg	50.00		88	80-120			
Zinc	48	1.0	mg/Kg	50.00		96	80-120			

Client: Tetra Tech
Project: Salero Sediment
Work Order: 13L0703
Date Received: 12/30/2013

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1401023 - SW6010B										
LCS Dup (1401023-BSD1)				Prepared: 01/02/2014 Analyzed: 01/03/2014						
Aluminum	50	50	mg/Kg	50.00		101	80-120	1	20	
Antimony	47	5.0	mg/Kg	50.00		95	80-120	0.4	20	
Arsenic	48	1.0	mg/Kg	50.00		97	80-120	1	20	
Barium	47	1.3	mg/Kg	50.00		95	80-120	1	20	
Beryllium	46	0.050	mg/Kg	50.00		93	80-120	2	20	
Boron	43	2.5	mg/Kg	50.00		86	80-120	1	20	
Cadmium	49	0.050	mg/Kg	50.00		97	80-120	0.6	20	
Chromium	51	0.75	mg/Kg	50.00		101	80-120	1	20	
Copper	48	0.50	mg/Kg	50.00		97	80-120	1	20	
Iron	50	7.5	mg/Kg	50.00		100	80-120	0.9	20	
Lead	48	1.0	mg/Kg	50.00		97	80-120	0.9	20	
Manganese	51	0.50	mg/Kg	50.00		102	80-120	1	20	
Nickel	49	1.8	mg/Kg	50.00		99	80-120	0.5	20	
Selenium	48	1.0	mg/Kg	50.00		97	80-120	0.7	20	
Silver	21	0.25	mg/Kg	25.00		83	80-120	2	20	
Thallium	44	1.3	mg/Kg	50.00		87	80-120	0.5	20	
Zinc	47	1.0	mg/Kg	50.00		95	80-120	1	20	
Matrix Spike (1401023-MS1)		**Source: 13L0703-01**		Prepared: 01/02/2014 Analyzed: 01/03/2014						
Aluminum	17000	500	mg/Kg	50.00	17000	301	75-125			M3
Antimony	21	5.0	mg/Kg	50.00	2.0	38	75-125			M7
Arsenic	190	10	mg/Kg	50.00	160	57	75-125			M4
Barium	220	13	mg/Kg	50.00	190	68	75-125			M4
Beryllium	36	0.050	mg/Kg	50.00	ND	72	75-125			M7
Boron	85	25	mg/Kg	50.00	55	61	75-125			M4
Cadmium	50	0.50	mg/Kg	50.00	1.3	98	75-125			
Chromium	93	7.5	mg/Kg	50.00	52	82	75-125			
Copper	200	5.0	mg/Kg	50.00	170	56	75-125			M4
Iron	41000	75	mg/Kg	50.00	44000	NR	75-125			M3
Lead	110	10	mg/Kg	50.00	56	109	75-125			
Manganese	480	5.0	mg/Kg	50.00	290	379	75-125			M4
Nickel	73	18	mg/Kg	50.00	26	93	75-125			
Selenium	10	1.0	mg/Kg	50.00	ND	21	75-125			M7
Silver	18	0.25	mg/Kg	25.00	ND	70	75-125			M7
Thallium	25	1.3	mg/Kg	50.00	ND	49	75-125			M7
Zinc	220	10	mg/Kg	50.00	190	49	75-125			M4

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QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1401023 - SW6010B										
Matrix Spike Dup (1401023-MSD1)		**Source: 13L0703-01**		Prepared: 01/02/2014 Analyzed: 01/03/2014						
Aluminum	17000	500	mg/Kg	50.00	17000	179	75-125	0.4	20	M3
Antimony	20	5.0	mg/Kg	50.00	2.0	36	75-125	5	20	M7
Arsenic	190	10	mg/Kg	50.00	160	61	75-125	0.9	20	M4
Barium	220	13	mg/Kg	50.00	190	69	75-125	0.4	20	M4
Beryllium	35	0.050	mg/Kg	50.00	ND	70	75-125	3	20	M7
Boron	81	25	mg/Kg	50.00	55	53	75-125	5	20	M4
Cadmium	49	0.50	mg/Kg	50.00	1.3	96	75-125	1	20	
Chromium	92	7.5	mg/Kg	50.00	52	80	75-125	1	20	
Copper	200	5.0	mg/Kg	50.00	170	55	75-125	0.3	20	M4
Iron	41000	75	mg/Kg	50.00	44000	NR	75-125	0.5	20	M3
Lead	110	10	mg/Kg	50.00	56	102	75-125	3	20	
Manganese	410	5.0	mg/Kg	50.00	290	233	75-125	16	20	M4
Nickel	71	18	mg/Kg	50.00	26	90	75-125	2	20	
Selenium	7.7	1.0	mg/Kg	50.00	ND	15	75-125	29	20	M7
Silver	18	0.25	mg/Kg	25.00	ND	71	75-125	0.8	20	M7
Thallium	24	1.3	mg/Kg	50.00	ND	48	75-125	3	20	M7
Zinc	220	10	mg/Kg	50.00	190	49	75-125	0.08	20	M4
Batch 1401056 - SW 7471A										
Blank (1401056-BLK1)				Prepared & Analyzed: 01/08/2014						
Mercury	ND	0.050	mg/Kg							
LCS (1401056-BS1)				Prepared & Analyzed: 01/08/2014						
Mercury	0.25	0.050	mg/Kg	0.2500		101	85-115			
LCS Dup (1401056-BSD1)				Prepared & Analyzed: 01/08/2014						
Mercury	0.26	0.050	mg/Kg	0.2500		106	85-115	4	20	
Matrix Spike (1401056-MS1)		**Source: 13L0703-01**		Prepared & Analyzed: 01/08/2014						
Mercury	0.34	0.050	mg/Kg	0.2500	0.078	105	85-115			
Matrix Spike Dup (1401056-MSD1)		**Source: 13L0703-01**		Prepared & Analyzed: 01/08/2014						
Mercury	0.33	0.050	mg/Kg	0.2500	0.078	102	85-115	2	20	
Batch 1401153 - SW 6010B										
Blank (1401153-BLK1)				Prepared: 01/14/2014 Analyzed: 01/15/2014						
Arsenic	ND	0.40	mg/L							
Barium	ND	0.50	mg/L							
Cadmium	ND	0.020	mg/L							
Chromium	ND	0.30	mg/L							
Lead	ND	0.40	mg/L							
Selenium	ND	0.40	mg/L							
Silver	ND	0.10	mg/L							

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QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1401153 - SW 6010B										
LCS (1401153-BS1)				Prepared: 01/14/2014 Analyzed: 01/15/2014						
Arsenic	2.0	0.40	mg/L	2.000		102	80-120			
Barium	1.9	0.50	mg/L	2.000		97	80-120			
Cadmium	2.0	0.020	mg/L	2.000		101	80-120			
Chromium	1.9	0.30	mg/L	2.000		97	80-120			
Lead	2.0	0.40	mg/L	2.000		98	80-120			
Selenium	2.1	0.40	mg/L	2.000		105	80-120			
Silver	0.90	0.10	mg/L	1.000		90	80-120			
LCS Dup (1401153-BSD1)				Prepared: 01/14/2014 Analyzed: 01/15/2014						
Arsenic	2.1	0.40	mg/L	2.000		103	80-120	1	20	
Barium	2.0	0.50	mg/L	2.000		98	80-120	1	20	
Cadmium	2.0	0.020	mg/L	2.000		102	80-120	1	20	
Chromium	2.0	0.30	mg/L	2.000		100	80-120	3	20	
Lead	2.0	0.40	mg/L	2.000		99	80-120	1	20	
Selenium	2.2	0.40	mg/L	2.000		108	80-120	2	20	
Silver	0.91	0.10	mg/L	1.000		91	80-120	1	20	
Batch 1401242 - SW 1311/7471A										
Blank (1401242-BLK1)				Prepared: 01/22/2014 Analyzed: 01/23/2014						
Mercury	ND	0.0010	mg/L							
LCS (1401242-BS1)				Prepared: 01/22/2014 Analyzed: 01/23/2014						
Mercury	0.0053	0.0010	mg/L	0.005000		105	85-115			
LCS Dup (1401242-BSD1)				Prepared: 01/22/2014 Analyzed: 01/23/2014						
Mercury	0.0052	0.0010	mg/L	0.005000		104	85-115	0.5	20	
Matrix Spike (1401242-MS1)		**Source: 14A0021-01**		Prepared: 01/22/2014 Analyzed: 01/23/2014						
Mercury	0.0051	0.0010	mg/L	0.005000	ND	102	85-115			
Matrix Spike Dup (1401242-MSD1)		**Source: 14A0021-01**		Prepared: 01/22/2014 Analyzed: 01/23/2014						
Mercury	0.0049	0.0010	mg/L	0.005000	ND	98	85-115	3	20	

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QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1312294 - SW9045D										
Duplicate (1312294-DUP1)		**Source: 13L0703-02**		Prepared & Analyzed: 12/31/2013						
pH (pH Units)	2.7	0.0	-		2.7			1	200	
Temperature (°C)	21		-		21			0	200	
Batch 1401059 - SW9095B										
Duplicate (1401059-DUP1)		**Source: 13L0703-02**		Prepared & Analyzed: 01/06/2014						
Free Liquid	No Free Liq	0.0	DET/ND		No Free Liq				200	

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QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1401043 - SW1311/8270C										
Blank (1401043-BLK1)				Prepared: 01/07/2014 Analyzed: 01/08/2014						
2,4,5-Trichlorophenol	ND	0.10	mg/L							
2,4,6-Trichlorophenol	ND	0.10	mg/L							
2,4-Dinitrotoluene	ND	0.10	mg/L							
Cresols, Total	ND	0.30	mg/L							
Hexachlorobenzene	ND	0.10	mg/L							
Hexachlorobutadiene	ND	0.10	mg/L							
Hexachloroethane	ND	0.10	mg/L							
Nitrobenzene	ND	0.10	mg/L							
Pentachlorophenol	ND	0.10	mg/L							
Pyridine	ND	0.10	mg/L							
Surrogate: 2,4,6-Tribromophenol	*0.735*		*mg/L*	*1.000*		*73*	*36.9-116.7*			
Surrogate: 2-Fluorobiphenyl	*0.851*		*mg/L*	*1.000*		*85*	*16.3-132.4*			
Surrogate: 2-Fluorophenol	*0.440*		*mg/L*	*1.000*		*44*	*16.3-132.4*			
Surrogate: 4-Terphenyl-d14	*0.680*		*mg/L*	*1.000*		*68*	*38.4-106.1*			
Surrogate: Nitrobenzene-d5	*0.628*		*mg/L*	*1.000*		*63*	*37.3-102.9*			
Surrogate: Phenol-d6	*0.454*		*mg/L*	*1.000*		*45*	*0-73*			
LCS (1401043-BS1)				Prepared: 01/07/2014 Analyzed: 01/08/2014						
2,4,5-Trichlorophenol	0.86	0.10	mg/L	1.000		86	50.5-100.6			
2,4,6-Trichlorophenol	0.78	0.10	mg/L	1.000		78	51.7-95.6			
2,4-Dinitrotoluene	0.77	0.10	mg/L	1.000		77	50-99.3			
Cresols, Total	2.0	0.30	mg/L	3.000		67	34.8-95.9			
Hexachlorobenzene	0.72	0.10	mg/L	1.000		72	41.3-94.5			
Hexachlorobutadiene	0.48	0.10	mg/L	1.000		48	37-75.9			
Hexachloroethane	0.42	0.10	mg/L	1.000		42	31.6-72.8			
Nitrobenzene	0.62	0.10	mg/L	1.000		62	49.7-87.3			
Pentachlorophenol	0.75	0.10	mg/L	1.000		75	35.3-115.2			
Pyridine	0.23	0.10	mg/L	1.000		23	9.35-56.9			
Surrogate: 2,4,6-Tribromophenol	*0.792*		*mg/L*	*1.000*		*79*	*54.7-95.3*			
Surrogate: 2-Fluorobiphenyl	*0.826*		*mg/L*	*1.000*		*83*	*35.1-107.6*			
Surrogate: 2-Fluorophenol	*0.473*		*mg/L*	*1.000*		*47*	*26.9-60.6*			
Surrogate: 4-Terphenyl-d14	*0.749*		*mg/L*	*1.000*		*75*	*41-90.3*			
Surrogate: Nitrobenzene-d5	*0.607*		*mg/L*	*1.000*		*61*	*39.2-87.6*			
Surrogate: Phenol-d6	*0.499*		*mg/L*	*1.000*		*50*	*0.43-76.9*			

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QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1401043 - SW1311/8270C										
LCS Dup (1401043-BSD1)				Prepared: 01/07/2014 Analyzed: 01/08/2014						
2,4,5-Trichlorophenol	0.91	0.10	mg/L	1.000		91	50.5-100.6	6	30	
2,4,6-Trichlorophenol	0.82	0.10	mg/L	1.000		82	51.7-95.6	6	30	
2,4-Dinitrotoluene	0.80	0.10	mg/L	1.000		80	50-99.3	4	30	
Cresols, Total	2.0	0.30	mg/L	3.000		68	34.8-95.9	2	30	
Hexachlorobenzene	0.68	0.10	mg/L	1.000		68	41.3-94.5	5	30	
Hexachlorobutadiene	0.52	0.10	mg/L	1.000		52	37-75.9	7	30	
Hexachloroethane	0.43	0.10	mg/L	1.000		43	31.6-72.8	4	30	
Nitrobenzene	0.65	0.10	mg/L	1.000		65	49.7-87.3	4	30	
Pentachlorophenol	0.75	0.10	mg/L	1.000		75	35.3-115.2	0.05	30	
Pyridine	0.29	0.10	mg/L	1.000		29	9.35-56.9	23	30	
Surrogate: 2,4,6-Tribromophenol	*0.795*		*mg/L*	*1.000*		*80*	*54.7-95.3*			
Surrogate: 2-Fluorobiphenyl	*0.845*		*mg/L*	*1.000*		*84*	*35.1-107.6*			
Surrogate: 2-Fluorophenol	*0.502*		*mg/L*	*1.000*		*50*	*26.9-60.6*			
Surrogate: 4-Terphenyl-d14	*0.763*		*mg/L*	*1.000*		*76*	*41-90.3*			
Surrogate: Nitrobenzene-d5	*0.638*		*mg/L*	*1.000*		*64*	*39.2-87.6*			
Surrogate: Phenol-d6	*0.511*		*mg/L*	*1.000*		*51*	*0.43-76.9*			
Matrix Spike (1401043-MS1)		**Source: 13L0703-02**		Prepared: 01/07/2014 Analyzed: 01/08/2014						
2,4,5-Trichlorophenol	0.85	0.10	mg/L	1.000	0.0	85	17.6-133.1			
2,4,6-Trichlorophenol	0.73	0.10	mg/L	1.000	0.0	73	23.8-124.7			
2,4-Dinitrotoluene	0.77	0.10	mg/L	1.000	0.0	77	46.9-119.2			
Cresols, Total	2.1	0.30	mg/L	3.000	0.0	69	13.9-115.3			
Hexachlorobenzene	0.67	0.10	mg/L	1.000	0.0	67	34.3-105.9			
Hexachlorobutadiene	0.51	0.10	mg/L	1.000	0.0	51	22.8-102.3			
Hexachloroethane	0.50	0.10	mg/L	1.000	0.0	50	12.3-107.3			
Nitrobenzene	0.64	0.10	mg/L	1.000	0.0	64	36.1-118.2			
Pentachlorophenol	0.83	0.10	mg/L	1.000	0.0	83	8.1-154.7			
Pyridine	0.048	0.10	mg/L	1.000	0.0	5	7.8-60.3			M2
Surrogate: 2,4,6-Tribromophenol	*0.820*		*mg/L*	*1.000*		*82*	*36.9-116.7*			
Surrogate: 2-Fluorobiphenyl	*0.822*		*mg/L*	*1.000*		*82*	*16.3-132.4*			
Surrogate: 2-Fluorophenol	*0.336*		*mg/L*	*1.000*		*34*	*16.3-132.4*			
Surrogate: 4-Terphenyl-d14	*0.704*		*mg/L*	*1.000*		*70*	*38.4-106.1*			
Surrogate: Nitrobenzene-d5	*0.644*		*mg/L*	*1.000*		*64*	*37.3-102.9*			
Surrogate: Phenol-d6	*0.474*		*mg/L*	*1.000*		*47*	*0-73*			

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QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1401043 - SW1311/8270C										
Matrix Spike Dup (1401043-MSD1)		**Source: 13L0703-02**		Prepared: 01/07/2014 Analyzed: 01/08/2014						
2,4,5-Trichlorophenol	0.80	0.10	mg/L	1.000	0.0	80	17.6-133.1	6	30	
2,4,6-Trichlorophenol	0.71	0.10	mg/L	1.000	0.0	71	23.8-124.7	3	30	
2,4-Dinitrotoluene	0.81	0.10	mg/L	1.000	0.0	81	46.9-119.2	5	30	
Cresols, Total	2.0	0.30	mg/L	3.000	0.0	67	13.9-115.3	3	30	
Hexachlorobenzene	0.64	0.10	mg/L	1.000	0.0	64	34.3-105.9	4	30	
Hexachlorobutadiene	0.50	0.10	mg/L	1.000	0.0	50	22.8-102.3	1	30	
Hexachloroethane	0.49	0.10	mg/L	1.000	0.0	49	12.3-107.3	1	30	
Nitrobenzene	0.63	0.10	mg/L	1.000	0.0	63	36.1-118.2	2	30	
Pentachlorophenol	0.83	0.10	mg/L	1.000	0.0	83	8.1-154.7	0.2	30	
Pyridine	0.054	0.10	mg/L	1.000	0.0	5	7.8-60.3	12	30	M2
Surrogate: 2,4,6-Tribromophenol	*0.784*		*mg/L*	*1.000*		*78*	*36.9-116.7*			
Surrogate: 2-Fluorobiphenyl	*0.738*		*mg/L*	*1.000*		*74*	*16.3-132.4*			
Surrogate: 2-Fluorophenol	*0.338*		*mg/L*	*1.000*		*34*	*16.3-132.4*			
Surrogate: 4-Terphenyl-d14	*0.672*		*mg/L*	*1.000*		*67*	*38.4-106.1*			
Surrogate: Nitrobenzene-d5	*0.638*		*mg/L*	*1.000*		*64*	*37.3-102.9*			
Surrogate: Phenol-d6	*0.450*		*mg/L*	*1.000*		*45*	*0-73*			
Batch 1401051 - SW8081A										
Blank (1401051-BLK1)				Prepared: 01/07/2014 Analyzed: 01/08/2014						
Chlordane	ND	0.010	mg/L							
Endrin	ND	0.0010	mg/L							
gamma-BHC	ND	0.0010	mg/L							
Heptachlor	ND	0.0010	mg/L							
Heptachlor epoxide	ND	0.0010	mg/L							
Methoxychlor	ND	0.0010	mg/L							
Toxaphene	ND	0.010	mg/L							
Surrogate: Decachlorobiphenyl	*0.00977*		*mg/L*	*0.01000*		*98*	*58.5-104*			
Surrogate: Tetrachloro-m-xylene	*0.00798*		*mg/L*	*0.01000*		*80*	*38-86.9*			
LCS (1401051-BS1)				Prepared: 01/07/2014 Analyzed: 01/08/2014						
Endrin	0.016	0.0010	mg/L	0.02000		80	62-109			
gamma-BHC	0.016	0.0010	mg/L	0.02000		82	51.9-123.7			
Heptachlor	0.016	0.0010	mg/L	0.02000		78	49-113			
Heptachlor epoxide	0.016	0.0010	mg/L	0.02000		79	49.2-123.7			
Methoxychlor	0.016	0.0010	mg/L	0.02000		80	60.7-102.1			
Surrogate: Decachlorobiphenyl	*0.00924*		*mg/L*	*0.01000*		*92*	*79.9-114.7*			
Surrogate: Tetrachloro-m-xylene	*0.00755*		*mg/L*	*0.01000*		*75*	*53.3-102.2*			
LCS Dup (1401051-BSD1)				Prepared: 01/07/2014 Analyzed: 01/08/2014						
Endrin	0.015	0.0010	mg/L	0.02000		77	62-109	4	30	
gamma-BHC	0.016	0.0010	mg/L	0.02000		81	51.9-123.7	0.7	30	
Heptachlor	0.016	0.0010	mg/L	0.02000		78	49-113	0.3	30	
Heptachlor epoxide	0.016	0.0010	mg/L	0.02000		78	49.2-123.7	1	30	
Methoxychlor	0.016	0.0010	mg/L	0.02000		78	60.7-102.1	2	30	
Surrogate: Decachlorobiphenyl	*0.00906*		*mg/L*	*0.01000*		*91*	*79.9-114.7*			
Surrogate: Tetrachloro-m-xylene	*0.00786*		*mg/L*	*0.01000*		*79*	*53.3-102.2*			

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QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1401051 - SW8081A										
Matrix Spike (1401051-MS1)		**Source: 13L0703-02**		Prepared: 01/07/2014 Analyzed: 01/08/2014						
Endrin	0.012	0.0010	mg/L	0.02000	0.0	58	24.9-88.9			
gamma-BHC	0.010	0.0010	mg/L	0.02000	0.0	52	25-114.6			
Heptachlor	0.010	0.0010	mg/L	0.02000	0.0	50	8.9-83			
Heptachlor epoxide	0.011	0.0010	mg/L	0.02000	0.0	57	34.4-83.6			
Methoxychlor	0.011	0.0010	mg/L	0.02000	0.0	57	25.1-83			
Surrogate: Decachlorobiphenyl	*0.00652*		*mg/L*	*0.01000*		*65*	*58.5-104*			
Surrogate: Tetrachloro-m-xylene	*0.00328*		*mg/L*	*0.01000*		*33*	*38-86.9*			*N1*
Matrix Spike Dup (1401051-MSD1)		**Source: 13L0703-02**		Prepared: 01/07/2014 Analyzed: 01/08/2014						
Endrin	0.015	0.0010	mg/L	0.02000	0.0	77	24.9-88.9	28	30	
gamma-BHC	0.015	0.0010	mg/L	0.02000	0.0	73	25-114.6	34	30	R4
Heptachlor	0.015	0.0010	mg/L	0.02000	0.0	75	8.9-83	39	30	R4
Heptachlor epoxide	0.015	0.0010	mg/L	0.02000	0.0	76	34.4-83.6	29	30	
Methoxychlor	0.015	0.0010	mg/L	0.02000	0.0	77	25.1-83	29	30	
Surrogate: Decachlorobiphenyl	*0.00888*		*mg/L*	*0.01000*		*89*	*58.5-104*			
Surrogate: Tetrachloro-m-xylene	*0.00766*		*mg/L*	*0.01000*		*77*	*38-86.9*			

TURNER LABORATORIES INC.
2445 N. Coyote Drive, Suite 104
Tucson, Arizona 85745
(520) 882-5880
Fax: (520) 882-9788
www.turnerlabs.com

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

TURNER WORK ORDER # 1310703 DATE 12/30/13 PAGE 1 OF 1

PROJECT NAME Salero Sed. Sampling
CONTACT NAME Eric Larsen/Mike Dieckhaus
COMPANY NAME Tetra Tech
ADDRESS
PHONE 297-7723 FAX
SAMPLER'S SIGNATURE

CIRCLE ANALYSIS REQUESTED AND/OR CHECK THE APPROPRIATE BOX

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX*	NUMBER OF CONTAINERS	Base Neutrals ☐ Acids ☐ 625/8270	Volatile Organics 624/524.2/8260 *TCLP	TTHMS ☐ HAA5 ☐	Pesticides ☒ 8081 TCLP	PCB's ☐ 8082	NO_2 ☐ NO_3 ☐ TKN ☐	Oil and Grease Grav. 1664A ☐	VOA ☐ TCLP Analysis Semi-VOA ☐	TCLP ☐ Dissolved ☐ Metals Total ☒ See attached RCRA8 ☐	Total ☐ Cyanide Amen. ☐ WAD ☐	SDWA-INORGANICS PRIMARY ☐ SECONDARY ☐	MFN ☐ Coliform Collert ☐	pH ☒ Cr_6 ☐ Cl_2 ☐	COD ☐ TSS ☐ BOD ☐	TCLP 8 RCRA	Herbicides TCLP	SVOC TCLP	Paint Filter	Ign
EP-01	12/30/13	0935		soil/sed	1								X											
EP-02	12/30/13	0940		soil/sed	7		X		X				X					X		X	X	X	X	X

1. RELINQUISHED BY:
Signature
Printed Name Eric Larsen
Firm Tetra Tech
Date/Time 12/30/13 1320

2. RECEIVED BY:
Signature
Printed Name
Firm
Date/Time

TURNAROUND REQUIREMENTS:
____ Standard (approx. 10 days)*
____ Next Day ____ 2 Day ____ 5 Day*
____ Email Preliminary Results To:
* Working Days

REPORT REQUIREMENTS:
____ I. Routine Report
____ II. Report (includes DUP, MS, MSD, as required, may be charged as samples)
____ III. Date Validation Report (Includes All Raw Data) Add 10% to invoice

INVOICE INFORMATION:
Account ____ Y ____ N
P.O. #
Bill to:

SAMPLE RECEIPT:
Total Containers 8
Temperature 5.0
☒ Wet Ice ☐ Blue Ice

3. RELINQUISHED BY:
Signature
Printed Name
Firm
Date/Time

4. RECEIVED BY:
Signature
Printed Name Kelin Bri
Firm TURNER LABORATORIES, INC.
Date/Time 12/30/13 1320

* LEGEND
DW = DRINKING WATER
GW = GROUNDWATER
SD = SOLID
SG = SLUDGE
SL = SOIL
ST = STORMWATER
WW = WASTEWATER

SPECIAL INSTRUCTIONS/COMMENTS:
Compliance Analysis: ☐ Yes ☐ No
ADEQ Forms: ☐ Yes ☐ No
Mail ADEQ Forms: ☐ Yes ☐ No
Custody Seals ☐
Container Intact ☒
COC / Labels Agree ☒
Preservation Confirmation w/ ☐
Appropriate Head Space ☒
Received Within Hold Time ☒

Sediment was run through a #20 mesh sieve. Total Metals: Al, Sb, As, Ba, Be, Bo, Cd, Ch, Cu, Fe, Pb, Mg, Hg, Ni, Se, Ag, Th, Zn

January 15, 2014 Analytical Report for Service Request No: K1314018

Nancy Turner
Turner Laboratories, Inc.
2445 North Coyote Drive
Suite 104
Tucson, AZ 85745

RE: 13L0703

Dear Nancy:

Enclosed are the results of the sample submitted to our laboratory on December 31, 2013. For your reference, these analyses have been assigned our service request number K1314018.

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.alsglobal.com. All results are intended to be considered in their entirety, and ALS Group USA Corp. dba ALS Environmental (ALS) is not responsible for use of less than the complete report. Results apply only to the items submitted to the laboratory for analysis and individual items (samples) analyzed, as listed in the report.

Please call if you have any questions. My extension is 3322. You may also contact me via Email at Loren.Portwood@alsglobal.com.

Respectfully submitted,

ALS Group USA Corp. dba ALS Environmental

Loren E. Portwood

Loren Portwood
Project Manager

LP/mj

ADDRESS 1317 S. 13th Avenue, Kelso, WA 98626 USA | PHONE +1 360 577 7222 | FAX +1 360 636 1068
ALS Group USA, Corp. Part of the ALS Group An ALS Limited Company

Environmental www.alsglobal.com
RIGHT SOLUTIONS RIGHT PARTNER

Acronyms

ASTM	American Society for Testing and Materials
A2LA	American Association for Laboratory Accreditation
CARB	California Air Resources Board
CAS Number	Chemical Abstract Service registry Number
CFC	Chlorofluorocarbon
CFU	Colony-Forming Unit
DEC	Department of Environmental Conservation
DEQ	Department of Environmental Quality
DHS	Department of Health Services
DOE	Department of Ecology
DOH	Department of Health
EPA	U. S. Environmental Protection Agency
ELAP	Environmental Laboratory Accreditation Program
GC	Gas Chromatography
GC/MS	Gas Chromatography/Mass Spectrometry
LOD	Limit of Detection
LOQ	Limit of Quantitation
LUFT	Leaking Underground Fuel Tank
M	Modified
MCL	Maximum Contaminant Level is the highest permissible concentration of a substance allowed in drinking water as established by the USEPA.
MDL	Method Detection Limit
MPN	Most Probable Number
MRL	Method Reporting Limit
NA	Not Applicable
NC	Not Calculated
NCASI	National Council of the Paper Industry for Air and Stream Improvement
ND	Not Detected
NIOSH	National Institute for Occupational Safety and Health
PQL	Practical Quantitation Limit
RCRA	Resource Conservation and Recovery Act
SIM	Selected Ion Monitoring
TPH	Total Petroleum Hydrocarbons
tr	Trace level is the concentration of an analyte that is less than the PQL but greater than or equal to the MDL.

Inorganic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
E	The result is an estimate amount because the value exceeded the instrument calibration range.
J	The result is an estimated value.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.
H	The holding time for this test is immediately following sample collection. The samples were analyzed as soon as possible after receipt by the laboratory.

Metals Data Qualifiers

#	The control limit criteria is not applicable. See case narrative.
J	The result is an estimated value.
E	The percent difference for the serial dilution was greater than 10%, indicating a possible matrix interference in the sample.
M	The duplicate injection precision was not met.
N	The Matrix Spike sample recovery is not within control limits. See case narrative.
S	The reported value was determined by the Method of Standard Additions (MSA).
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
W	The post-digestion spike for furnace AA analysis is out of control limits, while sample absorbance is less than 50% of spike absorbance.
i	The MRL/MDL or LOQ/LOD is elevated due to a matrix interference.
X	See case narrative.
+	The correlation coefficient for the MSA is less than 0.995.
Q	See case narrative. One or more quality control criteria was outside the limits.

Organic Data Qualifiers

*	The result is an outlier. See case narrative.
#	The control limit criteria is not applicable. See case narrative.
A	A tentatively identified compound, a suspected aldol-condensation product.
B	The analyte was found in the associated method blank at a level that is significant relative to the sample result as defined by the DOD or NELAC standards.
C	The analyte was qualitatively confirmed using GC/MS techniques, pattern recognition, or by comparing to historical data.
D	The reported result is from a dilution.
E	The result is an estimated value.
J	The result is an estimated value.
N	The result is presumptive. The analyte was tentatively identified, but a confirmation analysis was not performed.
P	The GC or HPLC confirmation criteria was exceeded. The relative percent difference is greater than 40% between the two analytical results.
U	The analyte was analyzed for, but was not detected ("Non-detect") at or above the MRL/MDL. *DOD-QSM 4.2 definition* : Analyte was not detected and is reported as less than the LOD or as defined by the project. The detection limit is adjusted for dilution.
i	The MRL/MDL or LOQ/LOD is elevated due to a chromatographic interference.
X	See case narrative.
Q	See case narrative. One or more quality control criteria was outside the limits.

Additional Petroleum Hydrocarbon Specific Qualifiers

F	The chromatographic fingerprint of the sample matches the elution pattern of the calibration standard.
L	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of lighter molecular weight constituents than the calibration standard.
H	The chromatographic fingerprint of the sample resembles a petroleum product, but the elution pattern indicates the presence of a greater amount of heavier molecular weight constituents than the calibration standard.
O	The chromatographic fingerprint of the sample resembles an oil, but does not match the calibration standard.
Y	The chromatographic fingerprint of the sample resembles a petroleum product eluting in approximately the correct carbon range, but the elution pattern does not match the calibration standard.
Z	The chromatographic fingerprint does not resemble a petroleum product.

ALS Group USA Corp. dba ALS Environmental (ALS) - Kelso
State Certifications, Accreditations, and Licenses

Agency	Web Site	Number
Alaska DEC UST	http://dec.alaska.gov/applications/eh/ehllabreports/USTLabs.aspx	UST-040
Arizona DHS	http://www.azdhs.gov/lab/license/env.htm	AZ0339
Arkansas - DEQ	http://www.adeq.state.ar.us/techsvs/labcert.htm	88-0637
California DHS (ELAP)	http://www.cdph.ca.gov/certlic/labs/Pages/ELAP.aspx	2286
DOD ELAP	http://www.denix.osd.mil/edqw/Accreditation/AccreditedLabs.cfm	L12-28
Florida DOH	http://www.doh.state.fl.us/lab/EnvLabCert/WaterCert.htm	E87412
Georgia DNR	http://www.gaepd.org/Documents/techguide_pcb.html#cel	881
Hawaii DOH	Not available	-
Idaho DHW	http://www.healthandwelfare.idaho.gov/Health/Labs/CertificationDrinkingWaterLabs/tabid/1833/Default.aspx	-
Indiana DOH	http://www.in.gov/isdh/24859.htm	C-WA-01
ISO 17025	http://www.pjlabs.com/	L12-27
Louisiana DEQ	http://www.deq.louisiana.gov/portal/DIVISIONS/PublicParticipationandPermitSupport/LouisianaLaboratoryAccreditationProgram.aspx	3016
Maine DHS	Not available	WA0035
Michigan DEQ	http://www.michigan.gov/deq/0,1607,7-135-3307_4131_4156---,00.html	9949
Minnesota DOH	http://www.health.state.mn.us/accreditation	053-999-368
Montana DPHHS	http://www.dphhs.mt.gov/publichealth/	CERT0047
Nevada DEP	http://ndep.nv.gov/bsdw/labservice.htm	WA35
New Jersey DEP	http://www.nj.gov/dep/oqa/	WA005
North Carolina DWQ	http://www.dwqlab.org/	605
Oklahoma DEQ	http://www.deq.state.ok.us/CSDnew/labcert.htm	9801
Oregon – DEQ (NELAP)	http://public.health.oregon.gov/LaboratoryServices/EnvironmentalLaboratoryAccreditation/Pages/index.aspx	WA200001
South Carolina DHEC	http://www.scdhec.gov/environment/envserv/	61002
Texas CEQ	http://www.tceq.texas.gov/field/qa/env_lab_accreditation.html	4704427-08-TX
Washington DOE	http://www.ecy.wa.gov/programs/eap/labs/lab-accreditation.html	C1203
Wisconsin DNR	http://dnr.wi.gov/	998386840
Wyoming (EPA Region 8)	http://www.epa.gov/region8/water/dwhome/wyomingdi.html	-
Kelso Laboratory Website	www.alsglobal.com	NA

Analyses were performed according to our laboratory's NELAP-approved quality assurance program. A complete listing of specific NELAP-certified analytes, can be found in the certification section at www.caslab.com or at the accreditation bodies web site

Please refer to the certification and/or accreditation body's web site if samples are submitted for compliance purposes. The states highlighted above, require the analysis be listed on the state certification if used for compliance purposes and if the method/anlayte is offered by that state.

K1314018

SUBCONTRACT ORDER

Turner Laboratories, Inc.

13L0703

SENDING LABORATORY:

Turner Laboratories, Inc.
2445 N. Coyote Drive, Ste #104
Tucson, AZ 85745
Phone: 520.882.5880
Fax: 520.882.9788
Project Manager: Dawn Weyer

RECEIVING LABORATORY:

~~Columbia Analytical Services, Inc.~~ ALS 12/30/13
1317 S. 13th Ave
Kelso, WA 98626
Phone :(360) 577-7222
Fax: (360) 425-9096
Please CC Dawn Weyer Dweyer@turnerlabs.com

Analysis	Expires	Laboratory ID	Comments
Sample ID: 13L0703-02 Solid and Chemi Sampled: 12/30/2013 09:40			
Herbicides, TCLP	01/06/2014 09:40		
Containers Supplied:			

Released By	Date	Received By	Date
	12/30/13 1600	Fedex	12/30/13 1600
		[illegible]	12/31/13 0950

ALS

PC Lorn

Cooler Receipt and Preservation Form

Client / Project: [illegible] Service Request K13 14018

Received: 12/31/13 Opened: 12/31/13 By: [illegible] Unloaded: 12/31/13 By: [illegible]

. Samples were received via? *Mail* *Fed Ex* *UPS* *DHL* *PDX* *Courier* *Hand Delivered*

. Samples were received in: (circle) *Cooler* *Box* *Envelope* *Other* _____ *NA*

. Were custody seals on coolers? NA Y N If yes, how many and where? 1 Front

If present, were custody seals intact? Y N If present, were they signed and dated? Y N

Raw Cooler Temp	Corrected. Cooler Temp	Raw Temp Blank	Corrected Temp Blank	Corr. Factor	Thermometer ID	Cooler/COC ID NA	Tracking Number NA	Filed
-3	-6	2	1	-1	324		7112 [illegible]	

. Packing material: *Inserts* *Baggies* *Bubble Wrap* *Gel Packs* *Wet Ice* *Dry Ice* *Sleeves* _____

. Were custody papers properly filled out (ink, signed, etc.)? NA Y N

. Did all bottles arrive in good condition (unbroken)? *Indicate in the table below.* NA Y N

. Were all sample labels complete (i.e analysis, preservation, etc.)? NA Y N

. Did all sample labels and tags agree with custody papers? *Indicate major discrepancies in the table on page 2.* NA Y N

. Were appropriate bottles/containers and volumes received for the tests indicated? NA Y N

10. Were the pH-preserved bottles (*see SMO GEN SOP*) received at the appropriate pH? *Indicate in the table below* NA Y N

11. Were VOA vials received without headspace? *Indicate in the table below.* NA Y N

12. Was C12/Res negative? NA Y N

Sample ID on Bottle	Sample ID on COC	Identified by:

Sample ID	Bottle Count Bottle Type	Out of Temp	Head-space	Broke	pH	Reagent	Volume added	Reagent Lot Number	Initials	Time

Notes, Discrepancies, & Resolutions: _____

Page _____ *of* _____

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Turner Laboratories, Inc.	**Service Request:**	K1314018
Project:	13L0703	**Date Collected:**	12/30/2013
Sample Matrix:	Solid	**Date Received:**	12/31/2013
		Date Prepared:	01/02/2014

Toxicity Characteristic Leaching Procedure (TCLP)
Chlorinated Herbicides

Sample Name:	13L0703-02	**Units:**	ug/L
Lab Code:	K1314018-001	**Basis:**	NA
Preparation Method:	EPA 1311	**Level:**	Low
Extraction Method:	Method		
Analysis Method:	8151A		

Analyte Name	Result	Q	MRL	Regulatory Limit	Dilution Factor	Date Extracted	Date Analyzed	Note
2,4-D	ND	U	100	10000	1	01/08/14	01/13/14	
2,4,5-TP (Silvex)	ND	U	20	1000	1	01/08/14	01/13/14	

Surrogate Name	%Rec	Control Limits	Note
2,4-Dichlorophenylacetic Acid	87	17-113	Acceptable

Comments:

ALS Group USA, Corp. dba ALS Environmental

Analytical Results

Client:	Turner Laboratories, Inc.	**Service Request:**	K1314018
Project:	13L0703	**Date Collected:**	NA
Sample Matrix:	Solid	**Date Received:**	NA
		Date Prepared:	01/02/2014

Toxicity Characteristic Leaching Procedure (TCLP)
Chlorinated Herbicides

Sample Name:	Method Blank	**Units:**	ug/L
Lab Code:	KWG1400279-4	**Basis:**	NA
Preparation Method:	EPA 1311	**Level:**	Low
Extraction Method:	Method		
Analysis Method:	8151A		

Analyte Name	Result	Q	MRL	Regulatory Limit	Dilution Factor	Date Extracted	Date Analyzed	Note
2,4-D	ND	U	100	10000	1	01/08/14	01/13/14	
2,4,5-TP (Silvex)	ND	U	20	1000	1	01/08/14	01/13/14	

Surrogate Name	%Rec	Control Limits	Note
2,4-Dichlorophenylacetic Acid	89	17-113	Acceptable

Comments:

Client: Turner Laboratories, Inc. **Service Request:** K1314018
Project: 13L0703
Sample Matrix: Solid

Surrogate Recovery Summary
Toxicity Characteristic Leaching Procedure (TCLP)
Chlorinated Herbicides

Preparation Method: EPA 1311 **Units:** Percent
Extraction Method: Method **Level:** Low
Analysis Method: 8151A

Sample Name	Lab Code	Sur1
13L0703-02	K1314018-001	87
Method Blank	KWG1400279-4	89
13L0703-02MS	KWG1400279-1	96
Lab Control Sample	KWG1400279-2	82

Surrogate Recovery Control Limits (%)

Sur1 = 2,4-Dichlorophenylacetic Acid 17-113

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Turner Laboratories, Inc.	**Service Request:**	K1314018
Project:	13L0703	**Date Prepared:**	01/02/2014
Sample Matrix:	Solid	**Date Extracted:**	1/8/2014
		Date Analyzed:	01/13/2014

Matrix Spike Summary
Toxicity Characteristic Leaching Procedure (TCLP)
Chlorinated Herbicides

Sample Name:	13L0703-02	**Units:**	ug/L
Lab Code:	K1314018-001	**Basis:**	NA
Preparation Method:	EPA 1311	**Level:**	Low
Extraction Method:	Method	**Extraction Lot:**	KWG1400279
Analysis Method:	8151A		

		13L0703-02MS KWG1400279-1 Matrix Spike			
Analyte Name	**Sample Result**	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
2,4-D	ND	225	250	90	41-108
2,4,5-TP (Silvex)	ND	217	250	87	44-108

Results flagged with an asterisk (*) indicate values outside control criteria.

Results flagged with a pound (#) indicate the control criteria is not applicable.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

ALS Group USA, Corp. dba ALS Environmental

QA/QC Report

Client:	Turner Laboratories, Inc.	**Service Request:**	K1314018
Project:	13L0703	**Date Prepared:**	01/ 2/2014
Sample Matrix:	Solid	**Date Extracted:**	01/08/2014
		Date Analyzed:	01/13/2014

Lab Control Spike Summary
Chlorinated Herbicides

Extraction Method:	EPA 1311/Method	**Units:**	ug/L
Analysis Method:	8151A	**Basis:**	NA
		Level:	Low
		Extraction Lot:	KWG1400279

	Lab Control Sample KWG1400279-2 Lab Control Spike			
Analyte Name	**Result**	**Spike Amount**	**%Rec**	**%Rec Limits**
2,4-D	216	250	86	35-110
2,4,5-TP (Silvex)	208	250	83	37-114

Results flagged with an asterisk (*) indicate values outside control criteria.

Percent recoveries and relative percent differences (RPD) are determined by the software using values in the calculation which have not been rounded.

October 08, 2013

Eric Larsen
Tetra Tech
3031 W. Ina Rd
Tucson, AZ 85740

TEL (520) 297-7723
FAX (520) 297-7724

Work Order No.: 13I0482

RE: AMD/Surface Water/Ground Water

Dear Eric Larsen,

Turner Laboratories, Inc. received 6 sample(s) on 09/13/2013 for the analyses presented in the following report.

All results are intended to be considered in their entirety, and Turner Laboratories, Inc. is not responsible for use of less than the complete report. Results apply only to the samples analyzed. Samples will be disposed of 30 days after issue of our report unless special arrangements are made.

The pages that follow may contain sensitive, privileged or confidential information intended solely for the addressee named above. If you receive this message and are not the agent or employee of the addressee, this communication has been sent in error. Please do not disseminate or copy any of the attached and notify the sender immediately by telephone. Please also return the attached sheet(s) to the sender by mail.

Please call if you have any questions.

Respectfully submitted,

Turner Laboratories, Inc.
ADHS License AZ0066

Terri L. Garcia

Terri Garcia
Technical Director

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Date Received: 09/13/2013

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date/Time
13I0482-01	LCA-13	Ground Water	09/13/2013 1215
13I0482-02	BLA-13	Ground Water	09/13/2013 1302
13I0482-03	EPD-13	Ground Water	09/13/2013 1045
13I0482-04	LCRS-13	Ground Water	09/13/2013 1100
13I0482-05	AG-46-13	Ground Water	09/13/2013 1400
13I0482-06	AG-46-13A	Ground Water	09/13/2013 1400

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Date Received: 09/13/2013

Case Narrative

Sulfide analysis was not reported on samples -01,-02,-03 and -04 due to supsended solids interference with color change.

D5	Minimum Reporting Limit (MRL) is adjusted due to sample dilution; analyte was non-detect in the sample.
E4	Concentration estimated. Analyte was detected below laboratory Minimum Reporting Limit (MRL) but above MDL.
E8	Analyte reported to MDL per project specification. Target analyte was not detected in the sample.
H5	This test is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.
K1	The sample dilutions set-up for the BOD/CBOD analysis did not meet the oxygen depletion criteria of at least 2 mg/L. Reported result is an estimated value.
M1	Matrix spike recovery was high; the associated LCS/LCSD was acceptable.
M2	Matrix spike recovery was low; the associated LCS/LCSD was acceptable.
M3	The spike recovery value is unusable since the analyte concentration in the sample is disproportionate to the spike level. The associated LCS/LCSD recovery was acceptable.
M4	The analysis of the spiked sample required a dilution such that the calculation does not provide useful information. The associated LCS/LCSD recovery was acceptable.
Q5	Sample was received with inadequate chemical preservation, but preserved by the laboratory.

All soil, sludge, and solid matrix determinations are reported on a wet weight basis unless otherwise noted.

ND	Not Detected at or above the PQL
PQL	Practical Quantitation Limit
DF	Dilution Factor

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Lab Sample ID: 13I0482-01

Client Sample ID: LCA-13
Collection Date/Time: 09/13/2013 1215
Matrix: Ground Water

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Hardness-Calculation									
Hardness, Calcium/Magnesium (As CaCO3)	1000				mg/L	1	09/16/2013 1335	09/17/2013 1424	RAD
ICP Dissolved Metals-E 200.7									
Aluminum	120		2.0		mg/L	1	09/16/2013 0820	09/17/2013 1659	RAD
Arsenic	0.874		0.0400		mg/L	1	09/16/2013 0820	09/17/2013 1659	RAD
Beryllium	0.020		0.0020		mg/L	1	09/16/2013 0820	09/17/2013 1659	RAD
Boron	0.15		0.10		mg/L	1	09/16/2013 0820	09/17/2013 1659	RAD
Cadmium	0.38		0.0020		mg/L	1	09/16/2013 0820	09/17/2013 1659	RAD
Copper	66		0.020		mg/L	1	09/16/2013 0820	09/17/2013 1659	RAD
Iron	270		0.30		mg/L	1	09/16/2013 0820	09/17/2013 1659	RAD
Manganese	31		0.20		mg/L	10	09/16/2013 0820	09/19/2013 0949	RAD
Nickel	0.11		0.050		mg/L	1	09/16/2013 0820	09/17/2013 1659	RAD
Potassium	ND		5.0		mg/L	1	09/16/2013 0820	09/19/2013 1043	RAD
Sodium	94		5.0		mg/L	1	09/16/2013 0820	09/19/2013 1043	RAD
Zinc	80		0.80		mg/L	20	09/16/2013 0820	09/19/2013 1406	RAD
ICP/MS Dissolved Metals-E 200.8									
Antimony	0.0038		0.00050		mg/L	1	09/16/2013 0820	09/17/2013 1146	RAD
Barium	ND		0.0025	D5	mg/L	5	09/16/2013 0820	09/19/2013 1513	RAD
Lead	ND		0.0025	D5	mg/L	5	09/16/2013 0820	09/19/2013 1513	RAD
Selenium	0.0050		0.0025		mg/L	1	09/16/2013 0820	09/17/2013 1146	RAD
Silver	ND		0.0050	D5	mg/L	10	09/16/2013 0820	09/25/2013 1308	RAD
Thallium	ND		0.0025	D5	mg/L	5	09/16/2013 0820	09/19/2013 1513	RAD
CVAA Dissolved Mercury-E 245.1									
Mercury	ND	0.000049	0.0010	E8	mg/L	1	09/16/2013 1350	09/17/2013 1017	RAD
Turbidity-E180.1									
Turbidity	1.3		0.10		NTU	1	09/14/2013 1225	09/14/2013 1300	EW
ICP Total Metals-E200.7									
Aluminum	120		2.0		mg/L	1	09/16/2013 1335	09/17/2013 1424	RAD
Arsenic	0.84		0.040		mg/L	1	09/16/2013 1335	09/17/2013 1424	RAD
Beryllium	0.020		0.0020		mg/L	1	09/16/2013 1335	09/17/2013 1424	RAD

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Lab Sample ID: 13I0482-01

Client Sample ID: LCA-13
Collection Date/Time: 09/13/2013 1215
Matrix: Ground Water

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Boron	0.16		0.10		mg/L	1	09/16/2013 1335	09/17/2013 1424	RAD
Cadmium	0.38		0.0020		mg/L	1	09/16/2013 1335	09/17/2013 1424	RAD
Calcium	280		4.0		mg/L	1	09/16/2013 1335	09/17/2013 1424	RAD
Copper	66		0.020		mg/L	1	09/16/2013 1335	09/17/2013 1424	RAD
Iron	260		0.30		mg/L	1	09/16/2013 1335	09/17/2013 1424	RAD
Magnesium	69		3.0		mg/L	1	09/16/2013 1335	09/17/2013 1424	RAD
Manganese	31		0.20		mg/L	10	09/16/2013 1335	09/19/2013 0902	RAD
Nickel	0.095		0.050		mg/L	1	09/16/2013 1335	09/17/2013 1424	RAD
Zinc	79		0.80		mg/L	20	09/16/2013 1335	09/19/2013 1353	RAD
ICP/MS Total Metals-E200.8									
Antimony	0.0043		0.00050		mg/L	1	09/23/2013 0740	09/24/2013 1623	RAD
Barium	0.00084		0.00050		mg/L	1	09/23/2013 0740	09/24/2013 1623	RAD
Chromium	0.012		0.010		mg/L	20	09/23/2013 0740	09/26/2013 1123	RAD
Lead	0.0013		0.00050		mg/L	1	09/23/2013 0740	09/24/2013 1623	RAD
Selenium	0.0048		0.0025		mg/L	1	09/23/2013 0740	09/24/2013 1623	RAD
Silver	ND		0.010	D5	mg/L	20	09/23/2013 0740	09/26/2013 1123	RAD
Thallium	ND		0.00050		mg/L	1	09/23/2013 0740	09/25/2013 1752	RAD
CVAA Total Mercury-E245.1									
Mercury	ND	0.000049	0.0010	E8	mg/L	1	09/18/2013 0925	09/19/2013 1028	RAD
Anions by Ion Chromatography-E300									
Chloride	16		10		mg/L	10	09/16/2013 1000	09/16/2013 1824	EW
Chemical Oxygen Demand-Hach 8000									
Chemical Oxygen Demand	42		20		mg/L	1	09/20/2013 0900	09/20/2013 1645	EW
Alkalinity-SM2320B									
Alkalinity, Bicarbonate (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Alkalinity, Carbonate (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Alkalinity, Hydroxide (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Alkalinity, Total (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Total Dissolved Solids (Residue, Filterable)-SM2540 C									

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Lab Sample ID: 13I0482-01

Client Sample ID: LCA-13
Collection Date/Time: 09/13/2013 1215
Matrix: Ground Water

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Total Dissolved Solids (Residue, Filterable)	3200		20		mg/L	1	09/17/2013 1620	09/19/2013 1540	AC
Total Suspended Solids (Residue, Non-Filterable)-SM2540 D									
Total Suspended Solids	13		10		mg/L	1	09/17/2013 1431	09/18/2013 1325	AC
Cyanide-SM4500-CN BE									
Cyanide	ND		0.10	Q5	mg/L	1	09/19/2013 0900	09/20/2013 1615	EW
Oxygen, Dissolved-SM4500-OG									
Oxygen, Dissolved	9.1		0.10	H5	mg/L	1	09/14/2013 1340	09/14/2013 1355	EW
Sulfite-SM4500-SO3									
Sulfite	ND		2.0	H5	mg/L	1	09/14/2013 1130	09/14/2013 1215	EW
BOD, 5 day-SM5210 B									
Biochemical Oxygen Demand	4.1		2.0	K1	mg/L	1	09/14/2013 1510	09/19/2013 1510	AC

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Lab Sample ID: 13I0482-02

Client Sample ID: BLA-13
Collection Date/Time: 09/13/2013 1302
Matrix: Ground Water

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Hardness-Calculation									
Hardness, Calcium/Magnesium (As CaCO3)	2200				mg/L	1	09/16/2013 1335	09/17/2013 1427	RAD
ICP Dissolved Metals-E 200.7									
Aluminum	4.1		2.0		mg/L	1	09/16/2013 0820	09/17/2013 1703	RAD
Beryllium	0.0041		0.0020		mg/L	1	09/16/2013 0820	09/17/2013 1703	RAD
Boron	ND		0.10		mg/L	1	09/16/2013 0820	09/17/2013 1703	RAD
Cadmium	0.036		0.0020		mg/L	1	09/16/2013 0820	09/17/2013 1703	RAD
Copper	5.0		0.020		mg/L	1	09/16/2013 0820	09/17/2013 1703	RAD
Iron	99		0.30		mg/L	1	09/16/2013 0820	09/17/2013 1702	RAD
Manganese	66		0.20		mg/L	10	09/16/2013 0820	09/19/2013 0959	RAD
Potassium	ND		5.0		mg/L	1	09/16/2013 0820	09/19/2013 1047	RAD
Silver	0.015		0.010		mg/L	1	09/16/2013 0820	09/17/2013 1703	RAD
Sodium	40		5.0		mg/L	1	09/16/2013 0820	09/19/2013 1047	RAD
Zinc	22		0.40		mg/L	10	09/16/2013 0820	09/19/2013 0959	RAD
ICP/MS Dissolved Metals-E 200.8									
Antimony	0.0050		0.00050		mg/L	1	09/16/2013 0820	09/17/2013 1151	RAD
Arsenic	0.016		0.00050		mg/L	1	09/16/2013 0820	09/17/2013 1151	RAD
Barium	ND		0.0025	D5	mg/L	5	09/16/2013 0820	09/19/2013 1444	RAD
Chromium	ND		0.0025	D5	mg/L	5	09/16/2013 1345	09/19/2013 1444	RAD
Lead	0.0033		0.0025		mg/L	5	09/16/2013 0820	09/19/2013 1444	RAD
Selenium	ND		0.0025		mg/L	1	09/16/2013 0820	09/17/2013 1151	RAD
Thallium	ND		0.0025	D5	mg/L	5	09/16/2013 0820	09/19/2013 1444	RAD
CVAA Dissolved Mercury-E 245.1									
Mercury	ND	0.000049	0.0010	E8	mg/L	1	09/16/2013 1350	09/17/2013 1027	RAD
Turbidity-E180.1									
Turbidity	1.9		0.10		NTU	1	09/14/2013 1225	09/14/2013 1300	EW
ICP Total Metals-E200.7									
Aluminum	4.1		2.0		mg/L	1	09/16/2013 1335	09/17/2013 1428	RAD
Arsenic	0.041		0.040		mg/L	1	09/16/2013 1335	09/17/2013 1428	RAD
Beryllium	0.0038		0.0020		mg/L	1	09/16/2013 1335	09/17/2013 1428	RAD

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Lab Sample ID: 13I0482-02

Client Sample ID: BLA-13
Collection Date/Time: 09/13/2013 1302
Matrix: Ground Water

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Boron	ND		0.10		mg/L	1	09/16/2013 1335	09/17/2013 1428	RAD
Cadmium	0.037		0.0020		mg/L	1	09/16/2013 1335	09/17/2013 1428	RAD
Calcium	490		4.0		mg/L	1	09/16/2013 1335	09/17/2013 1427	RAD
Copper	5.0		0.020		mg/L	1	09/16/2013 1335	09/17/2013 1428	RAD
Iron	93		0.30		mg/L	1	09/16/2013 1335	09/17/2013 1427	RAD
Magnesium	250		3.0		mg/L	1	09/16/2013 1335	09/17/2013 1427	RAD
Manganese	67		0.20		mg/L	10	09/16/2013 1335	09/19/2013 0906	RAD
Silver	0.016		0.010		mg/L	1	09/16/2013 1335	09/17/2013 1428	RAD
Zinc	22		0.40		mg/L	10	09/16/2013 1335	09/19/2013 0906	RAD
ICP/MS Total Metals-E200.8									
Antimony	0.0056		0.00050		mg/L	1	09/23/2013 0740	09/24/2013 1629	RAD
Barium	0.0010		0.00050		mg/L	1	09/23/2013 0740	09/24/2013 1629	RAD
Chromium	ND		0.0025	D5	mg/L	5	09/23/2013 0740	09/26/2013 1147	RAD
Lead	0.0034		0.00050		mg/L	1	09/23/2013 0740	09/24/2013 1629	RAD
Selenium	ND		0.0025		mg/L	1	09/23/2013 0740	09/24/2013 1629	RAD
Thallium	ND		0.00050		mg/L	1	09/23/2013 0740	09/25/2013 1723	RAD
CVAA Total Mercury-E245.1									
Mercury	ND	0.000049	0.0010	E8	mg/L	1	09/18/2013 0925	09/19/2013 1031	RAD
Anions by Ion Chromatography-E300									
Chloride	14		10		mg/L	10	09/16/2013 1000	09/16/2013 1901	EW
Chemical Oxygen Demand-Hach 8000									
Chemical Oxygen Demand	85		20		mg/L	1	09/20/2013 0900	09/20/2013 1645	EW
Alkalinity-SM2320B									
Alkalinity, Bicarbonate (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Alkalinity, Carbonate (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Alkalinity, Hydroxide (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Alkalinity, Total (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Total Dissolved Solids (Residue, Filterable)-SM2540 C									

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Lab Sample ID: 13I0482-02

Client Sample ID: BLA-13
Collection Date/Time: 09/13/2013 1302
Matrix: Ground Water

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Total Dissolved Solids (Residue, Filterable)	3500		20		mg/L	1	09/17/2013 1620	09/19/2013 1540	AC
Total Suspended Solids (Residue, Non-Filterable)-SM2540 D									
Total Suspended Solids	15		10		mg/L	1	09/17/2013 1431	09/18/2013 1325	AC
Cyanide-SM4500-CN BE									
Cyanide	ND		0.10		mg/L	1	09/19/2013 0900	09/20/2013 1615	EW
Oxygen, Dissolved-SM4500-OG									
Oxygen, Dissolved	0.45		0.10	H5	mg/L	1	09/14/2013 1340	09/14/2013 1355	EW
Sulfite-SM4500-SO3									
Sulfite	ND		2.0	H5	mg/L	1	09/14/2013 1130	09/14/2013 1215	EW
BOD, 5 day-SM5210 B									
Biochemical Oxygen Demand	ND		2.0	K1	mg/L	1	09/14/2013 1510	09/19/2013 1510	AC

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Lab Sample ID: 13I0482-03

Client Sample ID: EPD-13
Collection Date/Time: 09/13/2013 1045
Matrix: Ground Water

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Hardness-Calculation									
Hardness, Calcium/Magnesium (As CaCO3)	1000				mg/L	1	09/16/2013 1335	09/17/2013 1431	RAD
ICP Dissolved Metals-E 200.7									
Aluminum	120		2.0		mg/L	1	09/16/2013 0820	09/17/2013 1706	RAD
Arsenic	0.806		0.0400		mg/L	1	09/16/2013 0820	09/17/2013 1706	RAD
Beryllium	0.019		0.0020		mg/L	1	09/16/2013 0820	09/17/2013 1706	RAD
Boron	0.13		0.10		mg/L	1	09/16/2013 0820	09/17/2013 1706	RAD
Cadmium	0.37		0.0020		mg/L	1	09/16/2013 0820	09/17/2013 1706	RAD
Copper	64		0.020		mg/L	1	09/16/2013 0820	09/17/2013 1706	RAD
Iron	260		0.30		mg/L	1	09/16/2013 0820	09/17/2013 1706	RAD
Manganese	33		0.20		mg/L	10	09/16/2013 0820	09/19/2013 1003	RAD
Nickel	0.10		0.050		mg/L	1	09/16/2013 0820	09/17/2013 1706	RAD
Potassium	ND		5.0		mg/L	1	09/16/2013 0820	09/19/2013 1050	RAD
Sodium	95		5.0		mg/L	1	09/16/2013 0820	09/19/2013 1050	RAD
Zinc	76		0.80		mg/L	20	09/16/2013 0820	09/19/2013 1410	RAD
ICP/MS Dissolved Metals-E 200.8									
Antimony	0.0033		0.00050		mg/L	1	09/16/2013 0820	09/17/2013 1157	RAD
Barium	ND		0.0025	D5	mg/L	5	09/16/2013 0820	09/19/2013 1519	RAD
Chromium	0.013		0.0025		mg/L	5	09/16/2013 1345	09/19/2013 1519	RAD
Lead	ND		0.0025	D5	mg/L	5	09/16/2013 0820	09/19/2013 1519	RAD
Selenium	0.0050		0.0025		mg/L	1	09/16/2013 0820	09/17/2013 1157	RAD
Silver	ND		0.0050	D5	mg/L	10	09/16/2013 0820	09/25/2013 1314	RAD
Thallium	ND		0.0025	D5	mg/L	5	09/16/2013 0820	09/19/2013 1519	RAD
CVAA Dissolved Mercury-E 245.1									
Mercury	ND	0.000049	0.0010	E8	mg/L	1	09/16/2013 1350	09/17/2013 1029	RAD
Turbidity-E180.1									
Turbidity	0.25		0.10		NTU	1	09/14/2013 1225	09/14/2013 1300	EW
ICP Total Metals-E200.7									
Aluminum	120		2.0		mg/L	1	09/16/2013 1335	09/17/2013 1431	RAD
Arsenic	0.76		0.040		mg/L	1	09/16/2013 1335	09/17/2013 1431	RAD

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Lab Sample ID: 13I0482-03

Client Sample ID: EPD-13
Collection Date/Time: 09/13/2013 1045
Matrix: Ground Water

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Beryllium	0.019		0.0020		mg/L	1	09/16/2013 1335	09/17/2013 1431	RAD
Boron	0.16		0.10		mg/L	1	09/16/2013 1335	09/17/2013 1431	RAD
Cadmium	0.37		0.0020		mg/L	1	09/16/2013 1335	09/17/2013 1431	RAD
Calcium	290		4.0		mg/L	1	09/16/2013 1335	09/17/2013 1431	RAD
Copper	64		0.020		mg/L	1	09/16/2013 1335	09/17/2013 1431	RAD
Iron	250		0.30		mg/L	1	09/16/2013 1335	09/17/2013 1431	RAD
Magnesium	74		3.0		mg/L	1	09/16/2013 1335	09/17/2013 1431	RAD
Manganese	32		0.20		mg/L	10	09/16/2013 1335	09/19/2013 0910	RAD
Nickel	0.095		0.050		mg/L	1	09/16/2013 1335	09/17/2013 1431	RAD
Zinc	78		0.80		mg/L	20	09/16/2013 1335	09/19/2013 1356	RAD
ICP/MS Total Metals-E200.8									
Antimony	0.0034		0.00050		mg/L	1	09/23/2013 0740	09/24/2013 1635	RAD
Barium	0.00062		0.00050		mg/L	1	09/23/2013 0740	09/24/2013 1635	RAD
Chromium	0.012		0.010		mg/L	20	09/23/2013 0740	09/26/2013 1128	RAD
Lead	0.0013		0.00050		mg/L	1	09/23/2013 0740	09/24/2013 1635	RAD
Selenium	0.0052		0.0025		mg/L	1	09/23/2013 0740	09/24/2013 1635	RAD
Silver	ND		0.010	D5	mg/L	20	09/23/2013 0740	09/26/2013 1128	RAD
Thallium	ND		0.00050		mg/L	1	09/23/2013 0740	09/25/2013 1758	RAD
CVAA Total Mercury-E245.1									
Mercury	ND	0.000049	0.0010	E8	mg/L	1	09/18/2013 0925	09/19/2013 1033	RAD
Anions by Ion Chromatography-E300									
Chloride	15		10		mg/L	10	09/16/2013 1000	09/16/2013 1938	EW
Chemical Oxygen Demand-Hach 8000									
Chemical Oxygen Demand	43		20		mg/L	1	09/20/2013 0900	09/20/2013 1645	EW
Alkalinity-SM2320B									
Alkalinity, Bicarbonate (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Alkalinity, Carbonate (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Alkalinity, Hydroxide (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Alkalinity, Total (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Total Dissolved Solids (Residue, Filterable)-SM2540 C									

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Lab Sample ID: 13I0482-03

Client Sample ID: EPD-13
Collection Date/Time: 09/13/2013 1045
Matrix: Ground Water

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Total Dissolved Solids (Residue, Filterable)	3300		20		mg/L	1	09/17/2013 1620	09/19/2013 1140	AC
Total Suspended Solids (Residue, Non-Filterable)-SM2540 D									
Total Suspended Solids	18		10		mg/L	1	09/17/2013 1431	09/18/2013 1325	AC
Cyanide-SM4500-CN BE									
Cyanide	ND		0.10	Q5	mg/L	1	09/19/2013 0900	09/20/2013 1615	EW
Oxygen, Dissolved-SM4500-OG									
Oxygen, Dissolved	8.6		0.10	H5	mg/L	1	09/14/2013 1340	09/14/2013 1355	EW
Sulfite-SM4500-SO3									
Sulfite	ND		2.0	H5	mg/L	1	09/14/2013 1130	09/14/2013 1215	EW
BOD, 5 day-SM5210 B									
Biochemical Oxygen Demand	ND		2.0	K1	mg/L	1	09/14/2013 1510	09/19/2013 1510	AC

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Lab Sample ID: 13I0482-04

Client Sample ID: LCRS-13
Collection Date/Time: 09/13/2013 1100
Matrix: Ground Water

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Hardness-Calculation									
Hardness, Calcium/Magnesium (As CaCO3)	1600				mg/L	1	09/16/2013 1335	09/17/2013 1434	RAD
ICP Dissolved Metals-E 200.7									
Aluminum	380		2.0		mg/L	1	09/16/2013 0820	09/17/2013 1710	RAD
Arsenic	2.38		0.0400		mg/L	1	09/16/2013 0820	09/17/2013 1710	RAD
Beryllium	0.056		0.0020		mg/L	1	09/16/2013 0820	09/17/2013 1710	RAD
Boron	0.27		0.10		mg/L	1	09/16/2013 0820	09/17/2013 1710	RAD
Cadmium	1.0		0.0020		mg/L	1	09/16/2013 0820	09/17/2013 1710	RAD
Chromium	0.079		0.030		mg/L	1	09/16/2013 0820	09/17/2013 1710	RAD
Copper	210		0.20		mg/L	10	09/16/2013 0820	09/19/2013 1006	RAD
Iron	590		3.0		mg/L	10	09/16/2013 0820	09/19/2013 1006	RAD
Manganese	100		1.0		mg/L	50	09/16/2013 0820	09/19/2013 1413	RAD
Nickel	0.34		0.050		mg/L	1	09/16/2013 0820	09/17/2013 1710	RAD
Potassium	ND		5.0		mg/L	1	09/16/2013 0820	09/19/2013 1054	RAD
Silver	0.024		0.010		mg/L	1	09/16/2013 0820	09/17/2013 1710	RAD
Sodium	300		5.0		mg/L	1	09/16/2013 0820	09/19/2013 1054	RAD
Zinc	220		2.0		mg/L	50	09/16/2013 0820	09/19/2013 1413	RAD
ICP/MS Dissolved Metals-E 200.8									
Antimony	0.0033		0.00050		mg/L	1	09/16/2013 0820	09/17/2013 1203	RAD
Barium	0.0048		0.0025		mg/L	5	09/16/2013 0820	09/19/2013 1525	RAD
Lead	0.0044		0.0025		mg/L	5	09/16/2013 0820	09/19/2013 1525	RAD
Selenium	0.0062		0.0025		mg/L	1	09/16/2013 0820	09/17/2013 1203	RAD
Thallium	ND		0.0025	D5	mg/L	5	09/16/2013 0820	09/19/2013 1525	RAD
CVAA Dissolved Mercury-E 245.1									
Mercury	ND	0.000049	0.0010	E8	mg/L	1	09/16/2013 1350	09/17/2013 1032	RAD
Turbidity-E180.1									
Turbidity	1.4		0.10		NTU	1	09/14/2013 1225	09/14/2013 1300	EW
ICP Total Metals-E200.7									
Aluminum	380		2.0		mg/L	1	09/16/2013 1335	09/17/2013 1435	RAD
Arsenic	2.2		0.040		mg/L	1	09/16/2013 1335	09/17/2013 1435	RAD

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Lab Sample ID: 13I0482-04

Client Sample ID: LCRS-13
Collection Date/Time: 09/13/2013 1100
Matrix: Ground Water

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Beryllium	0.055		0.0020		mg/L	1	09/16/2013 1335	09/17/2013 1435	RAD
Boron	0.30		0.10		mg/L	1	09/16/2013 1335	09/17/2013 1435	RAD
Cadmium	1.0		0.0020		mg/L	1	09/16/2013 1335	09/17/2013 1435	RAD
Calcium	210		4.0		mg/L	1	09/16/2013 1335	09/17/2013 1434	RAD
Chromium	0.080		0.030		mg/L	1	09/16/2013 1335	09/17/2013 1435	RAD
Copper	210		0.20		mg/L	10	09/16/2013 1335	09/19/2013 0913	RAD
Iron	600		3.0		mg/L	10	09/16/2013 1335	09/19/2013 0913	RAD
Magnesium	270		3.0		mg/L	1	09/16/2013 1335	09/17/2013 1434	RAD
Manganese	100		1.0		mg/L	50	09/16/2013 1335	09/19/2013 1359	RAD
Nickel	0.33		0.050		mg/L	1	09/16/2013 1335	09/17/2013 1435	RAD
Silver	0.022		0.010		mg/L	1	09/16/2013 1335	09/17/2013 1435	RAD
Zinc	230		2.0		mg/L	50	09/16/2013 1335	09/19/2013 1359	RAD
ICP/MS Total Metals-E200.8									
Antimony	0.0034		0.00050		mg/L	1	09/23/2013 0740	09/24/2013 1652	RAD
Barium	0.0034		0.00050		mg/L	1	09/23/2013 0740	09/24/2013 1652	RAD
Lead	0.0051		0.0025		mg/L	5	09/23/2013 0740	09/25/2013 1706	RAD
Selenium	0.010		0.0025		mg/L	1	09/23/2013 0740	09/24/2013 1652	RAD
Thallium	ND		0.0025	D5	mg/L	5	09/23/2013 0740	09/25/2013 1706	RAD
CVAA Total Mercury-E245.1									
Mercury	ND	0.000049	0.0010	E8	mg/L	1	09/18/2013 0925	09/19/2013 1036	RAD
Anions by Ion Chromatography-E300									
Chloride	9.4		2.0		mg/L	2	09/17/2013 1000	09/17/2013 1226	EW
Chemical Oxygen Demand-Hach 8000									
Chemical Oxygen Demand	130		20		mg/L	1	09/20/2013 0900	09/20/2013 1645	EW
Alkalinity-SM2320B									
Alkalinity, Bicarbonate (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Alkalinity, Carbonate (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Alkalinity, Hydroxide (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Alkalinity, Total (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Total Dissolved Solids (Residue, Filterable)-SM2540 C									

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Lab Sample ID: 13I0482-04

Client Sample ID: LCRS-13
Collection Date/Time: 09/13/2013 1100
Matrix: Ground Water

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Total Dissolved Solids (Residue, Filterable)	9000		20		mg/L	1	09/20/2013 1005	09/26/2013 1250	AC
Total Suspended Solids (Residue, Non-Filterable)-SM2540 D									
Total Suspended Solids	24		10		mg/L	1	09/17/2013 1431	09/18/2013 1325	AC
Cyanide-SM4500-CN BE									
Cyanide	ND		0.10	Q5	mg/L	1	09/19/2013 0900	09/20/2013 1615	EW
Oxygen, Dissolved-SM4500-OG									
Oxygen, Dissolved	7.9		0.10	H5	mg/L	1	09/14/2013 1340	09/14/2013 1355	EW
Sulfite-SM4500-SO3									
Sulfite	ND		2.0	H5	mg/L	1	09/14/2013 1130	09/14/2013 1215	EW
BOD, 5 day-SM5210 B									
Biochemical Oxygen Demand	ND		2.0	K1	mg/L	1	09/14/2013 1510	09/19/2013 1510	AC

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Lab Sample ID: 13I0482-05

Client Sample ID: AG-46-13
Collection Date/Time: 09/13/2013 1400
Matrix: Ground Water

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Hardness-Calculation									
Hardness, Calcium/Magnesium (As CaCO3)	660				mg/L	1	09/16/2013 1335	09/17/2013 1438	RAD
ICP Dissolved Metals-E 200.7									
Aluminum	9.7		2.0		mg/L	1	09/16/2013 0820	09/17/2013 1714	RAD
Beryllium	0.0096		0.0020		mg/L	1	09/16/2013 0820	09/17/2013 1714	RAD
Boron	ND		0.10		mg/L	1	09/16/2013 0820	09/17/2013 1714	RAD
Cadmium	0.092		0.0020		mg/L	1	09/16/2013 0820	09/17/2013 1714	RAD
Copper	14		0.020		mg/L	1	09/16/2013 0820	09/17/2013 1714	RAD
Iron	0.13	0.0018	0.30	E4	mg/L	1	09/16/2013 0820	09/17/2013 1713	RAD
Lead	0.13		0.040		mg/L	1	09/16/2013 0820	09/17/2013 1714	RAD
Manganese	13		0.20		mg/L	10	09/16/2013 0820	09/19/2013 1010	RAD
Nickel	0.060		0.050		mg/L	1	09/16/2013 0820	09/17/2013 1714	RAD
Potassium	ND		5.0		mg/L	1	09/16/2013 0820	09/19/2013 1058	RAD
Sodium	44		5.0		mg/L	1	09/16/2013 0820	09/19/2013 1058	RAD
Zinc	17		0.40		mg/L	10	09/16/2013 0820	09/19/2013 1010	RAD
ICP/MS Dissolved Metals-E 200.8									
Antimony	ND		0.0025	D5	mg/L	5	09/16/2013 0820	09/19/2013 1450	RAD
Arsenic	0.0011		0.00050		mg/L	1	09/16/2013 0820	09/17/2013 1209	RAD
Barium	0.017		0.0025		mg/L	5	09/16/2013 0820	09/19/2013 1450	RAD
Chromium	ND		0.0025	D5	mg/L	5	09/16/2013 1345	09/19/2013 1450	RAD
Selenium	0.0028		0.0025		mg/L	1	09/16/2013 0820	09/17/2013 1209	RAD
Silver	0.0018		0.00050		mg/L	1	09/16/2013 0820	09/17/2013 1209	RAD
Thallium	ND		0.0025	D5	mg/L	5	09/16/2013 0820	09/19/2013 1450	RAD
CVAA Dissolved Mercury-E 245.1									
Mercury	ND	0.000049	0.0010	E8	mg/L	1	09/16/2013 1350	09/17/2013 1034	RAD
Turbidity-E180.1									
Turbidity	0.35		0.10		NTU	1	09/14/2013 1225	09/14/2013 1300	EW
ICP Total Metals-E200.7									
Aluminum	9.9		2.0		mg/L	1	09/16/2013 1335	09/17/2013 1439	RAD
Beryllium	0.0094		0.0020		mg/L	1	09/16/2013 1335	09/17/2013 1439	RAD

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Lab Sample ID: 13I0482-05

Client Sample ID: AG-46-13
Collection Date/Time: 09/13/2013 1400
Matrix: Ground Water

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Boron	ND		0.10		mg/L	1	09/16/2013 1335	09/17/2013 1439	RAD
Cadmium	0.095		0.0020		mg/L	1	09/16/2013 1335	09/17/2013 1439	RAD
Calcium	180		4.0		mg/L	1	09/16/2013 1335	09/17/2013 1438	RAD
Copper	14		0.020		mg/L	1	09/16/2013 1335	09/17/2013 1439	RAD
Iron	0.13	0.0018	0.30	E4	mg/L	1	09/16/2013 1335	09/17/2013 1438	RAD
Lead	0.13		0.040		mg/L	1	09/16/2013 1335	09/17/2013 1439	RAD
Magnesium	53		3.0		mg/L	1	09/16/2013 1335	09/17/2013 1438	RAD
Manganese	13		0.20		mg/L	10	09/16/2013 1335	09/19/2013 0917	RAD
Nickel	0.057		0.050		mg/L	1	09/16/2013 1335	09/17/2013 1439	RAD
Zinc	17		0.40		mg/L	10	09/16/2013 1335	09/19/2013 0917	RAD
ICP/MS Total Metals-E200.8									
Antimony	0.00080		0.00050		mg/L	1	09/23/2013 0740	09/24/2013 1658	RAD
Arsenic	ND		0.00050		mg/L	1	09/23/2013 0740	09/24/2013 1658	RAD
Barium	0.015		0.00050		mg/L	1	09/23/2013 0740	09/24/2013 1658	RAD
Chromium	0.0011		0.00050		mg/L	1	09/23/2013 0740	09/24/2013 1658	RAD
Selenium	ND		0.0025		mg/L	1	09/23/2013 0740	09/24/2013 1658	RAD
Silver	0.0021		0.00050		mg/L	1	09/23/2013 0740	09/24/2013 1658	RAD
Thallium	ND		0.00050		mg/L	1	09/23/2013 0740	09/25/2013 1729	RAD
CVAA Total Mercury-E245.1									
Mercury	ND	0.000049	0.0010	E8	mg/L	1	09/18/2013 0925	09/19/2013 1038	RAD
Anions by Ion Chromatography-E300									
Chloride	12		10		mg/L	10	09/16/2013 1000	09/16/2013 2052	EW
Chemical Oxygen Demand-Hach 8000									
Chemical Oxygen Demand	ND		20		mg/L	1	09/20/2013 0900	09/20/2013 1645	EW
Alkalinity-SM2320B									
Alkalinity, Bicarbonate (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Alkalinity, Carbonate (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Alkalinity, Hydroxide (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Alkalinity, Total (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Total Dissolved Solids (Residue, Filterable)-SM2540 C									

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Lab Sample ID: 13I0482-05

Client Sample ID: AG-46-13
Collection Date/Time: 09/13/2013 1400
Matrix: Ground Water

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Total Dissolved Solids (Residue, Filterable)	1300		20		mg/L	1	09/20/2013 1005	09/23/2013 1615	AC
Total Suspended Solids (Residue, Non-Filterable)-SM2540 D									
Total Suspended Solids	ND		10		mg/L	1	09/17/2013 1431	09/18/2013 1325	AC
Cyanide-SM4500-CN BE									
Cyanide	ND		0.10		mg/L	1	09/19/2013 0900	09/20/2013 1615	EW
Oxygen, Dissolved-SM4500-OG									
Oxygen, Dissolved	9.2		0.10	H5	mg/L	1	09/14/2013 1340	09/14/2013 1355	EW
Sulfide-SM4500-SF									
Sulfide	ND		0.50		mg/L	1	09/16/2013 1515	09/16/2013 1600	EW
Sulfite-SM4500-SO3									
Sulfite	ND		2.0	H5	mg/L	1	09/14/2013 1130	09/14/2013 1215	EW
BOD, 5 day-SM5210 B									
Biochemical Oxygen Demand	5.3		2.0	K1	mg/L	1	09/14/2013 1510	09/19/2013 1510	AC

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Lab Sample ID: 13I0482-06

Client Sample ID: AG-46-13A
Collection Date/Time: 09/13/2013 1400
Matrix: Ground Water

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Hardness-Calculation									
Hardness, Calcium/Magnesium (As CaCO3)	650				mg/L	1	09/16/2013 1335	09/17/2013 1327	RAD
ICP Dissolved Metals-E 200.7									
Aluminum	9.9		2.0		mg/L	1	09/16/2013 0820	09/17/2013 1717	RAD
Beryllium	0.0095		0.0020		mg/L	1	09/16/2013 1336	09/17/2013 1717	RAD
Boron	ND		0.10		mg/L	1	09/16/2013 0820	09/17/2013 1718	RAD
Cadmium	0.092		0.0020		mg/L	1	09/16/2013 1336	09/17/2013 1718	RAD
Copper	14		0.020		mg/L	1	09/16/2013 1336	09/17/2013 1717	RAD
Iron	0.098	0.0018	0.30	E4	mg/L	1	09/16/2013 0820	09/17/2013 1717	RAD
Lead	0.13		0.040		mg/L	1	09/16/2013 1336	09/17/2013 1718	RAD
Manganese	12		0.20		mg/L	10	09/16/2013 1336	09/19/2013 1014	RAD
Nickel	0.061		0.050		mg/L	1	09/16/2013 1336	09/17/2013 1718	RAD
Potassium	ND		5.0		mg/L	1	09/16/2013 0820	09/19/2013 1101	RAD
Sodium	44		5.0		mg/L	1	09/16/2013 0820	09/19/2013 1101	RAD
Zinc	16		0.40		mg/L	10	09/16/2013 0820	09/19/2013 1014	RAD
ICP/MS Dissolved Metals-E 200.8									
Arsenic	0.0011		0.00050		mg/L	1	09/16/2013 0820	09/17/2013 1215	RAD
Barium	0.018		0.0025		mg/L	5	09/16/2013 0820	09/19/2013 1456	RAD
Chromium	ND		0.0025	D5	mg/L	5	09/16/2013 1345	09/19/2013 1456	RAD
Lead	0.13		0.0025		mg/L	5	09/16/2013 0820	09/19/2013 1456	RAD
Selenium	0.0029		0.0025		mg/L	1	09/16/2013 0820	09/17/2013 1215	RAD
Silver	0.0017		0.00050		mg/L	1	09/16/2013 0820	09/17/2013 1215	RAD
Thallium	ND		0.0025	D5	mg/L	5	09/16/2013 0820	09/19/2013 1456	RAD
CVAA Dissolved Mercury-E 245.1									
Mercury	ND	0.000049	0.0010	E8	mg/L	1	09/16/2013 1350	09/17/2013 1037	RAD
Turbidity-E180.1									
Turbidity	0.25		0.10		NTU	1	09/14/2013 1225	09/14/2013 1300	EW
ICP Total Metals-E200.7									
Aluminum	10		2.0		mg/L	1	09/16/2013 1335	09/17/2013 1327	RAD
Beryllium	0.0094		0.0020		mg/L	1	09/16/2013 1335	09/17/2013 1327	RAD

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Lab Sample ID: 13I0482-06

Client Sample ID: AG-46-13A
Collection Date/Time: 09/13/2013 1400
Matrix: Ground Water

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Boron	ND		0.10		mg/L	1	09/16/2013 1335	09/17/2013 1327	RAD
Cadmium	0.093		0.0020		mg/L	1	09/16/2013 1551	09/17/2013 1327	RAD
Calcium	180		4.0		mg/L	1	09/16/2013 1335	09/17/2013 1327	RAD
Copper	13		0.020		mg/L	1	09/16/2013 1551	09/17/2013 1327	RAD
Iron	0.071	0.0018	0.30	E4	mg/L	1	09/16/2013 1335	09/17/2013 1327	RAD
Lead	0.13		0.040		mg/L	1	09/16/2013 1551	09/17/2013 1327	RAD
Magnesium	52		3.0		mg/L	1	09/16/2013 1335	09/17/2013 1327	RAD
Manganese	13		0.20		mg/L	10	09/16/2013 1335	09/19/2013 0855	RAD
Nickel	0.056		0.050		mg/L	1	09/16/2013 1551	09/17/2013 1327	RAD
Zinc	17		0.40		mg/L	10	09/16/2013 1335	09/19/2013 0855	RAD
ICP/MS Total Metals-E200.8									
Antimony	0.00085		0.00050		mg/L	1	09/23/2013 0740	09/24/2013 1703	RAD
Arsenic	ND		0.00050		mg/L	1	09/23/2013 0740	09/24/2013 1703	RAD
Barium	0.014		0.00050		mg/L	1	09/23/2013 0740	09/24/2013 1703	RAD
Chromium	0.0010		0.00050		mg/L	1	09/23/2013 0740	09/24/2013 1703	RAD
Selenium	ND		0.0025		mg/L	1	09/23/2013 0740	09/24/2013 1703	RAD
Silver	0.0022		0.00050		mg/L	1	09/23/2013 0740	09/24/2013 1703	RAD
Thallium	ND		0.00050		mg/L	1	09/23/2013 0740	09/25/2013 1735	RAD
CVAA Total Mercury-E245.1									
Mercury	ND	0.000049	0.0010	E8	mg/L	1	09/18/2013 0925	09/19/2013 1041	RAD
Anions by Ion Chromatography-E300									
Chloride	11		10		mg/L	10	09/16/2013 1000	09/16/2013 2129	EW
Chemical Oxygen Demand-Hach 8000									
Chemical Oxygen Demand	23		20		mg/L	1	09/20/2013 0900	09/20/2013 1645	EW
Alkalinity-SM2320B									
Alkalinity, Bicarbonate (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Alkalinity, Carbonate (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Alkalinity, Hydroxide (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Alkalinity, Total (As CaCO3)	ND		2.0		mg/L	1	09/17/2013 1050	09/17/2013 1145	EW
Total Dissolved Solids (Residue, Filterable)-SM2540 C									

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Lab Sample ID: 13I0482-06

Client Sample ID: AG-46-13A
Collection Date/Time: 09/13/2013 1400
Matrix: Ground Water

Analyses	Result	MDL	PQL	Qual	Units	DF	Prep Date	Analysis Date	Analyst
Total Dissolved Solids (Residue, Filterable)	1300		20		mg/L	1	09/20/2013 1005	09/23/2013 1615	AC
Total Suspended Solids (Residue, Non-Filterable)-SM2540 D									
Total Suspended Solids	41		10		mg/L	1	09/17/2013 1431	09/18/2013 1325	AC
Cyanide-SM4500-CN BE									
Cyanide	ND		0.10		mg/L	1	09/19/2013 0900	09/20/2013 1615	EW
Oxygen, Dissolved-SM4500-OG									
Oxygen, Dissolved	9.9		0.10	H5	mg/L	1	09/14/2013 1340	09/14/2013 1355	EW
Sulfide-SM4500-SF									
Sulfide	ND		0.50		mg/L	1	09/16/2013 1515	09/16/2013 1600	EW
Sulfite-SM4500-SO3									
Sulfite	ND		2.0	H5	mg/L	1	09/14/2013 1130	09/14/2013 1215	EW
BOD, 5 day-SM5210 B									
Biochemical Oxygen Demand	ND		2.0	K1	mg/L	1	09/14/2013 1510	09/19/2013 1510	AC

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Date Received: 09/13/2013

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1309170 - E 200.2 D ICP										
Blank (1309170-BLK1)				Prepared: 09/16/2013 Analyzed: 09/17/2013						
Aluminum	ND	2.0	mg/L							
Arsenic	ND	0.0400	mg/L							
Beryllium	ND	0.0020	mg/L							
Boron	ND	0.10	mg/L							
Cadmium	ND	0.0020	mg/L							
Chromium	ND	0.030	mg/L							
Copper	ND	0.020	mg/L							
Iron	0.0019	0.30	mg/L							
Lead	ND	0.040	mg/L							
Manganese	ND	0.020	mg/L							
Nickel	ND	0.050	mg/L							
Potassium	ND	5.0	mg/L							
Silver	ND	0.010	mg/L							
Sodium	ND	5.0	mg/L							
Zinc	ND	0.040	mg/L							
LCS (1309170-BS1)				Prepared: 09/16/2013 Analyzed: 09/17/2013						
Aluminum	2.0	2.0	mg/L	2.000		99	85-115			
Arsenic	1.90	0.0400	mg/L	2.000		95	85-115			
Beryllium	0.046	0.0020	mg/L	0.05000		92	85-115			
Boron	0.86	0.10	mg/L	1.000		86	85-115			
Cadmium	0.047	0.0020	mg/L	0.05000		94	85-115			
Chromium	0.19	0.030	mg/L	0.2000		94	85-115			
Copper	0.24	0.020	mg/L	0.2500		96	85-115			
Iron	0.94	0.30	mg/L	1.000		94	85-115			
Lead	0.46	0.040	mg/L	0.5000		92	85-115			
Manganese	0.48	0.020	mg/L	0.5000		95	85-115			
Nickel	0.47	0.050	mg/L	0.5000		94	85-115			
Potassium	9.5	5.0	mg/L	10.00		95	85-115			
Silver	0.047	0.010	mg/L	0.05000		94	85-115			
Sodium	9.9	5.0	mg/L	10.00		99	85-115			
Zinc	0.48	0.040	mg/L	0.5000		95	85-115			

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Date Received: 09/13/2013

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1309170 - E 200.2 D ICP										
LCS Dup (1309170-BSD1)				Prepared: 09/16/2013 Analyzed: 09/17/2013						
Aluminum	2.0	2.0	mg/L	2.000		99	85-115	0.4	20	
Arsenic	1.92	0.0400	mg/L	2.000		96	85-115	0.8	20	
Beryllium	0.046	0.0020	mg/L	0.05000		92	85-115	0.6	20	
Boron	0.86	0.10	mg/L	1.000		86	85-115	0.08	20	
Cadmium	0.047	0.0020	mg/L	0.05000		94	85-115	0.1	20	
Chromium	0.19	0.030	mg/L	0.2000		95	85-115	0.3	20	
Copper	0.24	0.020	mg/L	0.2500		96	85-115	0.4	20	
Iron	0.95	0.30	mg/L	1.000		95	85-115	1	20	
Lead	0.46	0.040	mg/L	0.5000		92	85-115	0.4	20	
Manganese	0.48	0.020	mg/L	0.5000		95	85-115	0.3	20	
Nickel	0.47	0.050	mg/L	0.5000		94	85-115	0.2	20	
Potassium	9.4	5.0	mg/L	10.00		94	85-115	0.8	20	
Silver	0.047	0.010	mg/L	0.05000		95	85-115	0.9	20	
Sodium	9.6	5.0	mg/L	10.00		96	85-115	4	20	
Zinc	0.48	0.040	mg/L	0.5000		96	85-115	0.4	20	
Matrix Spike (1309170-MS1)		**Source: 13I0394-09**		Prepared: 09/16/2013 Analyzed: 09/17/2013						
Aluminum	2.9	2.0	mg/L	2.000	0.17	134	70-130			M1
Arsenic	2.11	0.0400	mg/L	2.000	0.00965	105	70-130			
Beryllium	0.050	0.0020	mg/L	0.05000	ND	100	70-130			
Boron	1.0	0.10	mg/L	1.000	0.13	88	70-130			
Cadmium	0.051	0.0020	mg/L	0.05000	ND	102	70-130			
Chromium	0.21	0.030	mg/L	0.2000	0.00045	104	70-130			
Copper	0.26	0.020	mg/L	0.2500	0.0067	101	70-130			
Iron	1.3	0.30	mg/L	1.000	0.059	120	70-130			
Lead	0.50	0.040	mg/L	0.5000	ND	100	70-130			
Manganese	0.51	0.020	mg/L	0.5000	0.0041	102	70-130			
Nickel	0.51	0.050	mg/L	0.5000	ND	102	70-130			
Silver	0.050	0.010	mg/L	0.05000	ND	99	70-130			
Zinc	0.55	0.040	mg/L	0.5000	0.0066	108	70-130			
Matrix Spike (1309170-MS2)		**Source: 13I0482-06**		Prepared: 09/16/2013 Analyzed: 09/17/2013						
Aluminum	12	2.0	mg/L	2.000	9.9	80	70-130			
Arsenic	2.17	0.0400	mg/L	2.000	0.0237	107	70-130			
Beryllium	0.055	0.0020	mg/L	0.05000	0.0095	91	70-130			
Boron	0.98	0.10	mg/L	1.000	0.072	90	70-130			
Cadmium	0.14	0.0020	mg/L	0.05000	0.092	88	70-130			
Chromium	0.20	0.030	mg/L	0.2000	0.0042	95	70-130			
Copper	13	0.020	mg/L	0.2500	14	NR	70-130			M3
Iron	1.1	0.30	mg/L	1.000	0.098	101	70-130			
Lead	0.42	0.040	mg/L	0.5000	0.13	58	70-130			M2
Manganese	13	0.20	mg/L	0.5000	12	100	70-130			
Nickel	0.55	0.050	mg/L	0.5000	0.061	98	70-130			
Potassium	14	5.0	mg/L	10.00	3.1	105	70-130			
Silver	0.049	0.010	mg/L	0.05000	0.0037	90	70-130			
Sodium	51	5.0	mg/L	10.00	44	74	70-130			
Zinc	17	0.40	mg/L	0.5000	16	94	70-130			
Batch 1309171 - E 200.8 D ICP/MS										

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Date Received: 09/13/2013

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Blank (1309171-BLK1)				Prepared: 09/16/2013 Analyzed: 09/17/2013						
Antimony	ND	0.00050	mg/L							
Arsenic	ND	0.00050	mg/L							
Barium	ND	0.00050	mg/L							
Lead	ND	0.00050	mg/L							
Selenium	ND	0.0025	mg/L							
Silver	ND	0.00050	mg/L							
Thallium	ND	0.00050	mg/L							
LCS (1309171-BS1)				Prepared: 09/16/2013 Analyzed: 09/17/2013						
Antimony	0.052	0.00050	mg/L	0.05000		104	85-115			
Arsenic	0.051	0.00050	mg/L	0.05000		102	85-115			
Barium	0.053	0.00050	mg/L	0.05000		106	85-115			
Lead	0.051	0.00050	mg/L	0.05000		103	85-115			
Selenium	0.25	0.0025	mg/L	0.2500		101	85-115			
Silver	0.052	0.00050	mg/L	0.05000		104	85-115			
Thallium	0.053	0.00050	mg/L	0.05000		105	85-115			
LCS Dup (1309171-BSD1)				Prepared: 09/16/2013 Analyzed: 09/17/2013						
Antimony	0.052	0.00050	mg/L	0.05000		105	85-115	0.4	20	
Arsenic	0.050	0.00050	mg/L	0.05000		101	85-115	2	20	
Barium	0.052	0.00050	mg/L	0.05000		104	85-115	2	20	
Lead	0.051	0.00050	mg/L	0.05000		103	85-115	0.2	20	
Selenium	0.25	0.0025	mg/L	0.2500		101	85-115	0.2	20	
Silver	0.051	0.00050	mg/L	0.05000		102	85-115	1	20	
Thallium	0.052	0.00050	mg/L	0.05000		104	85-115	0.9	20	
Matrix Spike (1309171-MS1)		**Source: 13I0482-06**		Prepared: 09/16/2013 Analyzed: 09/17/2013						
Arsenic	0.054	0.00050	mg/L	0.05000	0.0011	105	70-130			
Selenium	0.31	0.0025	mg/L	0.2500	0.0029	121	70-130			
Silver	0.041	0.00050	mg/L	0.05000	0.0017	79	70-130			

Batch 1309175 - E 200.2 ICP

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Blank (1309175-BLK1)				Prepared: 09/16/2013 Analyzed: 09/17/2013						
Aluminum	ND	2.0	mg/L							
Arsenic	ND	0.040	mg/L							
Beryllium	ND	0.0020	mg/L							
Boron	ND	0.10	mg/L							
Cadmium	ND	0.0020	mg/L							
Calcium	ND	4.0	mg/L							
Chromium	ND	0.030	mg/L							
Copper	ND	0.020	mg/L							
Iron	0.0035	0.30	mg/L							
Lead	ND	0.040	mg/L							
Magnesium	ND	3.0	mg/L							
Manganese	ND	0.020	mg/L							
Nickel	ND	0.050	mg/L							
Silver	ND	0.010	mg/L							
Zinc	ND	0.040	mg/L							

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
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QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1309175 - E 200.2 ICP										
LCS (1309175-BS1)				Prepared: 09/16/2013 Analyzed: 09/17/2013						
Aluminum	2.0	2.0	mg/L	2.000		101	85-115			
Arsenic	1.97	0.040	mg/L	2.000		98	85-115			
Beryllium	0.047	0.0020	mg/L	0.05000		94	85-115			
Boron	0.88	0.10	mg/L	1.000		88	85-115			
Cadmium	0.048	0.0020	mg/L	0.05000		96	85-115			
Calcium	10	4.0	mg/L	10.00		100	85-115			
Chromium	0.19	0.030	mg/L	0.2000		97	85-115			
Copper	0.24	0.020	mg/L	0.2500		97	85-115			
Iron	0.98	0.30	mg/L	1.000		98	85-115			
Lead	0.47	0.040	mg/L	0.5000		94	85-115			
Magnesium	9.7	3.0	mg/L	10.00		97	85-115			
Manganese	0.49	0.020	mg/L	0.5000		97	85-115			
Nickel	0.48	0.050	mg/L	0.5000		96	85-115			
Silver	0.049	0.010	mg/L	0.05000		97	85-115			
Zinc	0.49	0.040	mg/L	0.5000		98	85-115			
LCS Dup (1309175-BSD1)				Prepared: 09/16/2013 Analyzed: 09/17/2013						
Aluminum	2.0	2.0	mg/L	2.000		101	85-115	0.2	20	
Arsenic	1.96	0.040	mg/L	2.000		98	85-115	0.7	20	
Beryllium	0.047	0.0020	mg/L	0.05000		94	85-115	0.09	20	
Boron	0.88	0.10	mg/L	1.000		88	85-115	0.6	20	
Cadmium	0.048	0.0020	mg/L	0.05000		97	85-115	0.8	20	
Calcium	9.9	4.0	mg/L	10.00		99	85-115	1	20	
Chromium	0.19	0.030	mg/L	0.2000		97	85-115	0.3	20	
Copper	0.24	0.020	mg/L	0.2500		97	85-115	0.2	20	
Iron	0.97	0.30	mg/L	1.000		97	85-115	0.6	20	
Lead	0.47	0.040	mg/L	0.5000		94	85-115	0.4	20	
Magnesium	9.7	3.0	mg/L	10.00		97	85-115	0.4	20	
Manganese	0.49	0.020	mg/L	0.5000		97	85-115	0.05	20	
Nickel	0.48	0.050	mg/L	0.5000		96	85-115	0.03	20	
Silver	0.048	0.010	mg/L	0.05000		97	85-115	0.4	20	
Zinc	0.49	0.040	mg/L	0.5000		98	85-115	0.2	20	

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Date Received: 09/13/2013

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1309175 - E 200.2 ICP										
Matrix Spike (1309175-MS1)		**Source: 13I0027-01**		Prepared: 09/16/2013 Analyzed: 09/17/2013						
Aluminum	7.9	2.0	mg/L	2.000	6.0	95	70-130			
Arsenic	2.00	0.040	mg/L	2.000	0.00775	100	70-130			
Beryllium	0.046	0.0020	mg/L	0.05000	ND	92	70-130			
Boron	1.0	0.10	mg/L	1.000	0.21	83	70-130			
Cadmium	0.049	0.0020	mg/L	0.05000	0.0024	93	70-130			
Calcium	33	4.0	mg/L	10.00	23	94	70-130			
Chromium	0.19	0.030	mg/L	0.2000	0.0033	95	70-130			
Copper	0.26	0.020	mg/L	0.2500	0.0069	100	70-130			
Iron	1.3	0.30	mg/L	1.000	0.30	95	70-130			
Lead	0.47	0.040	mg/L	0.5000	0.0016	94	70-130			
Magnesium	12	3.0	mg/L	10.00	1.8	102	70-130			
Manganese	0.54	0.020	mg/L	0.5000	0.069	94	70-130			
Nickel	0.48	0.050	mg/L	0.5000	0.0051	96	70-130			
Silver	0.049	0.010	mg/L	0.05000	0.0015	96	70-130			
Zinc	0.51	0.040	mg/L	0.5000	0.018	97	70-130			
Matrix Spike (1309175-MS2)		**Source: 13I0482-06**		Prepared: 09/16/2013 Analyzed: 09/17/2013						
Aluminum	12	2.0	mg/L	2.000	10	80	70-130			
Arsenic	2.02	0.040	mg/L	2.000	0.0228	100	70-130			
Beryllium	0.055	0.0020	mg/L	0.05000	0.0094	91	70-130			
Boron	0.95	0.10	mg/L	1.000	0.078	87	70-130			
Cadmium	0.14	0.0020	mg/L	0.05000	0.093	87	70-130			
Calcium	180	4.0	mg/L	10.00	180	73	70-130			
Chromium	0.19	0.030	mg/L	0.2000	0.0048	94	70-130			
Copper	13	0.020	mg/L	0.2500	13	11	70-130			M3
Iron	1.0	0.30	mg/L	1.000	0.071	94	70-130			
Lead	0.58	0.040	mg/L	0.5000	0.13	90	70-130			
Magnesium	62	3.0	mg/L	10.00	52	97	70-130			
Manganese	13	0.20	mg/L	0.5000	13	12	70-130			M4
Nickel	0.53	0.050	mg/L	0.5000	0.056	96	70-130			
Silver	0.053	0.010	mg/L	0.05000	0.0040	98	70-130			
Zinc	17	0.40	mg/L	0.5000	17	NR	70-130			M4
Batch 1309177 - E 245.1_DISS										
Blank (1309177-BLK1)				Prepared: 09/16/2013 Analyzed: 09/17/2013						
Mercury	ND	0.0010	mg/L							
LCS (1309177-BS1)				Prepared: 09/16/2013 Analyzed: 09/17/2013						
Mercury	0.0050	0.0010	mg/L	0.005000		100	85-115			
LCS Dup (1309177-BSD1)				Prepared: 09/16/2013 Analyzed: 09/17/2013						
Mercury	0.0051	0.0010	mg/L	0.005000		102	85-115	2	20	
Matrix Spike (1309177-MS1)		**Source: 13I0475-01**		Prepared: 09/16/2013 Analyzed: 09/17/2013						
Mercury	0.0052	0.0010	mg/L	0.005000	ND	104	85-115			
Matrix Spike (1309177-MS2)		**Source: 13I0482-01**		Prepared: 09/16/2013 Analyzed: 09/17/2013						
Mercury	0.0051	0.0010	mg/L	0.005000	ND	101	85-115			

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
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QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1309177 - E 245.1_DISS										
Matrix Spike Dup (1309177-MSD1)		**Source: 13I0475-01**		Prepared: 09/16/2013 Analyzed: 09/17/2013						
Mercury	0.0054	0.0010	mg/L	0.005000	ND	107	85-115	3	20	
Matrix Spike Dup (1309177-MSD2)		**Source: 13I0482-01**		Prepared: 09/16/2013 Analyzed: 09/17/2013						
Mercury	0.0052	0.0010	mg/L	0.005000	ND	103	85-115	2	20	
Batch 1309206 - E 245.1										
Blank (1309206-BLK1)				Prepared: 09/18/2013 Analyzed: 09/19/2013						
Mercury	ND	0.0010	mg/L							
LCS (1309206-BS1)				Prepared: 09/18/2013 Analyzed: 09/19/2013						
Mercury	0.0050	0.0010	mg/L	0.005000		99	85-115			
LCS Dup (1309206-BSD1)				Prepared: 09/18/2013 Analyzed: 09/19/2013						
Mercury	0.0049	0.0010	mg/L	0.005000		99	85-115	0.5	20	
Matrix Spike (1309206-MS1)		**Source: 13I0464-01**		Prepared: 09/18/2013 Analyzed: 09/19/2013						
Mercury	0.0049	0.0010	mg/L	0.005000	ND	98	85-115			
Matrix Spike (1309206-MS2)		**Source: 13H0799-01**		Prepared: 09/18/2013 Analyzed: 09/19/2013						
Mercury	0.0049	0.0010	mg/L	0.005000	ND	99	85-115			
Matrix Spike Dup (1309206-MSD1)		**Source: 13I0464-01**		Prepared: 09/18/2013 Analyzed: 09/19/2013						
Mercury	0.0048	0.0010	mg/L	0.005000	ND	96	85-115	2	20	
Matrix Spike Dup (1309206-MSD2)		**Source: 13H0799-01**		Prepared: 09/18/2013 Analyzed: 09/19/2013						
Mercury	0.0049	0.0010	mg/L	0.005000	ND	98	85-115	0.6	20	
Batch 1309241 - E 200.8 ICP/MS										
Blank (1309241-BLK1)				Prepared: 09/23/2013 Analyzed: 09/24/2013						
Antimony	ND	0.00050	mg/L							
Arsenic	ND	0.00050	mg/L							
Barium	ND	0.00050	mg/L							
Chromium	ND	0.00050	mg/L							
Lead	ND	0.00050	mg/L							
Selenium	ND	0.0025	mg/L							
Silver	ND	0.00050	mg/L							
Thallium	ND	0.00050	mg/L							
LCS (1309241-BS1)				Prepared: 09/23/2013 Analyzed: 09/24/2013						
Antimony	0.050	0.00050	mg/L	0.05000		99	85-115			
Arsenic	0.048	0.00050	mg/L	0.05000		96	85-115			
Barium	0.050	0.00050	mg/L	0.05000		101	85-115			
Chromium	0.050	0.00050	mg/L	0.05000		100	85-115			
Lead	0.048	0.00050	mg/L	0.05000		96	85-115			
Selenium	0.24	0.0025	mg/L	0.2500		97	85-115			
Silver	0.051	0.00050	mg/L	0.05000		101	85-115			
Thallium	0.050	0.00050	mg/L	0.05000		101	85-115			

Turner Laboratories, Inc.

Date: 10/08/2013

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QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1309241 - E 200.8 ICP/MS										
LCS Dup (1309241-BSD1)				Prepared: 09/23/2013 Analyzed: 09/24/2013						
Antimony	0.050	0.00050	mg/L	0.05000		100	85-115	0.2	20	
Arsenic	0.048	0.00050	mg/L	0.05000		97	85-115	0.6	20	
Barium	0.051	0.00050	mg/L	0.05000		101	85-115	0.7	20	
Chromium	0.050	0.00050	mg/L	0.05000		100	85-115	0.2	20	
Lead	0.049	0.00050	mg/L	0.05000		98	85-115	2	20	
Selenium	0.24	0.0025	mg/L	0.2500		97	85-115	0.5	20	
Silver	0.051	0.00050	mg/L	0.05000		102	85-115	1	20	
Thallium	0.051	0.00050	mg/L	0.05000		102	85-115	0.6	20	
Matrix Spike (1309241-MS1)		**Source: 13I0506-01**		Prepared: 09/23/2013 Analyzed: 09/24/2013						
Antimony	0.043	0.00050	mg/L	0.05000	0.000098	86	70-130			
Arsenic	0.048	0.00050	mg/L	0.05000	0.0025	91	70-130			
Barium	0.072	0.00050	mg/L	0.05000	0.026	92	70-130			
Chromium	0.041	0.00050	mg/L	0.05000	0.0014	80	70-130			
Lead	0.043	0.00050	mg/L	0.05000	0.00028	86	70-130			
Selenium	0.21	0.0025	mg/L	0.2500	0.00069	84	70-130			
Silver	0.038	0.00050	mg/L	0.05000	0.000021	75	70-130			
Thallium	0.046	0.00050	mg/L	0.05000	ND	92	70-130			
Matrix Spike (1309241-MS2)		**Source: 13I0610-01**		Prepared: 09/23/2013 Analyzed: 09/24/2013						
Antimony	0.044	0.00050	mg/L	0.05000	0.00014	87	70-130			
Arsenic	0.056	0.00050	mg/L	0.05000	0.012	89	70-130			
Barium	0.10	0.00050	mg/L	0.05000	0.058	83	70-130			
Chromium	0.048	0.00050	mg/L	0.05000	0.0047	86	70-130			
Lead	0.047	0.00050	mg/L	0.05000	0.0012	92	70-130			
Selenium	0.21	0.0025	mg/L	0.2500	0.00030	84	70-130			
Silver	0.041	0.00050	mg/L	0.05000	0.000012	82	70-130			
Thallium	0.048	0.00050	mg/L	0.05000	0.000082	96	70-130			

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
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QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1309155 - GEN CHEM										
Duplicate (1309155-DUP1)		**Source: 13I0482-06**		Prepared & Analyzed: 09/14/2013						
Turbidity	0.25	0.10	NTU		0.25			0	10	
Batch 1309156 - GEN CHEM										
Blank (1309156-BLK1)				Prepared & Analyzed: 09/14/2013						
Sulfite	ND	2.0	mg/L							
LCS (1309156-BS1)				Prepared & Analyzed: 09/14/2013						
Sulfite	5.5	2.0	mg/L	5.000		110	90-110			
LCS Dup (1309156-BSD1)				Prepared & Analyzed: 09/14/2013						
Sulfite	5.5	2.0	mg/L	5.000		110	90-110	0	10	
Matrix Spike (1309156-MS1)		**Source: 13I0482-06**		Prepared & Analyzed: 09/14/2013						
Sulfite	5.5	2.0	mg/L	5.000	0.50	100	90-110			
Matrix Spike Dup (1309156-MSD1)		**Source: 13I0482-06**		Prepared & Analyzed: 09/14/2013						
Sulfite	5.5	2.0	mg/L	5.000	0.50	100	90-110	0	10	
Batch 1309189 - GEN CHEM										
Duplicate (1309189-DUP1)		**Source: 13I0001-03**		Prepared: 09/17/2013 Analyzed: 09/18/2013						
Total Suspended Solids	250	10	mg/L		250			0.8	5	
Duplicate (1309189-DUP2)		**Source: 13I0031-03**		Prepared: 09/17/2013 Analyzed: 09/18/2013						
Total Suspended Solids	820	10	mg/L		800			1	5	
Batch 1309200 - GEN CHEM										
LCS (1309200-BS1)				Prepared & Analyzed: 09/17/2013						
Alkalinity, Total (As CaCO3)	240	2.0	mg/L	250.0		98	90-110			
LCS Dup (1309200-BSD1)				Prepared & Analyzed: 09/17/2013						
Alkalinity, Total (As CaCO3)	240	2.0	mg/L	250.0		97	90-110	0.8	10	
Matrix Spike (1309200-MS1)		**Source: 13I0434-01**		Prepared & Analyzed: 09/17/2013						
Alkalinity, Total (As CaCO3)	360	2.0	mg/L	250.0	120	97	70-130			
Matrix Spike Dup (1309200-MSD1)		**Source: 13I0434-01**		Prepared & Analyzed: 09/17/2013						
Alkalinity, Total (As CaCO3)	360	2.0	mg/L	250.0	120	96	70-130	0.6	10	
Batch 1309202 - GEN CHEM										
Blank (1309202-BLK1)				Prepared & Analyzed: 09/16/2013						
Sulfide	ND	0.50	mg/L							
LCS (1309202-BS1)				Prepared & Analyzed: 09/16/2013						
Sulfide	2.9		mg/L	2.933		100	70-130			
LCS Dup (1309202-BSD1)				Prepared & Analyzed: 09/16/2013						
Sulfide	2.9		mg/L	2.933		100	70-130	0	20	
Batch 1309210 - GEN CHEM										

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Date Received: 09/13/2013

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1309210 - GEN CHEM										
Duplicate (1309210-DUP1)		**Source: 13I0482-03**		Prepared: 09/17/2013 Analyzed: 09/19/2013						
Total Dissolved Solids (Residue, Filterable)	3300	20	mg/L		3300			0.2	5	
Batch 1309221 - SPECTRO PREP										
Blank (1309221-BLK1)				Prepared & Analyzed: 09/20/2013						
Chemical Oxygen Demand	ND	20	mg/L							
LCS (1309221-BS1)				Prepared & Analyzed: 09/20/2013						
Chemical Oxygen Demand	510	20	mg/L	500.0		101	70-130			
LCS Dup (1309221-BSD1)				Prepared & Analyzed: 09/20/2013						
Chemical Oxygen Demand	510	20	mg/L	500.0		102	70-130	0.6	20	
Matrix Spike (1309221-MS1)		**Source: 13I0140-03**		Prepared & Analyzed: 09/20/2013						
Chemical Oxygen Demand	520	20	mg/L	500.0	26	99	70-130			
Matrix Spike Dup (1309221-MSD1)		**Source: 13I0140-03**		Prepared & Analyzed: 09/20/2013						
Chemical Oxygen Demand	530	20	mg/L	500.0	26	102	70-130	2	20	
Batch 1309222 - SPECTRO PREP										
Blank (1309222-BLK1)				Prepared: 09/19/2013 Analyzed: 09/20/2013						
Cyanide	ND	0.10	mg/L							
LCS (1309222-BS1)				Prepared: 09/19/2013 Analyzed: 09/20/2013						
Cyanide	1.9	0.10	mg/L	2.000		94	90-110			
LCS Dup (1309222-BSD1)				Prepared: 09/19/2013 Analyzed: 09/20/2013						
Cyanide	1.9	0.10	mg/L	2.000		96	90-110	2	20	
Matrix Spike (1309222-MS1)		**Source: 13I0497-01**		Prepared: 09/19/2013 Analyzed: 09/20/2013						
Cyanide	1.8	0.10	mg/L	2.000	ND	90	70-130			
Matrix Spike Dup (1309222-MSD1)		**Source: 13I0497-01**		Prepared: 09/19/2013 Analyzed: 09/20/2013						
Cyanide	1.7	0.10	mg/L	2.000	ND	85	70-130	5	20	
Batch 1309240 - GEN CHEM										
Blank (1309240-BLK1)				Prepared: 09/14/2013 Analyzed: 09/19/2013						
Biochemical Oxygen Demand	ND	2.0	mg/L							
LCS (1309240-BS1)				Prepared: 09/14/2013 Analyzed: 09/19/2013						
Biochemical Oxygen Demand	170		mg/L	198.0		87	85-115			
Batch 1309242 - GEN CHEM										
Duplicate (1309242-DUP1)		**Source: 13I0497-01**		Prepared: 09/20/2013 Analyzed: 09/23/2013						
Total Dissolved Solids (Residue, Filterable)	11	20	mg/L		8.0			32	5	

Turner Laboratories, Inc.

Date: 10/08/2013

Client: Tetra Tech
Project: AMD/Surface Water/Ground Water
Work Order: 13I0482
Date Received: 09/13/2013

QC Summary

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch 1309176 - IC PREP										
Blank (1309176-BLK1)				Prepared & Analyzed: 09/16/2013						
Chloride	ND	1.0	mg/L							
LCS (1309176-BS1)				Prepared & Analyzed: 09/16/2013						
Chloride	12	1.0	mg/L	12.50		95	90-110			
LCS Dup (1309176-BSD1)				Prepared & Analyzed: 09/16/2013						
Chloride	12	1.0	mg/L	12.50		94	90-110	0.7	10	
Matrix Spike (1309176-MS1)		**Source: 13I0506-01**		Prepared & Analyzed: 09/16/2013						
Chloride	25	1.0	mg/L	12.50	13	95	80-120			
Matrix Spike (1309176-MS2)		**Source: 13I0497-01**		Prepared & Analyzed: 09/17/2013						
Chloride	12	1.0	mg/L	12.50	0.66	94	80-120			
Matrix Spike Dup (1309176-MSD1)		**Source: 13I0506-01**		Prepared & Analyzed: 09/16/2013						
Chloride	25	1.0	mg/L	12.50	13	95	80-120	0.08	10	
Matrix Spike Dup (1309176-MSD2)		**Source: 13I0497-01**		Prepared & Analyzed: 09/17/2013						
Chloride	12	1.0	mg/L	12.50	0.66	94	80-120	0.4	10	
Batch 1309179 - IC PREP										
Blank (1309179-BLK1)				Prepared & Analyzed: 09/17/2013						
Chloride	ND	1.0	mg/L							
LCS (1309179-BS1)				Prepared & Analyzed: 09/17/2013						
Chloride	12	1.0	mg/L	12.50		94	90-110			
LCS Dup (1309179-BSD1)				Prepared & Analyzed: 09/17/2013						
Chloride	12	1.0	mg/L	12.50		94	90-110	0.2	10	
Matrix Spike (1309179-MS1)		**Source: 13I0511-01**		Prepared & Analyzed: 09/17/2013						
Chloride	29	1.0	mg/L	12.50	17	98	80-120			M3
Matrix Spike (1309179-MS2)		**Source: 13I0511-02**		Prepared & Analyzed: 09/17/2013						
Chloride	37	1.0	mg/L	12.50	25	93	80-120			M3
Matrix Spike Dup (1309179-MSD1)		**Source: 13I0511-01**		Prepared & Analyzed: 09/17/2013						
Chloride	30	1.0	mg/L	12.50	17	99	80-120	0.5	10	M3
Matrix Spike Dup (1309179-MSD2)		**Source: 13I0511-02**		Prepared & Analyzed: 09/17/2013						
Chloride	37	1.0	mg/L	12.50	25	92	80-120	0.2	10	M3

TURNER LABORATORIES INC.
2445 N. Coyote Drive, Suite 104
Tucson, Arizona 85745
(520) 882-5880
Fax: (520) 882-9788
www.turnerlabs.com

CHAIN OF CUSTODY/LABORATORY ANALYSIS REQUEST FORM

TURNER WORK ORDER # 13J0482 DATE _____ PAGE _____ OF _____

PROJECT NAME _____ # _____
CONTACT NAME Eric
COMPANY NAME Tetra Tech
ADDRESS _____
_____ PHONE _____ FAX _____
SAMPLER'S SIGNATURE _____

CIRCLE ANALYSIS REQUESTED AND/OR CHECK THE APPROPRIATE BOX

SAMPLE I.D.	DATE	TIME	LAB I.D.	SAMPLE MATRIX*	NUMBER OF CONTAINERS	Base Neutrals ☐ Acids ☐ 625/8270	Volatile Organics 624/524.2/8260	TTHMS ☐ HAA5 ☐	Pesticides ☐ PCB's ☐ 8081 8082	NO_3 ☐ NO_2 ☐ TKN ☐	Oil and Grease Grav. 1664A ☐	VOA ☐ TCLP Analysis Semi-VOA ☐ Pest. ☐	TCLP ☐ Metals Dissolved ☐ Total ☐ RCRA8 ☐	Total ☐ Cyanide Amen. ☐ WAD ☐	SDWA-INORGANICS PRIMARY ☐ SECONDARY ☐	MPN ☐ Coliform pH ☐ Coliform Cr_6 ☐ Cl ☐	COD ☐ TSS ☐ BOD ☐
LCA-13	9-13-13	12:15		SW													
BLA-13	9-13-13	13:02															
EPD-13	9-13-13	10:45															
LCR5-13	9-13-13	11:00															
AG-46-13	9-13-13	2:00															
AC-46-13A	9-13-13	2:00															

1. RELINQUISHED BY:
Signature [signature]
Printed Name Eric Larsen
Firm Tetra Tech
Date/Time 9-13-13 4:55

2. RECEIVED BY:
Signature _____
Printed Name _____
Firm _____
Date/Time _____

TURNAROUND REQUIREMENTS:
____ Standard (approx. 10 days)*
____ Next Day ____ 2 Day ____ 5 Day*
____ Email Preliminary Results To:
* Working Days

REPORT REQUIREMENTS:
____ I. Routine Report
____ II. Report (includes DUP, MS, MSD, as required, may be charged as samples)
____ III. Date Validation Report (Includes All Raw Data) Add 10% to invoice

INVOICE INFORMATION:
Account ____ Y ____ N
P.O. # _____
Bill to: _____

SAMPLE RECEIPT:
Total Containers 54
Temperature 8.3
☒ Wet Ice ☐ Blue Ice

3. RELINQUISHED BY:
Signature _____
Printed Name _____
Firm _____
Date/Time _____

4. RECEIVED BY:
Signature [signature]
Printed Name
TURNER LABORATORIES, INC.
Firm
Date/Time 9/13/13 1605

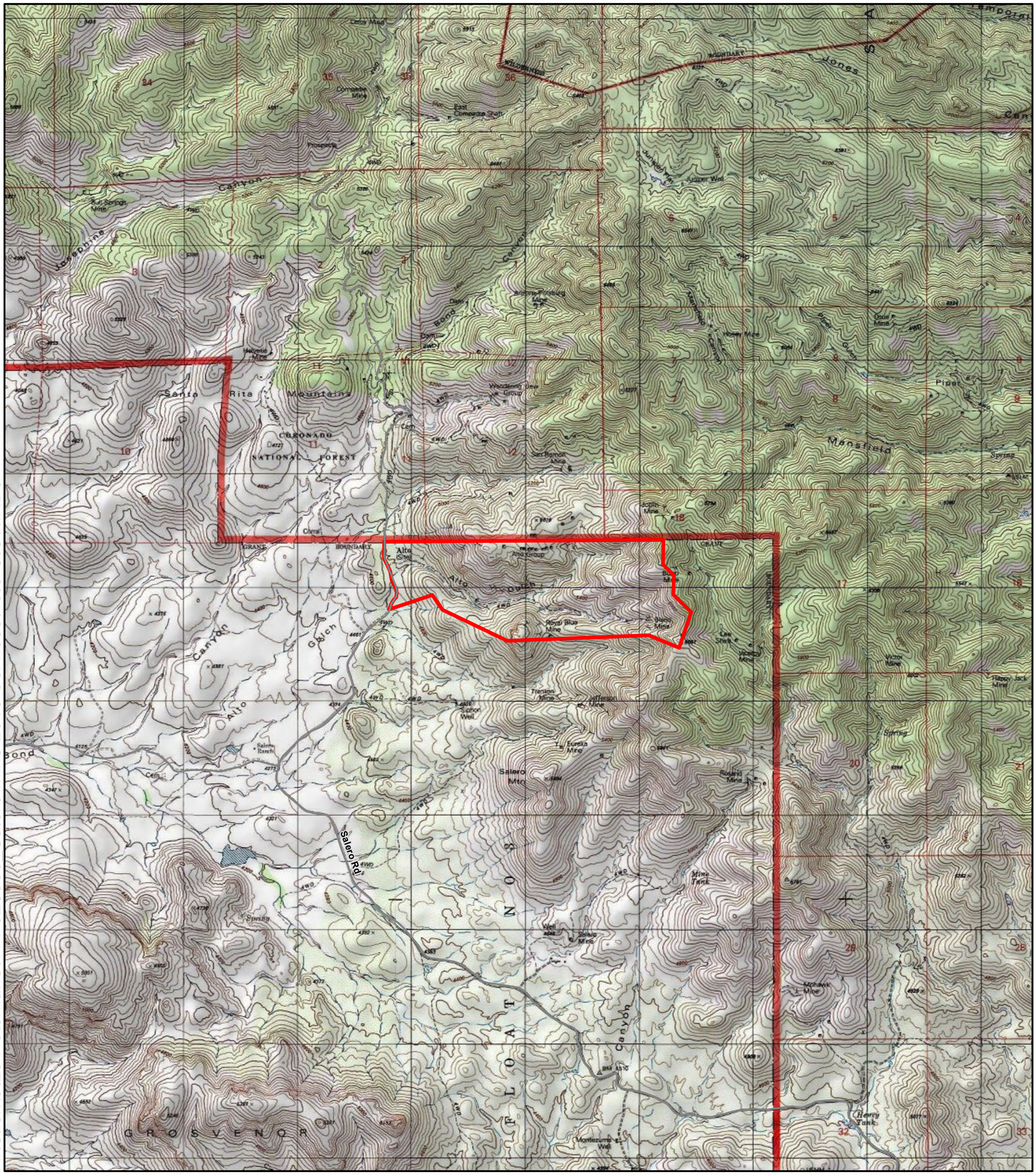
* LEGEND
DW = DRINKING WATER
GW = GROUNDWATER
SD = SOLID
SG = SLUDGE
SL = SOIL
ST = STORMWATER
WW = WASTEWATER

SPECIAL INSTRUCTIONS/COMMENTS:
Compliance Analysis: ☐ Yes ☐ No
ADEQ Forms: ☐ Yes ☐ No
Mail ADEQ Forms: ☐ Yes ☐ No
Custody Seals ☐
Container Intact ☒
COC / Labels Agree ☒
Preservation Confirmation ☒
Appropriate Head Space NA ☐
Received Within Hold Time ☐
BOD will be run out of hold
See attached

Chemical Name	Method	Detection Limit	Units	Maximum Holding Time	Container/Volume
AMD/Surface Water/Ground Water Interface Samples					
Field Parameters					
Dissolved Oxygen	Horiba U-52	—	mg/l	—	—
Oxidation Reduction Potential		—	mV	—	—
pH		—	pH units	—	—
Salinity		—	ppm	—	—
Specific Conductivity		—	mS/cm	—	—
Temperature		—	deg C	—	—
Turbidity		—	ntu	—	—
General Chemistry					
Potassium – Dissolved	EPA 200.7	0.5	mg/l	6 months	8 oz clear
Sodium – Dissolved	EPA 200.7	0.5			
Alkalinity (as $CaCO_3$)	SM 2320B	6		14 days	
Bicarbonate Alkalinity (as $CaCO_3$)					
Carbonate Alkalinity (as $CaCO_3$)					
Hydroxide Alkalinity (as $CaCO_3$)					
Biochemical Oxygen Demand (5-day)	SM5210B	4		48 hours	250 ml HDPE, $H2SO_4$ preserved
Chemical Oxygen Demand	Hach 8000	5		28 days	250 ml HDPE, $H2SO_4$ preserved
Chloride	EPA 300.0	0.5			8 oz clear
Total Cyanide	SM4500-CN E	--		14 days	
Hardness (Calcium and Magnesium)	varies	1		6 months	8 oz clear, HNO_3 preserved
Sulfite	SM4500-SO_3	3		ASAP	8 oz clear
Sulfide	SM4500-SF	1		7 days	
Total Dissolved Solids	SM 2540C	4		7 days	250 ml HDPE
Total Suspended Solids	SM 2540D	5			250 ml HDPE
Metals (Total and Dissolved) - Filtered in Field					
Aluminum	EPA 200.8	0.01		6 months	8 oz clear
Antimony		0.003			
Arsenic		0.001			
Barium		0.01			
Beryllium		0.001			
Boron		0.2			
Cadmium		0.001			
Chromium		0.01			
Copper		0.01			

Chemical Name	Method	Detection Limit	Units	Maximum Holding Time	Container/Volume
Iron		0.05	mg/l		
Lead		0.001			
Manganese (total)		0.001			
Manganese (dissolved)		0.02			
Mercury	EPA 245.1	0.0002		28 days	500 mL HDPE HNO_3 preserved
Nickel		0.01			
Selenium		0.002			
Silver	EPA 200.8	0.01		6 months	8 oz clear
Thallium		0.001			
Zinc		0.01			
Sediment Samples					
Metals (Total)					
Aluminum		0.01			
Antimony		0.003			
Arsenic		0.001			
Barium		0.01			
Beryllium		0.001			
Boron	EPA 200.8	0.2	mg/kg	6 months	8 oz clear
Cadmium		0.001			
Chromium		0.01			
Copper		0.01			
Iron		0.05			
Lead		0.001			
Manganese		0.001			
Mercury	EPA 245.1	0.0002		28 days	250 mL HNO_3
Nickel		0.01			
Selenium	EPA 200.8	0.002		6 months	8 oz clear
Silver		0.01			
Thallium	EPA 200.8	0.001	mg/kg	6 months	8 oz clear
Zinc		0.01			

APPENDIX B
FIGURES



X:\Clients\Le Petomane\114-320985_Salero Mine 2013 Services\10.0 GIS\MXDs

Figure 1. Site Location Map

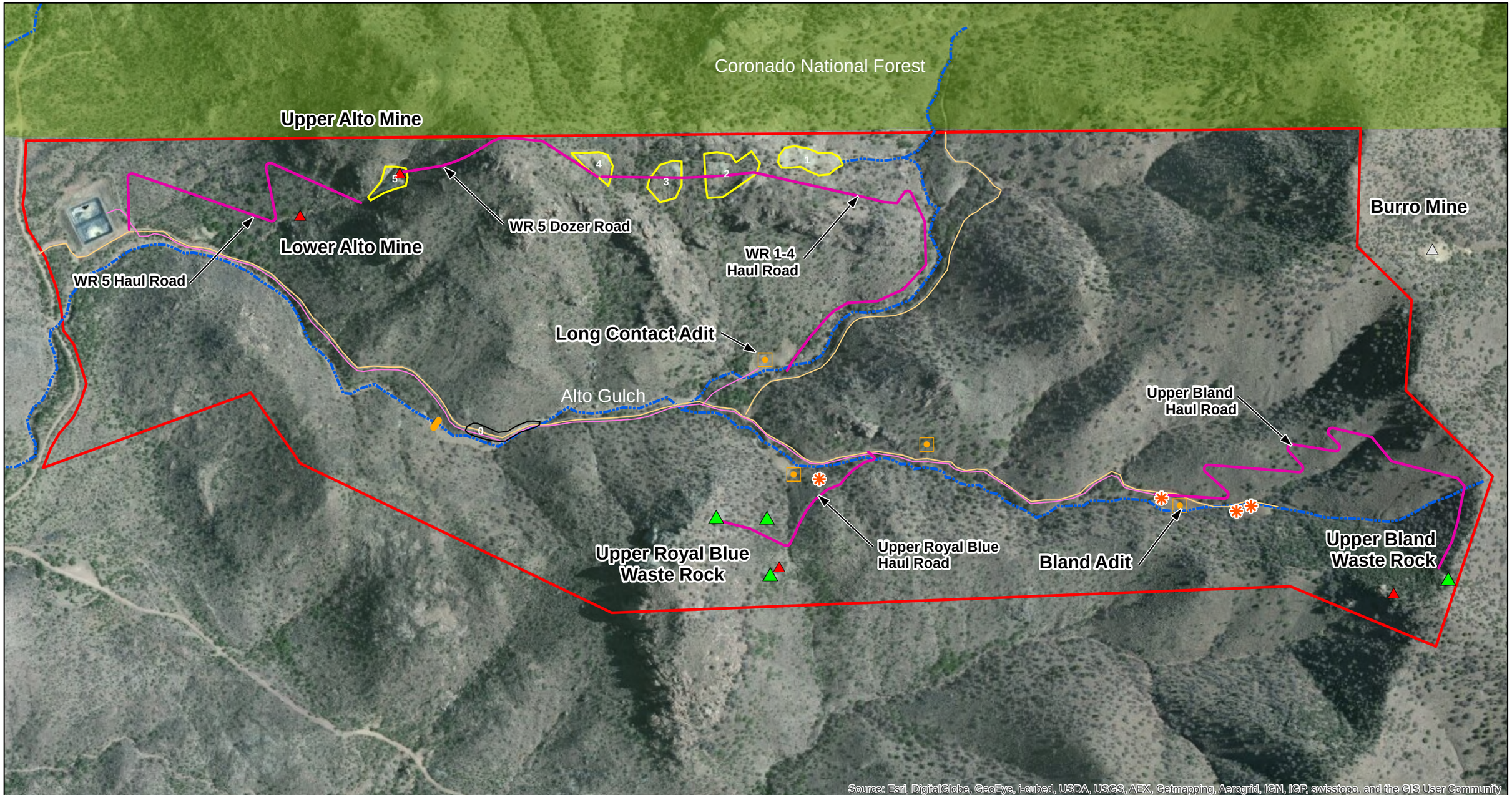
Luis Maria Baca Land Grant
USGS Quads: San Cayetano Mountains & Patagonia
Santa Cruz County, AZ
NAD 83 UTM Zone 12

Site Boundary

0 0.5 1 Miles

N

TETRA TECH
3031 West Ina Road
Tucson, Arizona 85741
(520) 297-7723 (520) 297-7724 fax



Site Map

NAD 83 UTM Zone 12
Imagery: ESRI World Imagery Map

Site Boundary
WR Access Roads
Concrete Dam
Pipeline
Site Road
Wash
Alto Group Mine Workings
Stained Soil
Adit
Off-site Mine
On-site Mine
Reclaimed Pile
Waste_Rock

0 490 980 Feet

0 120 240 Meters

N

TETRA TECH
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