

Unit 4 Source Area In-Situ Bioremediation Treatability Study Phase 2 Cost Estimate and Basis Nevada Environmental Response Trust Site Henderson, Nevada

PREPARED FOR

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LIST OF ACRONYMS/ABBREVIATIONS

| Acronyms/Abbreviations | Definition |
|--------------------------------|---|
| bgs | below ground surface |
| Cascade | Cascade Drilling, LLC |
| COPC | chemical of potential concern |
| EMD | EMD Acquisition, LLC – doing business as Borman Specialty Materials |
| FGD | Field Guidance Document |
| GWETS | groundwater extraction and treatment system |
| IDW | investigation-derived waste |
| ISB | in-situ bioremediation |
| MS/MSDs | matrix spike/matrix spike duplicates |
| NAC | Nevada Administrative Code |
| NDEP | Nevada Division of Environmental Protection |
| NERT or Trust | Nevada Environmental Response Trust |
| ODCs | other direct costs |
| Pace | Pace Analytical |
| Rosendin | Rosendin Electric |
| QA/QC | quality assurance/quality control |
| RCRA | Resource Conservation and Recovery Act |
| SLMW | stabilized Lake Mead water |
| Site | NERT site |
| TDS | total dissolved solids |
| Tetra Tech | Tetra Tech, Inc. |
| UIC | Underground Injection Control |
| Unit Building 4 | former Unit 4 building |
| Unit 4 Treatability Study | Unit 4 Source Area In-Situ Bioremediation Treatability Study |
| Unit 4 Treatability Study Area | Unit 4 Source Area In-Situ Bioremediation Treatability Study Area |
| Work Plan Addendum | Unit 4 Source Area In-Situ Bioremediation Treatability Study Work Plan Addendum |

1.0 BACKGROUND

At the request of the Nevada Environmental Response Trust (NERT or the Trust), Tetra Tech, Inc. (Tetra Tech) prepared this cost estimate and basis to implement Phase 2 of the Unit 4 Source Area In-Situ Bioremediation (ISB) Treatability Study (Unit 4 Treatability Study) at the former Unit 4 building (Unit Building 4) at the NERT site (Site), located in Clark County, Nevada. The Unit 4 Treatability Study is being conducted to support remedy selection as part of a Remedial Investigation and Feasibility Study (RI/FS) process for the Site. The overall objective of this Unit 4 Treatability Study is to evaluate the effectiveness of an ISB approach to address impacted groundwater present in the Unit 4 Treatability Study Area in support of the OU-1 Remedial Action Objective.

The treatability study is divided into two phases:

- Phase 1 consisted of specific pre-design field investigation and bench-study activities completed from 2018 through 2020 to gather site-specific information required to finalize the treatability study design. Phase 1 activities and results are presented in the April 1, 2021 Draft Unit 4 Source Area In-Situ Bioremediation Treatability Study Work Plan Addendum (Work Plan Addendum).
- Phase 2 activities will consist of implementing the ISB treatability study in 2021 through 2024 as described in the Work Plan Addendum.

This document presents the estimated cost and basis of estimate to implement Phase 2 of the Unit 4 Treatability Study as described in the Work Plan Addendum. Costs presented in this document are based on currently known information developed in the Phase 1 pre-design work and are intended to provide an estimate of the cost to implement Phase 2. Costs for subcontractors have been included based on budgetary estimates and proposals provided by subcontractors with direct experience completing similar tasks at the Site. Tetra Tech intends to refine these costs through additional discussions regarding the scope of work and obtaining final pricing prior to subcontractor selection. Similarly, Tetra Tech plans to revisit and refine the field staffing plans to evaluate options to hire additional Henderson-based staff and/or relocate existing project staff to Henderson to increase project efficiencies and manage travel costs as the work schedules for Phase 2 are advanced. The estimated costs presented herein include budget to obtain refined final subcontractor pricing and develop/refine field staffing plans.

2.0 PHASE 2 TREATABILITY STUDY SCOPE

Phase 2 of the Unit 4 Treatability Study will be implemented as described in the Work Plan Addendum. For cost estimating and presentation purposes, the Phase 2 activities have been grouped into four primary tasks with the general scope of each task shown below.

- **Task 1: Permitting and Installation Activities**

- Complete permitting requirements as described in Section 7.0 of the Work Plan Addendum.
- Prepare bid documents for the injection and extraction systems to obtain refined bids and select subcontractors to fabricate the injection and extraction systems. Obtain final, firm pricing for implementation of associated electrical contracting.
- Complete site preparation which will include installing electrical and stabilized Lake Mead water (SLMW) connections, installing an automatic gate for controlled EMD Acquisition, LLC (EMD) access, and installing magnetic extensometers to monitor for settlement as described in Section 5.1.1.5 of the Work Plan Addendum.
- Complete Area 2 pilot well installation and testing as described in Section 5.1.1.3 of the Work Plan Addendum.
 - Following completion of the Area 2 pilot well installation and testing, Tetra Tech will evaluate the data and provide recommendations to the Trust regarding any potential modifications to the treatability study approach based on the results of the pilot well testing. The approach, scope, and budget described in this document are based on the assumption that no substantial changes will be recommended as a result of the pilot well testing.
- Install treatability study wells (injection, extraction and monitoring wells) and conduct aquifer testing as described in Section 5.1.1 of the Work Plan Addendum.
- Perform baseline groundwater sampling as described in Section 6.1 of the Work Plan Addendum.
- Update the groundwater models with data from new treatability study wells.
- Install the injection and extraction system equipment and complete start-up testing as described in Sections 5.1.2 and 5.1.3 of the Work Plan Addendum.

- **Task 2: Operation, Monitoring, and Maintenance**

- Prepare a Field Guidance Document (FGD) for the operation and maintenance activities associated with the injection and extraction systems as described in Section 8.0 of the Work Plan Addendum.
- Operate, monitor, and maintain the injection and extraction systems as described in Sections 5.2.1 and 5.2.2 of the Work Plan Addendum.
- Operation of injection and extraction systems for a total of 18 months, consisting of 6 months of operation time to reduce TDS concentrations in Area 1 prior to implementation of 12 months of ISB in Area 1 as described in Section 4.2.4 of the Work Plan Addendum and 12 months of ISB in Area 2. The start of ISB for Areas 1 and 2 are anticipated to be staggered, with ISB to commence at Area 1 approximately 6 months following the start of ISB at Area 2 as generally depicted in the timeline presented in Section 5 of this document.
- Implement the effectiveness monitoring program as described in Section 6.0 of the Work Plan Addendum.

- Continuously manage and analyze data to optimize operation and maintenance activities.
- Perform well and system maintenance as described in Section 5.2.3 of the Work Plan Addendum.
- **Task 3: Reporting**
 - Prepare and submit Underground Injection Control (UIC) Semi-Annual Reports as part of the requirements of the UIC Permit as described in Section 7.2 of the Work Plan Addendum.
 - Prepare and submit annual extraction reports as part of the requirements of the Water Appropriation Permit as described in Section 7.3 of the Work Plan Addendum.
 - Prepare and submit monthly progress reports as described in Section 8.0 of the Work Plan Addendum.
 - Provide periodic updates to the Trust regarding Treatability Study progress.
 - Prepare and submit the Unit 4 Source Area In-Situ Bioremediation Treatability Study Results Report and DVSR as described in Section 8.0 of the Work Plan Addendum.
- **Task 4: System Demobilization**
 - Demobilize injection and extraction system equipment and components as described in Section 5.3 of the Work Plan Addendum.

3.0 BUDGET

Tetra Tech's estimated budget to complete the Unit 4 Treatability Study Phase 2 activities is summarized in the attached Table 1¹. Key assumptions and the basis of estimate are described in detail in Section 4. For budget presentation in Table 1, the work is grouped into the following subtasks.

- Task 1.1 Permitting and Pre-implementation
 - Well Permits
 - EMD Groundbreaking Permits
 - UIC Permit Amendment
 - Water Appropriation Permit Update
 - Electrical Permit
 - Contingency Plan
 - Hazardous Waste Management Plan Update
 - Detailed Design and Bid Review
- Task 1.2 Site Preparation
 - Automatic Gate
 - Office Trailer Rental
 - Steel Plate Rental
 - SLMW Connections
 - Electrical Connections
 - Magnetic Extensometers
- Task 1.3 Pilot Well Installation and Testing
 - Pilot Well Installation
 - Pilot Well Groundwater Sampling
 - Pilot Well Aquifer Testing
- Task 1.4 Injection, Extraction, and Monitoring Well Installation
- Task 1.5 Aquifer Testing, Baseline Sampling, and Groundwater Modeling Update
 - Aquifer Testing
 - Baseline Sampling
 - Groundwater Modeling
- Task 1.6 System Installation and Start-up
 - Injection System
 - Extraction System
 - Temporary Groundwater Accumulation
 - System Start-up

¹ The budget presented in Table 1 is based on the scope presented in the Work Plan Addendum and the assumptions and cost-basis presented in this document. Actual costs are subject to change based on field conditions, direction from the Trust, programmed off-ramps, and the effect of variable economic conditions on labor and material's cost and availability. Tetra Tech will work with the Trust to mitigate potential cost increases.

- Task 2.1 System Operation, Monitoring and Maintenance
 - Field Guidance Document
 - System Operation, Monitoring and Maintenance²
 - Area 1: 6 months TDS Reduction and 12 months ISB
 - Area 2: 12 months ISB
 - Extraction System Monitoring
 - Dye Testing
 - Well Maintenance
- Task 2.2 Performance Monitoring and Data Management
 - Groundwater Monitoring
 - Data Validation and Management
- Task 3 Reporting
 - UIC Semi-Annual Reports
 - Annual Groundwater Extraction Reports
 - Monthly Progress Updates
 - Unit 4 Source Area In-Situ Bioremediation Treatability Study Results Report
- Task 4 System Demobilization

² Durations of 6 months for TDS reduction and 12 months for ISB in Area 1, and 12 months for ISB in Area 2 were used as a basis for the budget estimate. Actual activity duration, and thus costs, will depend on field conditions, implementation monitoring results, and consultation with the Trust.

4.0 BASIS OF ESTIMATE

Tetra Tech’s estimated cost to implement Phase 2 of the Unit 4 Treatability Study is based on the scope of work described in the Work Plan Addendum. Some areas of the Work Plan Addendum are designed to allow flexibility – primarily to afford the Trust the ability to terminate and/or modify Phase 2 of the Unit 4 Treatability Study as it deems appropriate upon consultation with the Nevada Division of Environmental Protection (NDEP). Where the activities described in the Work Plan Addendum were not specific, Tetra Tech made assumptions, described below, to provide a basis of estimate.

The estimated costs are based on Tetra Tech’s experience at the NERT Site with applicable field procedures, including well construction, groundwater extraction, and groundwater monitoring during Phase 1 of the Unit 4 Treatability Study. Tetra Tech anticipates that many of the procedures implemented during Phase 2 of the Unit 4 Treatability Study will be similar if not identical to the procedures used in other treatability studies performed within the NERT RI Study Area. Indicative price quotes and proposals from drilling, system construction/installation, surveying, waste disposal, water transport, substrate and chemical supplier, electrical, and analytical laboratory contractors were used to develop the cost estimate and were based on currently available information. Conservative estimates have been included where information is not currently fully defined. In some cases, the scope was adjusted after receiving indicative price quotes from potential contractors, and Tetra Tech extrapolated the estimated budget from the contractors original pricing.

As indicated, some areas of the Work Plan Addendum are designed to allow flexibility. Specifically, there are several key decisions that will be made during implementation of the treatability study that may impact the approach, scope, and budget estimate. These decisions will be based on data gathered during implementation of the study. The table below summarizes the key decisions, and the basis of the estimated budget.

| Key Decision | Data Used to Inform Decision | Basis of Estimate |
|--|--|--|
| Confirm the chemical and hydrogeologic characteristics of Area 2 support inclusion in the treatability study area. | There are currently no wells located in Area 2. Data from the pilot wells installation and testing will be used to provide initial characterization of Area 2. | Site data collected to date and best estimate projections indicate the Area 2 characteristics will be consistent with the conditions described in Section 4.2.1 of the Work Plan Addendum. The cost estimate assumes no material changes to the planned program are recommended as a result of the new Area 2 data from the pilot wells. |
| Confirm the period of operation in Area 1 with groundwater extraction and injection of SLMW only to reduce TDS concentrations to approximately 21,000 mg/L prior to implementation of ISB. | Monthly effectiveness monitoring data from performance monitoring wells and extraction monitoring. | Data collected from the extended groundwater extraction test suggest that TDS concentrations in Area 1 could be reduced to less than 21,000 mg/L in approximately 3 months. A conservative timeframe of 6 months has been assumed to allow sufficient time to reduce TDS concentrations throughout Area 1. |
| Confirm the chemical and hydrogeologic characteristics of Area 1 following the TDS reduction period support performing ISB. | Monthly effectiveness monitoring data from performance monitoring wells and extraction monitoring. | Assumes COPC and TDS concentrations within Area 1 are substantially different than Area 2 at the conclusion of the Area 1 TDS reduction period to support continuing to perform ISB. |

| Key Decision | Data Used to Inform Decision | Basis of Estimate |
|---|---|--|
| <p>Confirm the period of operation needed to obtain adequate data to fully meet the treatability study objectives presented in Section 4.3 of the Work Plan Addendum.</p> | <p>Injection and extraction system operational monitoring data and effectiveness monitoring data will be collected and evaluated during system operations.</p> | <p>As described in Section 4.2.6 of the Work Plan Addendum, the bench study testing results indicate that active operations over a 12 to 18-month period will be needed to fully evaluate the effectiveness of ISB. The cost estimate is based on 12 months of active injections of carbon substrate for Area 1 following the TDS reduction period, and 12 months of active injections of carbon substrate for Area 2. The Trust will be updated on system performance in the monthly progress reports. After 10 months of operation within Area 1 and Area 2, Tetra Tech will present recommendations to the Trust regarding if additional operations beyond 12 months are warranted to achieve the study objectives.</p> |
| <p>Re-confirm the extracted groundwater volumes from the currently scoped treatability study can be treated in the Groundwater Extraction and Treatment System (GWETS).</p> | <p>Before the groundwater extraction system is deployed, the groundwater model will be updated using aquifer testing data obtained at the new treatability study wells, and the estimated groundwater extraction rates will be verified. Baseline groundwater sampling data will be used to verify the equivalent load, which is a measure of treatment capacity of the GWETS, as described in Section 4.2.3 of the Work Plan Addendum.</p> | <p>Site data collected to date and best estimate projections indicate that the groundwater extraction rate and the revised equivalent load will be well below the capacity of the GWETS. The estimated budget includes costs to transport water to a designated GWETS Process Tank, based on an extraction rate of 12 gpm. Costs to modify Process Tank connections to the GWETS, if necessary, and to treat the extracted groundwater are outside the scope of the Work Plan Addendum and this cost estimate. Details related to the management of extracted groundwater associated with this study will be provided by the Trust under separate cover.</p> |

Finally, Tetra Tech’s scope includes overarching program management related activities for the duration of the project, which include communications and updates to the Trust as requested and standard program management activities related to staffing, safety, procurement, document control, document quality reviews, risk review, cash flow forecasting, scheduling, insurance, subcontractor management, submittal reviews, and overall project coordination with NDEP and the Trust.

The basis of estimate and key assumptions are outlined in the following subsections for each of the tasks previously described in Section 2.

4.1 GENERAL ASSUMPTIONS RELATED TO FIELD ACTIVITIES

The entire footprint of the study area is within the EMD leasehold therefore all field activities will be coordinated with EMD to avoid conflicts with other activities in the area. Should unavoidable conflict occur, Tetra Tech will

coordinate with EMD and communicate with the Trust to determine the most appropriate solution. Tetra Tech assumes no delays are incurred related to work suspension due to conflicts with EMD-related activities.

Work on the EMD property requires special safety training, offered by EMD twice each month. The training is valid for six-months. All on-site Tetra Tech staff and contractors must be trained. Tetra Tech's labor budget includes training time for limited staff. Tetra Tech will attempt to use the same field staff for multiple field tasks to reduce the overall training budget. Indicative pricing obtained from subcontractors includes estimated training budget; or is assumed to be covered by contractor's field modification allowance identified for each task.

EMD requires that field vehicles are either company vehicles or rental vehicles. No personal vehicles are allowed on-site. Tetra Tech has included budget for field trucks within each task's travel budget. This includes tasks that will be completed by Henderson-based staff.

Henderson-based Tetra Tech staff will be utilized to the maximum extent possible; however, local staff may not be available depending on the timing of the field activities and commitments on other NERT tasks. As a result, the budget includes travel costs for non-Henderson staff to provide a conservative budget estimate. As noted in Section 1, Tetra Tech plans to revisit and refine the field staffing plans to evaluate options to hire additional Henderson-based staff and/or relocate existing project staff to Henderson to increase project efficiencies and reduce travel costs. In addition, field tasks will be coordinated with the approved monthly and quarterly groundwater and surface water monitoring events as well as the other treatability studies to minimize travel costs to the extent possible. Travel allocations include airfare, lodging, per diem, short-term rental vehicles, longer term lease vehicles and fuel. The following travel assumptions have been made for each task:

- Magnetic Extensometer Installation – includes travel for one non-Henderson staff for the duration of the magnetic extensometer installation activities.
- Pilot Well Installation and Aquifer Testing – includes travel for one non-Henderson staff to assist one Henderson-based staff for the duration of the pilot well installation and testing activities.
- Injection, Extraction and Monitoring Well Installation – includes travel for one non-Henderson staff to assist one Henderson-based staff for the duration of the injection, extraction, and monitoring well installation and development activities.
- Baseline Groundwater Sampling – includes travel for one non-Henderson staff to assist one Henderson-based staff for the duration of the baseline groundwater sampling activities.
- Installation and Start-up of Injection and Extraction Systems - includes travel for two non-Henderson staff to assist one Henderson-based staff for the duration of the installation and start-up activities. Additionally, travel costs are included for one senior engineer to be present during the system installation, and two senior engineers to be present during system start-up.
- Injection and Extraction Operation, Monitoring, and Maintenance – Based on the anticipated level of effort to operate and monitor the daily injection and continuous groundwater extraction operations, Tetra Tech has assumed that one new Henderson staff will be hired at the Senior Technician level. Given this hire, the budget includes no travel as Henderson-based staff will oversee the operation of the injection and extraction systems.
- Well Maintenance – includes travel for one non-Henderson staff to provide oversight for each well maintenance event.
- Effectiveness Monitoring Program – One non-Henderson staff to assist one Henderson-based staff for each monthly and quarterly groundwater sampling event. One Henderson-based staff will perform the bi-weekly groundwater sampling events.
- System Demobilization – assumes one Henderson-based staff will provide oversight of equipment demobilization activities.

4.2 TASK 1 – PERMITTING AND INSTALLATION ACTIVITIES

Task 1 consists of all activities that will be completed prior to initiating treatability study extraction and injection operations.

Task 1.1a - Permitting and Pre-Implementation Coordination

- **Well Permits** – As described in Work Plan Addendum Section 7.1, a Nevada Administrative Code (NAC) 534.441 Monitoring Well Drilling Waiver and a NAC 534.320 Notice of Intent Card will be obtained prior to installation of pilot, injection, extraction and monitoring wells. An authorized Trust signature will be obtained in a notarized Affidavit of Intent to Abandon a Well. Tetra Tech will coordinate preparation of these documents consistent with previous work efforts at the site.
- **EMD Groundbreaking Permits** – Tetra Tech will prepare an application and obtain an EMD groundbreaking permit for the installation of wells and magnetic extensometers as noted in Work Plan Addendum Section 7.1. As part of the EMD groundbreaking permit application, a survey will be conducted by a Nevada-licensed land surveyor to mark all boring locations and a geophysical survey will be conducted to identify potential utilities/infrastructure.
- **UIC Permit Amendment** – As described in Work Plan Addendum Section 7.2, a UIC General Permit for Long-Term Remediation has already been issued by the NDEP as part of the Phase I activities (Permit #GU07RL-51060). The budget includes preparation of a modification request letter and associated attachments for additional chemicals related to well maintenance. The basis of estimate does not include preparation of a full application for issuance of an individual UIC permit if a modification to the existing permit cannot be obtained or any travel for meetings to support permit modification and approval.
- **Water Appropriation Permit Update** – As described in Work Plan Addendum Section 7.3, an application for a Permit to appropriate the Public Waters of the State of Nevada for Environmental Purposes (Water Appropriation Permit) has already been prepared and approved as part of the Phase I activities and is still valid for the Phase 2 activities as the original permit covered up to 18 extraction wells. Tetra Tech will prepare and submit an update including extraction well locations and relevant flow meter information.
- **Electrical Permit** – As described in Work Plan Addendum Section 7.4, an electrical permit will be obtained for all applicable electrical work associated with providing electrical service from an existing power supply at the EMD property to power the injection system, extraction system, office trailer, and controls. Tetra Tech will prepare applicable electrical design drawings and specifications to obtain the permit.
- **Contingency Plan** – As described in Work Plan Addendum Section 7.5, Tetra Tech will prepare a Contingency Plan to address protection measures and response procedures for the GWETS components located within 50 feet of Phase 2 treatability study activities. The Phase 2 treatability study activities conducted in the Unit 4 Treatability Study Area will not occur within 50 feet of GWETS components; however, extracted groundwater will be transported via vacuum trucks to a designated Process Tank and hence to the GWETS for treatment.
- **Hazardous Waste Management Plan Update** – In accordance with Section 7.6 of the Work Plan Addendum, Tetra Tech will update the Hazardous Waste Management Plan to include details relevant to Phase 2 including the planned hazardous waste accumulation areas and emergency response equipment.

Task 1.1b - Detailed Design and Bid Review

Tetra Tech will prepare bid-documents for detailed injection and extraction system design to obtain refined bids and select subcontractors to fabricate the injection and extraction systems. Electrical design drawings will also be prepared to support the electrical permit application. Tetra Tech assumes that permits are approved as submitted, and the estimated budget does not include costs for drawing revisions based on permit review. Permits prepared

for Clark County review will incorporate feedback provided by the County as part of the Trust's treatment system extension project. Tetra Tech's estimated design budget is based on completion of the following design drawings:

- Title Sheet
- Legends and Symbology
- Site Location/General Arrangement
- Injection System Layout
- Extraction System Layout
- Updated Injection and Extraction System Process Flow Diagrams
- Piping and Instrumentation Diagram
- Well Construction Diagrams
- Wellhead Details
- Injection and Extraction System Manifold
- Substrate and Amendment Staging Area
- Electrical Power Layout*
- Electrical Rack Detail*
- Electrical One Line Diagram*
- Power Supply and Load Calculation*
- Well Control Box Wiring Diagram*

*Indicates drawings required for electrical permit application.

Based on prior Phase 1 correspondence with EMD, Tetra Tech assumes that EMD will approve the planned location of the injection and extraction system and planned locations for electrical and water connections.

- The electrical design is based on power connections at the existing electrical panel located in the basement of the Unit 4 Substation building, approximately 400 feet away from the planned injection/extraction system control panel location.
- The water supply design is based on SLMW connections provided at the southeast corner of the Unit 4 Chlorinator Building.
- Tetra Tech has not included costs to design or implement upgrades to the existing power and water supply at EMD.

Task 1.2 Site Preparation

Automatic Gate

- Vacuum trucks will be used to transport extracted groundwater to a designated GWETS Process Tank. An automated gate will be constructed to allow the vacuum trucks to enter and exit the EMD operations without requiring an EMD-approved attendant. The estimated construction budget for the automated gate was based on indicative pricing provided by Rosendin Electric (Rosendin) and preliminary discussions with EMD for gate requirements. If Rosendin is unavailable to perform the work due to schedule constraints or other issues beyond the control of Tetra Tech, construction costs may vary. In this event, the Trust will be consulted and changes to the construction program will be approved by the Trust prior to field implementation. A 10% field modification allowance has been included to account for potential design changes resulting from final EMD requirements and field conditions encountered.

Office Trailer Rental

- An office trailer was located near the Unit 4 Treatability Study Area as part of the Phase 1 field activities and will continue to be used as a field office for on-site personnel for the duration of the active Phase 2 treatability study operations. The Phase 2 budget includes rental of the office trailer and wi-fi service for 26 months, from June 2021 through August 2023.

Steel Plate Rental

- Steel plates will be placed over the existing trenches within the Unit 4 basement to allow larger vehicular to safely access the planned well locations during drilling and well development activities. The estimated budget includes installation and removal of steel plates and 6-month rental.

SLMW Connections

- Water for the injections will be obtained from the existing SLMW connection located near the accessway used by EMD at the northern end of the Unit 4 basement. The SLMW will be conveyed via fire hose directly to the injection wells or to the injection system. The budget includes the installation of the SLMW connection consisting of a flowmeter, pressure reducing valve, pressure gauge, shutoff valve, and fire hose.

Electrical Connections and Controls

- The electrical implementation budget is based on power connections at the existing electrical panel located in the basement of the Unit 4 Substation building, approximately 400 feet away from the planned injection/extraction system control panel location. The estimated budget for all electrical activities is based on indicative pricing provided by Rosendin Electric (Rosendin) and Tetra Tech's experience with implementation of the extended groundwater extraction test during the Phase 1 treatability study activities. If Rosendin is unavailable to perform the work due to schedule constraints or other issues beyond the control of Tetra Tech, construction costs may vary. In this event, the Trust will be consulted and changes to the construction program will be approved by the Trust prior to field implementation. A 5% field modification allowance has been included in the budget to account for potential design changes resulting from EMD requirements and field conditions encountered. The electrical implementation budget is based on the following scope of work:
 - Provide power, control conduit, and wiring for 18 groundwater extraction pumps, 8 transfer pumps, 2 mixers, and a heater.
 - Perform electrical design and engineering of power circuiting.
 - Perform required 30-day power study of proposed power source for permitting.
 - Submit stamped drawings, obtain electrical permit, and complete inspections.
 - Install 75 KVA transformer and 225 amp 3-phase panel.
 - Install 100-amp breaker in existing 480-volt equipment in the Unit 4 Substation building.
 - Provide a UL listed control panel, control relays, motor protectors, control status lamps, operator switches, and auto dialer with associated shop drawings.
 - Provide 30 leak detection switches and connect to control panel.
 - Provide 6 float switches for the frac tanks and connect to the control panel.
 - Provide digital power meter.
 - Install 7 LED-type wall pack lights to illuminate the Unit Building 4.
 - Provide 60 hours of system start-up and testing support.
 - Periodic planned power outages may result from EMD maintenance activities. Based on information provided by EMD, these planned power outages are anticipated to occur approximately once per year and the duration of the power outage is not anticipated to substantially affect the system operation. No contingency has been included to account for unplanned power outages.
 - Electrical work will occur over various tasks and timeframes. Some will occur during site preparation, and other work during system installation. The estimated budget for all electrical installation work is included in Task 1.2 in Table 1.

Magnetic Extensometers

- Magnetic extensometers will be installed in the Unit 4 Treatability Study Area to monitor for settlement as described in Work Plan Addendum Section 5.1.1.5. A total of six magnetic extensometers (consisting of a datum magnet and 4 spider magnets) will be installed to a depth of approximately 40 feet in the Unit 4 Treatability Study Area.
- Based on the scope of work for the magnetic extensometer installation, the budget includes labor for oversight of a hydrovac rig for 2 days and a rotary auger drilling rig for 4 days. The installation budget for the boreholes and magnetic extensometers is based on an estimate obtained from Cascade Drilling, LLC (Cascade Drilling). The estimated budget includes non-field work labor hours, which include digitizing 6 field boring logs and 6 well construction logs into gINT software
- Estimated costs also include purchasing the magnetic extensometers from Geokon, LLC and a two-year license for a software program to prepare construction and monitoring logs for the magnetic extensometers. The budgetary estimate assumes the labor for monitoring the magnetic extensometers will be performed concurrent with other site activities (i.e., injection and extraction system operation). Further, the budgetary estimate assumes there is no settling or subsidence, thus no costs are included for geotechnical engineering other than limited review of the data acquired.
- Investigation Derived Wastes (IDW) generated during drilling activities will be managed in accordance with applicable federal, state, and local regulations and in the same manner as well installations performed during the pre-design activities described in Section 2.3 of the Work Plan Addendum. The budget includes estimated costs for placement of soil cuttings and other wastes into 10-yard roll-offs that will be located near the drilling locations during field activities, delivery and rental charges associated with roll-offs, and transportation and disposal of 10 tons of non-hazardous waste at a licensed facility. Tetra Tech will prepare a waste manifest memorandum per Trust requirements. All waste manifests will be signed by an authorized representative of the Trust. The existing profiles established for IDW disposal during the Phase 1 treatability study activities have expired. Costs for IDW sampling and analysis and preparation of new profiles for soil cuttings and concrete cores to be used for IDW generated during the Phase 2 treatability study are provided under Task 1.3.

Exclusions

- Process Tank Truck Unloading Area - The estimated budget excludes design and construction of the vacuum truck off-loading containment pad and connection to a repurposed Process Tank previously used for the treatment of AP-5 Pond solids. Per Trust request, this work is addressed separately.
- GWETS Infrastructure Modifications and GWETS O&M – Modification of the existing GWETS infrastructure to allow water conveyance from the designated Process Tank to the GWETS may be necessary but is not included in the estimated budget presented in Table 1. Per Trust request, this work, along with any required GWETS O&M to facilitate this study will be addressed separately.

Task 1.3 Pilot Well Installation and Testing

Pilot Well Installation

- Tetra Tech has budgeted for installation of 4 pilot wells in accordance with Section 5.1.1.2 of the Work Plan Addendum. The estimated budget for installing the pilot wells is based on completing the following:
 - Two intermediate injection wells (U4-E-06I and U4-E-10I) screened from 83 to 98 feet below ground surface (bgs); and
 - Two deep injection wells (U4-E-06D and U4-E-10D) screened from 103 to 118 feet bgs.
- Tetra Tech oversight labor for the installation program is based on Tetra Tech and Cascade Drilling's experience at the Unit 4 Treatability Study Area. Based on the scope of work for the drilling effort, the budget includes labor for oversight of a hydrovac rig for 2 days, a rotasonic drilling rig for 10 days, and a

well development rig for 4 days. The estimated budget includes non-field work labor hours, which include digitizing 4 field boring logs and 4 well construction logs into gINT software.

- The subcontracted drilling budget, including well installation and well development, was estimated using Cascade Drilling's rates and extrapolated from a quote obtained from Cascade Drilling for the Phase 2 well installation. If Cascade Drilling is unavailable to perform the work due to schedule constraints or other issues beyond the control of Tetra Tech, drilling costs may vary. In this event, the Trust will be consulted and changes to the drilling program will be approved by the Trust prior to field implementation.
- Work areas will be secured using typical construction barriers such as metal plates, orange construction fencing, and caution tape for the duration of the drilling activities. No allowances have been included to address damage or vandalism of wells or equipment used to perform the work. If required by the Trust, other measures can be provided at additional cost.
- IDW generated during drilling activities will be managed in accordance with applicable federal, state, and local regulations and in the same manner as well installations performed during the pre-design activities described in Section 2.3 of the Work Plan Addendum. The budget includes estimated costs for placement of soil cuttings and other wastes into 10-yard roll-offs that will be located near the drilling locations during field activities, delivery and rental charges associated with roll-offs, and transportation and disposal of 15 tons of non-hazardous waste at a licensed facility. Tetra Tech will prepare a waste manifest memorandum per Trust requirements. All waste manifests will be signed by an authorized representative of the Trust. The existing profiles established for IDW disposal during the Phase 1 treatability study activities have expired, thus the budget includes IDW sampling and analysis to prepare new profiles for soil cuttings and concrete cores.

Pilot Well Groundwater Sampling

- Groundwater samples will be collected from the 4 newly installed pilot wells, with primary samples analyzed for perchlorate, chlorate, nitrate, hexavalent chromium, volatile organic compounds, and total dissolved solids (TDS). In addition to the 4 primary groundwater samples, field quality assurance/quality control (QA/QC) samples will also be collected and include equipment blanks, field blanks, field duplicates, and matrix spike/matrix spike duplicates (MS/MSDs) as noted in Section 6.1 of the Work Plan Addendum. This sampling event will include a total of five QA/QC samples, consisting of one field duplicate, one equipment blank, one field blank, one trip blank, and one MS/MSD. Other direct costs (ODCs) include field equipment rentals of one bladder pump set-up, one multiparameter water quality meter, one water level meter, and miscellaneous field consumables (such as gloves and drinking water).

Pilot Well Testing

- Aquifer testing will be performed on the 4 newly installed pilot wells to determine hydraulic conditions as described in Section 5.1.1.4 of the Work Plan Addendum.
- The budget includes performing slug tests and step-drawdown testing in the 4 pilot wells. ODCs include rental of water level meters, wellhead fittings, and miscellaneous field consumables. The estimated budget also includes non-field work labor hours to process data collected during the slug testing, step-drawdown testing, and constant rate testing and prepare summary tables.
- Short-term injection tests will be performed as described in Section 5.1.1.4 of the Work Plan on the four pilot wells and four of the existing wells for a total of 8 injection wells. The injection test will be performed on each well separately. It is assumed that one injection test will be performed in a 10-hour day. A total of 6 pressure transducers and 2 water level indicators will be used to monitor water levels in nearby wells during injection testing. ODCs include rental of water level meters, a reed switch probe, and miscellaneous field consumables. Six pressure transducers and two pumps from the Phase 1 pre-design field activities will be reused for the Phase 2 aquifer testing. The estimated budget includes non-field work labor hours to process data collected from the magnetic extensometers and preparing tracking spreadsheets.

IDW Water Transport

- Groundwater and decontamination water generated during drilling, well development, groundwater sampling, and aquifer testing will be transported to either the designated GWETS Process Tank or the GW-11 Pond on a daily basis with no additional testing consistent with the Phase 1 activities.

Task 1.4 - Injection, Extraction and Monitoring Well Installation

Well Installation

- Following review of the data obtained from the pilot wells and injection testing, Tetra Tech will install the remaining 27 injection/extraction and monitoring wells in accordance with Section 5.1 of the Work Plan Addendum. The full-scale treatability study will include the installation of the following additional wells:
 - 2 Intermediate Injection/Extraction Wells (screened from 83-98 feet bgs);
 - 4 Deep Injection/Extraction Wells (screened from 103-118 feet bgs);
 - 15 Dual-Nested Intermediate/Deep Monitoring Wells (screened from 83-98 feet bgs and 103-118 feet bgs); and
 - 6 Dual-Nested Shallow/Deeper Monitoring Wells (screened from 63-73 feet bgs and 128-138 feet bgs).
- Section 5.2 of the Work Plan Addendum identifies the possibility of installing an additional intermediate zone injection well in the central portion of Area 1 if insufficient carbon substrate distribution is observed from the effectiveness monitoring completed early in the program. A treatability study modification would be prepared prior to installation of the injection well, if deemed necessary. Costs for installation of this optional well have not been included in this cost estimate.
- The wells installed within the Unit 4 Treatability Study Area will be completed in accordance with Section 5.1.1.3 of the Work Plan Addendum. The final locations of the injection/extraction and monitoring wells will be determined based on actual field conditions encountered and the data obtained from the pilot wells.
- Tetra Tech oversight labor for the installation program is based on Tetra Tech and Cascade Drilling's experience at the Unit 4 Treatability Study Area and will include one Tetra Tech personnel per drilling rig, using a total of up to 2 drilling rigs (one Henderson staff and one non-Henderson staff). Based on the scope of work for the drilling effort, the budget includes labor for oversight of a hydrovac rig for 10 days, two roto sonic drilling rigs for 35 days, and a well development rig for 22 days. The estimated budget also includes non-field work labor hours, which include digitizing 27 field boring logs and well construction logs into gINT software.
- The subcontracted drilling budget, including costs to clear each of the 27 boring locations to a depth of 12 feet bgs with a hydrovac rig prior to drilling, injection/extraction and monitoring well installation, and well development, is based on an estimate obtained from Cascade Drilling. If Cascade Drilling is unavailable to perform the work due to schedule constraints or other issues beyond the control of Tetra Tech, drilling costs may vary.
- The work areas will be secured using typical construction barriers such as metal plates, orange construction fencing, and caution tape for the duration of the drilling activities.
- ODCs include field equipment rentals, including a YSI multimeter, turbidimeter, and water level meter, and miscellaneous field consumables (such as gloves and water for hydration).
- Prior to drilling activities, an initial survey will be conducted by a Nevada-licensed land surveyor to mark all well locations. Following completion of drilling activities, all well locations will be resurveyed. The survey budget is based on an estimate obtained from Atkins. If Atkins is unavailable to perform the work due to schedule constraints or other issues beyond the control of Tetra Tech, survey costs may vary.
- IDW generated during drilling activities will be managed in accordance with applicable federal, state, and local regulations and in the same manner as well installations performed during the pre-design activities

described in Section 2.3 of the Work Plan Addendum. The budget includes estimated costs for placement of soil cuttings and other wastes into 20-yard roll-off bins that will be located and stored near the drilling locations during field activities, delivery and rental charges associated with roll-off bins, and transportation and disposal of 110 tons of non-hazardous waste at a licensed facility. Tetra Tech will prepare a waste manifest memo per Trust requirements. All waste manifests will be signed by an authorized representative of the Trust. The existing profiles established for IDW disposal during the Phase 1 treatability study activities have expired. Costs for IDW sampling and analysis and preparation of new profiles for soil cuttings and concrete cores to be used for IDW generated during the Phase 2 treatability study are provided under Task 1.3.

- Groundwater and decontamination water generated during drilling and well development will be transported and discharged to either the designated GWETS Process Tank or the GW-11 Pond on a daily basis with no additional testing consistent with Phase 1 activities.

Task 1.5 Aquifer Testing, Baseline Sampling, and Groundwater Modeling

Aquifer Testing

- Aquifer testing will be performed on the injection/extraction wells to determine hydraulic conditions as described in Section 5.1.1.4 of the Work Plan Addendum. There will be a total of 18 injections/extraction wells (8 existing in Area 1, 4 installed in Area 2 as pilot wells, 6 installed during final installation). As the basis of this estimate, the budget includes performing 14 slug tests on all the wells except the pilot wells that were tested as part of the Area 2 evaluation, and 6 step-drawdown tests on the injection/extraction wells installed during the final installation. Six pressure transducers and two pumps from the Phase 1 pre-design field activities will be reused for the Phase 2 aquifer testing. ODCs include rental of water level meters, a reed switch probe, and miscellaneous field consumables. The estimated budget includes non-field work labor hours to process data collected during the slug testing, step-drawdown testing, and constant rate testing and prepare summary tables.

Groundwater Modeling Update

- The groundwater model will be updated with data obtained during aquifer testing to verify estimated extraction rates and substrate distribution scenarios. The updated groundwater model will provide data to assist with final design of the injection and extraction systems and will be used to support preparation of the FGD.

Baseline Groundwater Sampling

- Tetra Tech will complete baseline groundwater sampling in accordance with Section 6.1 of the Work Plan Addendum. Due to the Area 1 TDS reduction period, two separate baseline groundwater monitoring events are anticipated to be required for Area 1 and Area 2. The baseline groundwater monitoring event for Area 1 will be conducted after the TDS reduction period and prior to initiating ISB and will consist of sampling 27 wells. The baseline groundwater monitoring event for Area 2 will be conducted prior to initiating ISB and will consist of sampling 38 wells. Groundwater samples will be submitted to Pace Analytical (Pace) and analyzed for the suite of field and laboratory analytes listed in Section 6.1.3 of the Work Plan Addendum.
- In addition to standard groundwater samples, field QA/QC samples will also be collected and will include field duplicates, equipment blanks, field blanks, trip blanks, and MS/MSDs as noted in Work Plan Addendum Section 6.1.3. The baseline sampling events will include a total of 23 QA/QC samples, including 7 field duplicates, 4 equipment blanks, 4 field blanks, 4 trip blanks, and 4 MS/MSDs. All groundwater samples will be analyzed on a standard turn-around-time.
- Bio-traps® will be installed in wells located within the Unit 4 Treatability Study Area as part of the baseline sampling as described in Section 6.1.3 of the Work Plan Addendum. The estimated budget includes the installation of Bio-traps® in nested monitoring wells installed at six locations (resulting in 12 Bio-traps®).

Bio-traps® will remain in the wells for a period of approximately 30 days and then be retrieved for microbial analysis as listed in Section 6.1.3 of the Work Plan Addendum. All microbial samples will be submitted to Microbial Insights via Pace, and analyzed on a standard turn-around-time.

- The budgetary estimate is based on 2020 analytical test rates from Pace and Microbial Insights that were included in each laboratory's estimate provided and assumes rates remain unchanged for the duration of the project. Tetra Tech has included a 2.5% field modification allowance on all estimated analytical laboratory budgets to provide a small supplemental budget to occasionally collect and analyze additional samples if warranted based on evaluation of the data.
- ODCs include field equipment rentals for 2 groundwater sampling set-ups that each consist of a bladder pump, pump controller, multiparameter groundwater quality meter, water level meter, and colorimeter. Additional ODCs include the purchase of dedicated tubing for all 65 wells and consumables such as disposable bladders, grab plates, gloves, ice for samples, and water for hydration sufficient for sampling 65 wells.
- Multiparameter sondes with data logging capabilities will be placed in 12 monitoring wells to provide real-time field parameter monitoring as described in Section 6.1.3 in the Work Plan Addendum. Costs are based on purchase of 12 multiparameter sondes including components such as cabling, parameter sensors, and a communication device. Tetra Tech evaluated equipment rental and determined that equipment purchase is approximately 50% of the cost of renting similar equipment over an 18-month period. The budget does not include equipment replacement or repair.

Task 1.6 System Installation and Start-up

Injection System

- The injection system will consist of the components as described in Section 5.1.2.3 of the Work Plan Addendum. The injection system will pump a predetermined volume of injection solution (carbon substrates, SLMW, and amendments) simultaneously to each of the injection wells. The injection system will be configured to allow for the simultaneous injection of SLMW in Area 1 and injection of a carbon substrate solution in Area 2 during the Area 1 TDS reduction period. The injection equipment will be housed on an injection system skid. The injection skid will be approximately 18-feet long by 8-feet wide and will also have main control panel (MCP). One-inch diameter reinforced hose will be used to connect the injection system manifold to each of the injection wells.
- The subcontractor budget for the fabrication, installation, and start-up of the injection system is based on an estimate obtained from Clean Harbors, LLC. If Clean Harbors, LLC is unavailable to perform the work due to schedule constraints or other issues beyond the control of Tetra Tech, construction costs may vary. Tetra Tech plans to obtain final bids for the fabrication, installation, and start-up of the injection system following final design described in Task 1 above. Costs include a 15% field modification allowance to account for construction cost changes that may occur such as part availability and modifications in the injection system final configuration, as well as final details regarding delivery, unloading, and installation.

Extraction System

- The extraction system will consist of the components described in Section 5.1.3 of the Work Plan Addendum. The groundwater extraction system will be designed to support the reduction of TDS and distribution of the selected amendments. The extraction equipment will be housed on an extraction system skid. The extraction skid will be approximately 10-feet long by 8-feet wide and will be placed in secondary containment alongside the frac tanks discussed further below. One-inch diameter reinforced hosing will be used between the extraction wells and the manifold.
- The subcontractor budget for the fabrication, installation, and start-up of the extraction system is based on an estimate obtained from Clean Harbors, LLC (Clean Harbors). If Clean Harbors is unavailable to perform the work due to schedule constraints or other issues beyond the control of Tetra Tech, construction costs may vary. Tetra Tech plans to obtain final bids for the fabrication, installation, and

start-up of the extraction system following final design described in Task 1.1 above. Costs include a 15% field modification allowance to account for construction cost changes that may occur such as part availability and modifications in the extraction system final configuration, as well as final details regarding delivery, unloading, and installation.

- The budget for the extraction system includes purchase of 6 Grundfos pumps. Two pumps previously purchased for the extended groundwater extraction test completed in Phase I of the Treatability Study will be maintained as spares or incorporated into the extraction system if there is a desire to modify the planned system to include 8 active extraction wells. Purchase of additional pumps and associated connections will be required if evaluating a more robust extraction scenario consisting of more than 8 extraction wells is warranted based on data obtained during treatability study implementation.
- An electrical subcontractor will connect the extraction pumps to the EMD power supply. Electrical design drawings and permitting will be completed prior to the installation of electrical components as part of the site preparation activities. Costs for the electrical work were included in Task 1.2 described above.
- Tetra Tech will complete materials procurement, assembly, and installation of 18 wellhead assemblies.
- Tetra Tech will construct and install secondary containment around each individual extraction/injection wellhead to contain extracted groundwater in the event of a leak and to prevent accidental releases to the environment during operation and sampling activities.

Temporary Groundwater Accumulation

- Extracted groundwater will be temporarily staged in two frac tanks prior to transport to the designated GWETS Process Tank. Before the two frac tanks are staged in the vicinity of the Unit 4 Treatability Study Area, Clean Harbors will provide and install secondary containment berms for each frac tank capable of containing at least 110% of each tank volume in compliance with Resource Conservation and Recovery Act (RCRA) requirements. The secondary containment berms will be constructed on-site using a concrete F-rail system (i.e., precast concrete highway barriers) with a 60-mil thick liner with padding. The secondary containment rental costs are projected for 21 months, to account for start-up and tear-down time before and after the planned 18 months of system operation.
- An electrical subcontractor will furnish and install a high and high-high float switch within each frac tank and a leak detection sensor in each secondary containment unit associated with the wellheads and frac tanks. The float switches and leak detection sensors will be connected by a relay to turn off power to the pumps, if activated. Costs for the electrical work were included in Task 1.2 described above.
- The frac tanks must be certified as a RCRA-compliant tank system because the extracted groundwater during initial months of system operation is anticipated to be characteristically hazardous for chromium and chloroform and the tanks are not considered mobile tanks under RCRA regulations. The RCRA inspection will need to be conducted by a Nevada-licensed professional civil engineer and documented in a Tank System Assessment report to satisfy the requirements of 40 Code of Regulations, Part 265, Subpart J – Tanks, Section 265.192(a).

System Start-up

- Tetra Tech staff, including two non-Henderson staff and one Henderson staff will conduct start-up testing of the injection and extraction systems and all controls along with Clean Harbors over a period of 2 weeks. Budget includes travel for two senior engineers to participate in system start-up.

4.3 TASK 2 – OPERATION, MONITORING AND MAINTENANCE

Task 2 will consist of operating, monitoring, and maintenance of the injection/extraction system (Task 2.1) and effectiveness monitoring (Task 2.2). Tetra Tech will also complete the FGD. Preparation of the FGD will commence following completion of the pilot well testing and data evaluation (Task 1.4) and will be completed prior to commencing system operations. The budget for the FGD is included in Task 2.1.

Task 2.1a - Field Guidance Document

- As described in Work Plan Addendum Section 5.2.4, an FGD will be prepared for NDEP approval that will detail the operational procedures for the injection and extraction systems. The FGD will include relevant content from prior FGDs prepared for the Seep Well Field Treatability and Las Vegas Wash Pilot Studies, as well as appropriate lessons learned from those studies. The FGD will include the following:
 - Detailed descriptions of both the injection and extraction system and associated components;
 - Start-up testing procedures;
 - Batch mixing and injection procedures;
 - Monitoring and inspection procedures;
 - Maintenance procedures;
 - Descriptions of alarms and control panel processes;
 - Emergency contact information;
 - Drawings depicting system layout and design details;
 - Equipment specifications/manuals; and
 - Templates of relevant logs and forms.

Task 2.1b – System Operation, Monitoring, and Maintenance

- System operations will be in accordance with the FGD.
- For purposes of this budget estimate, it is assumed that injection system operations will be conducted 12 hours a day, 7 days a week, for 18 months. In Area 1, injection operations during the first 6 months will be limited to injection of SLMW with an oxygen scavenger only, followed by 12 months of carbon substrate injection. In Area 2, injection operations are assumed to consist of 12 months of carbon substrate injections. The extraction system will be run 24 hours a day, 7 days a week, for 18 months, excluding periodic routine system maintenance. The extraction wells within Area 1 will be operated for 18 months (6 months for the TDS reduction period and 12 months for ISB) and the extraction wells within Area 2 will be operated for 12 months. On-site operation activities including system monitoring and maintenance will be performed concurrently with injection system operation. The budget is based on one Tetra Tech personnel to be on-site for 12 hours per day and for an additional Tetra Tech personnel to assist for 4 hours per day. Based on initial correspondence with EMD, it is assumed that access to the EMD facility for Tetra Tech personnel will not be restricted to certain hours and will include both weekends and holidays. The on-site operator's tasks will include:
 - Daily inspections of system components;
 - Maintaining inventory of carbon substrate and amendments;
 - Managing transport and delivery of biosolids from the fluidized bed reactors;
 - Preparing batches of carbon substrate solution;
 - Recording and adjusting extraction volumes, flow rates, and pressures;
 - Recording and adjusting injection volumes, flow rates, and pressures;
 - Monitoring water levels in extraction tanks and coordinate vacuum truck transport;
 - Monitoring groundwater levels and water quality parameters;
 - Monitoring magnetic extensometers;
 - Maintaining system components; and
 - Trouble-shooting system alarms or issues.
- Carbon substrate quantities and injection volumes have been estimated as described in Section 5.1.2.1 and Appendix L of the Work Plan Addendum. The budget for the carbon substrate (molasses) and

associated amendments (sodium bicarbonate, Vitamin B-12, macronutrients, micronutrients, and an oxygen scavenger) required for the treatability study are based on costs (including delivery and tax) provided by chemical suppliers and professional experience. Estimated cost includes a 10% field modification allowance to account for additional substrate demand and fluctuations in pricing due to variable economic conditions.

- Estimated injection and extraction rates are documented in the Work Plan Addendum. Changes in the achievable injection or extraction rates may affect the time required to distribute substrate, and thus affect the time required for system operations to achieve the treatability study objectives presented in Section 4.3 of the Work Plan Addendum.
- Tetra Tech estimates that an allocation of \$2,000/month and \$325/month for anticipated electricity and SLMW water usage, respectively, for 18-months of system operation may be appropriate. This allocation is not included in Tetra Tech's estimated budget as these costs would be charged directly to the Trust from EMD.
- The budget includes a system maintenance allocation of \$1,000 per month for maintenance associated with operation of the injection and extraction systems including replacement parts such as pump seals, valves, gauges, and wear parts.
- Data will be downloaded by the operator on a monthly basis from the 12 multiparameter sondes installed in Area 1 and Area 2 monitoring wells for the first 12 months of system operation and on a monthly basis from 6 multiparameter sondes installed in Area 1 monitoring wells for the last 6 months of operation.
- Extracted groundwater will be transported from the frac tanks to the designated GWETS Process Tank using 5,000-gallon vacuum trucks. Operation of the extraction system as described in Section 5.2 of the Work Plan Addendum is anticipated to produce a combined extraction flow rate of 12 gpm, or 17,280 gallons/day during the first 12 months of operation and reduced extraction flow rate of 6 gpm, or 8,640 gallons/day during the last 6 months of operation when only extraction wells from Area 1 are operating. The estimated trucking costs are based on 4 hrs per day for the truck operator, and a weekly rate for a 5,000-gallon vacuum truck. The truck will remain on site; however, should it be necessary for the truck to leave the site, it will be tripled rinsed prior to leaving the site, with rinse water transported to either the designated GWETS Process Tank, or the GW-11 Pond. Trucking costs include operations on weekends and holidays, as necessary, and include 5% field modification allowance to account for minor fluctuations in flow rates. Based on the anticipated flow rates, the capacity of the frac tanks, and the truck capacity, typically three or four truckloads will be transported per day; however, the two frac tanks have a combined capacity of 40,000 gallons, allowing for days with no transport when properly planned.
- Vacuum trucks will utilize an existing access route between the Unit 4 Treatability Study Area and the designated GWETS Process Tank that allows trucks to stay on NERT property at all times. The budget includes estimated costs to complete minor repairs to the existing access road over the duration of the active extraction operations. The estimated cost is based on road repairs consisting of placing 15 tons of Type II aggregate once every 2 months for the planned 18 months operations. It is assumed that each round of repairs will take one day to complete.
- The frac tanks are considered continuous flow tanks as water is continually pumped into and out of the tanks. The estimated residence time in the tank is based on the mass balance approach. The influent water is expected at a rate of 12 gpm, or 17,280 gallons per day. The capacity of each frac tank is approximately 20,000 gallons; thus, the residence time assuming the two frac tanks are manifolded together is 2.3 days for the first 12 months of operation, and 4.6 days for the last 6 months of operation, far below the 90-day storage criteria imposed under RCRA regulations; therefore, the frac tanks will only require cleaning at the end of the project when they are taken out of service. Frac tanks will be cleaned and demobilized at the end of the project as discussed in Task 4, below.
- Non-field labor associated with this task includes the continuous management and analysis of data obtained from field activities including the following:

- Injection system O&M data;
- Extraction system O&M data;
- Field measurements and laboratory analytical data from system monitoring;
- Field measurements and laboratory analytical data from groundwater monitoring; and
- Multiparameter sonde data.

Analysis of this data will be performed continuously to support decisions regarding system operation and maintenance and evaluate conditions such as mass removal rates and chemical of potential concern (COPC) trends.

Exclusions on Operations

- Freeze protection has not been included in the design of the injection and extraction systems, nor in the implementation budget. The FGD will address process steps to drain hoses and piping.
- System operations include budget to transport water to the designated GWETS Process Tank on the NERT site; however, the budget does not include costs associated with conveying water from the repurposed Process Tanks into the GWETS for treatment, costs associated with water treatment in the GWETS, or costs associated with handling, transport, or disposal of any residuals (e.g. biomass or chromium precipitate sludge) remaining following water treatment. Per Trust request, this work, along with any required GWETS O&M to facilitate this study will be addressed separately

Extraction System Monitoring

- As described in Section 6.2 of the Work Plan Addendum, a sample will be collected from each active extraction well and one sample will be collected from the frac tanks each month during operations. Although the initial operation plan is for six active extraction wells, the budget is based on sampling 8 extraction wells during the first 12 months of system operation and sampling 4 extraction wells during the final 6 months of system operation to account for possible modifications to the extraction well scenarios. Analysis of samples will be performed in accordance with Table 13 of the Work Plan Addendum. Samples will be analyzed on a standard turnaround time basis. The budgetary estimate is based on 2020 analytical test rates from Pace and assumes rates remain unchanged for the duration of the project. Tetra Tech has included a 2.5% field modification allowance on all estimated analytical laboratory budgets to provide a small supplemental budget to occasionally collect and analyze additional samples if warranted based on evaluation of the data.

Dye Tracer Testing

- In accordance with Section 5.1.2.2 of the Work Plan Addendum, for a one-week period at the beginning of full-time operation of the injection system, rhodamine WT dye and fluorescein dye will be injected into select intermediate injection wells. The dye injections will occur at the beginning of the TDS reduction period in Area 1 and at the initiation of carbon substrate injections in Area 2. A total of 265 samples will be collected from the extraction wells and monitoring wells during the effectiveness monitoring program and submitted to Ozark Underground Laboratory, Inc. for analysis. The budgetary estimate is based on 2020 analytical test rates from OUL and assumes rates remain unchanged for the duration of the project. Costs also include sample shipping, 20 pounds of rhodamine dye, 20 pounds of fluorescein dye, and a handheld fluorometer.

Well Maintenance

- Well maintenance will be completed on select wells as needed as described in Section 5.2.3 of the Work Plan Addendum. The budget estimate is based on performing well maintenance activities on all 18 injection/extraction wells two times each throughout the first 12 months of operation and on 9 injection/extraction wells once throughout the last 6 months of operation. The subcontracted well maintenance budget was estimated based on a quote obtained from Cascade Drilling. If Cascade Drilling

is unavailable to perform the work due to schedule constraints or other issues beyond the control of Tetra Tech, well maintenance costs may vary. In this event, the Trust will be consulted and changes to the maintenance program will be approved by the Trust prior to field implementation.

- Tetra Tech oversight labor for the well maintenance program is based on Tetra Tech and Cascade Drilling's experience with well maintenance at the Seep Well Field Treatability Study. It is estimated that maintenance activities will require an 8-hour day for one rig and crew at each well. Tetra Tech assumes that maintenance will be performed in a manner that does not require complete shutdown of the system. Tetra Tech's oversight labor is based on one staff providing oversight of two Cascade well maintenance groups, thus a total of 23 field days over the course of the three well maintenance events.

Task 2.2 - Effectiveness Monitoring Program

The effectiveness monitoring program consists of groundwater monitoring activities including the collection of samples for laboratory analysis, field measurements of groundwater quality parameters, and obtaining data from multiparameter transducers. As described in the Work Plan Addendum and summarized in the table at the beginning of Section 4.0 of this document, there are several potential off-ramps/key decision points that may alter the scope, duration and costs of the project, including the effectiveness monitoring program.

Groundwater Monitoring

- It is assumed that Tetra Tech will perform bi-weekly, monthly, and quarterly groundwater sampling in accordance with Section 6.1 of the Work Plan Addendum for a 18-month period during active injection/extraction operations, followed by two post-treatment monitoring events for each area. The frequency of groundwater sampling, selected monitoring wells, and specific parameters to be sampled during each individual event may be adjusted based on the results from prior effectiveness monitoring events. To provide a conservative basis of estimate, the budgeted scope of work for the effectiveness monitoring program includes collection and analysis of a total of 486 standard groundwater samples and 260 QA/QC samples. Field QA/QC samples will also be collected and will include field duplicates, equipment blanks, field blanks, trip blanks, and MS/MSDs as noted in Section 6.3 of the Work Plan Addendum.
 - Area 1 Groundwater Monitoring Program
 - Pre-ISB Monthly Monitoring Events (6): 16 monitoring wells will be sampled initially and 7 monitoring wells will be sampled monthly for five months during the TDS reduction period. This includes a total of 51 standard groundwater samples and 38 QA/QC samples (7 field duplicates, 6 equipment blanks, 6 field blanks, 13 trip blanks, and 6 MS/MSDs).
 - Bi-weekly and Monthly Monitoring Events (9): 7 monitoring wells will be sampled during the two bi-weekly monitoring events during the first month of system operation and during seven subsequent monthly monitoring events. This includes a total of 63 standard groundwater samples and 38 QA/QC samples (9 field duplicates, 5 equipment blanks, 5 field blanks, 14 trip blanks, and 5 MS/MSDs).
 - Quarterly Monitoring Events (4): 24 monitoring wells will be sampled during four quarterly monitoring events. This includes a total of 96 standard groundwater samples and 48 QA/QC samples (10 field duplicates, 6 equipment blanks, 6 field blanks, 20 trip blanks, and 6 MS/MSDs).
 - Post-Treatment Monitoring Events (2): 33 wells (monitoring and injection/extraction wells) will be sampled during two post-treatment monitoring events. This includes a total of 66 standard groundwater samples and 27 QA/QC samples (7 field duplicates, 4 equipment blanks, 4 field blanks, 8 trip blanks, and 4 MS/MSDs).
 - Area 2 Groundwater Monitoring Program
 - Bi-weekly and Monthly Monitoring Events (9): 6 monitoring wells will be sampled during the two bi-weekly monitoring events during the first month of system operation and during seven subsequent monthly monitoring events. This includes a total of 54 standard

- groundwater samples and 34 QA/QC samples (9 field duplicates, 4 equipment blanks, 4 field blanks, 13 trip blanks, and 4 MS/MSDs).
- Quarterly Monitoring Events (4): 23 monitoring wells will be sampled during four quarterly monitoring events. This includes a total of 92 standard groundwater samples and 48 QA/QC samples (10 field duplicates, 6 equipment blanks, 6 field blanks, 20 trip blanks, and 6 MS/MSDs).
 - Post-Treatment Monitoring Events (2): 32 wells (monitoring and injection/extraction wells) will be sampled during two post-treatment monitoring events. This includes a total of 64 standard groundwater samples and 27 QA/QC samples (7 field duplicates, 4 equipment blanks, 4 field blanks, 8 trip blanks, and 4 MS/MSDs).
 - The budgetary estimate is based on 2020 analytical test rates from Pace and assumes rates remain unchanged for the duration of the project. All groundwater samples will be analyzed on a standard turn-around-time. Tetra Tech has included a 2.5% field modification allowance on all estimated analytical laboratory budgets to provide a small supplemental budget to occasionally collect and analyze additional samples if warranted based on evaluation of the data.
- In accordance with Section 6.1 of the Work Plan Addendum, Bio-traps® will be installed within wells located in the Unit 4 Treatability Study Area as part of the quarterly monitoring events conducted for each area during ISB. The estimated budget includes the installation of Bio-traps® in nested monitoring wells installed at three locations in Area 1 (resulting in 6 Bio-traps®) for four quarterly events and three locations in Area 2 (resulting in 6 Bio-traps®) for four quarterly events. Bio-traps® will remain in the wells for a period of approximately 30 days and then be retrieved for microbial analysis as listed in Section 6.1.3 of the Work Plan Addendum. All microbial samples will be submitted to Microbial Insights via Pace and analyzed on a standard turn-around-time. The budgetary estimate is based on 2020 analytical test rates from Microbial Insights that were included in the estimate provided by Pace and assumes all laboratory rates remain unchanged for the duration of the project. Tetra Tech has included a 2.5% field modification allowance on all estimated analytical laboratory budgets to provide a small supplemental budget to occasionally collect and analyze additional samples if warranted based on evaluation of the data.
 - ODCs include field equipment rentals for one groundwater sampling set-up for the bi-weekly and monthly monitoring events and two groundwater sampling set-ups for the quarterly and post-treatment monitoring events. The groundwater sampling set-up consists of a bladder pump, pump controller, multiparameter groundwater quality meter, water level meter, and colorimeter. Additional ODCs include the purchase of consumables such as disposable bladders, grab plates, gloves, ice for samples, and water for hydration sufficient for sampling the number of well planned for each event.
 - Labor costs have also been included to perform ongoing evaluation of the effectiveness monitoring results during the treatability study. This includes preparation of data tables, graphical depictions of analytical results, calculations associated with mass removal and COPC degradation over time, and internal discussion of results, which will be used in the decision-making process to determine the system operation conditions and system operation duration.

Data Validation and Management

- Data validation will be performed as described in Section 6.3 of the Work Plan Addendum. Data validation costs for the baseline and effectiveness monitoring program are based on validation of a total of 834 samples (551 primary samples plus 283 quality control samples consisting of 66 field duplicates, 39 equipment blanks, 39 field blanks, 100 trip blanks, and 39 MS/MSDs). Data validation costs for the extraction system monitoring program are based on validation of a total of 168 samples (132 primary samples plus 36 quality control samples consisting of 18 field duplicates and 18 MS/MSDs).

4.4 TASK 3 – REPORTING

This task includes engineering and technical labor to prepare UIC semi-annual reports, monthly progress updates, extraction reports associated with the Water Appropriations Permit, and the final Unit 4 Source Area In-Situ Bioremediation Treatability Study Results Report that includes the components listed in Section 8.0 of the Work Plan Addendum. The budget includes an estimate to prepare and submit the following documents:

- UIC Semi-Annual Reports (Section 7.2 of the Work Plan Addendum) – budget estimate includes five reports submitted on a semi-annual basis.
- Annual Groundwater Extraction Reports (Section 7.3 of the Work Plan Addendum) – budget estimate includes three reports submitted on an annual basis.
- Monthly Progress Updates (Section 8.0 of the Work Plan Addendum) – budget estimate includes 35 monthly reports, beginning in June 2021 and continuing through April 2024.
- Unit 4 Source Area In-Situ Bioremediation Treatability Study Results Report (Section 8.0 of the Work Plan Addendum) – budget estimate includes preparation and submittal of the results report, which includes a data validation summary report for both Phase 1 and 2 samples. The basis of estimate includes draft submittal for Trust review and comment, revised draft submittal addressing Trust comments, assembling a final report for Trust submittal to NDEP, and revised report and response to comment matrix addressing NDEP comments. The budget for this report is based on prior experience with treatability study reporting, including anticipated level of effort required to respond to comments received from the Trust, NDEP, and Stakeholders.

4.5 TASK 4 – SYSTEM DEMOBILIZATION

This task includes labor and subcontractor costs for the demobilization of the injection/extraction system and office trailer, disconnect of all electrical components, and tank cleaning prior to the demobilization of the frac tanks. The costs include having the injection/extraction system removed from the Site; however, Tetra Tech will actively seek alternative options through consultation with the Trust to reuse the injection/extraction system, in whole or in part, at the Site. All decontamination and rinse water will be transported to the designated GWETS Process Tank. The frac tanks will be transported to the NERT Site prior to cleaning consistent with the frac tank cleaning performed during Phase 1. This task also includes the removal and disposal of piping and miscellaneous materials associated with the injection/extraction systems. The estimate assumes that the piping and miscellaneous materials will be able to be disposed of as non-hazardous.

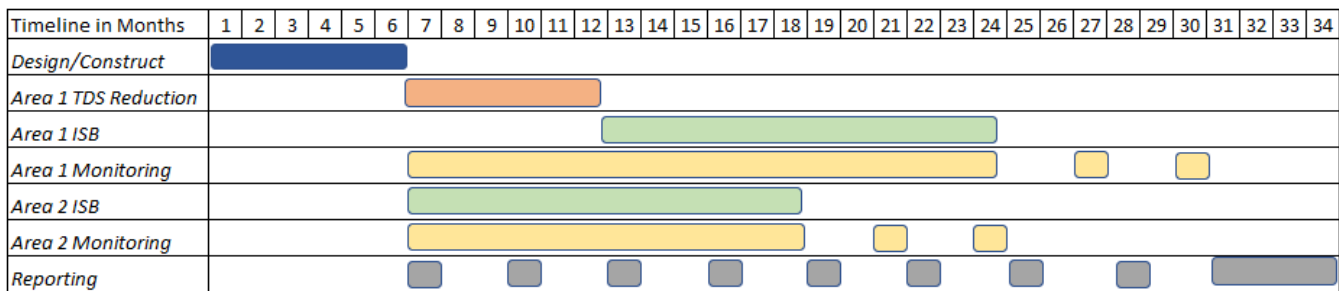
All wells and the magnetic extensometers will be left in place and no abandonment costs have been included in this budget estimate.

5.0 SCHEDULE

The overall project duration is estimated and budgeted for 34 months.

- Permitting and Installation Activities – 6 months, including a key decision based on the data associated with the pilot well installation and testing.
- Injection and Extraction Operations – 18 months (assumed) including a key decision regarding ending or extending the study.
- Effectiveness Monitoring during operations – 18 months (assumed), concurrent with operations.
- Effectiveness Monitoring after operations – 2 non-concurrent months, 6 months of total duration
- Miscellaneous Reporting – Various reports and presentations throughout the study.
- Treatability Study Results Report – 4 months, following final monitoring event.

Assuming work is authorized and funded to begin in September 2021, it is anticipated the final report will be submitted in July 2024. The following chart portrays the activity durations assumed for budgeting purposes. Actual durations may vary depending on field conditions, implementation and monitoring results, the outcome of off-ramp/key decisions, and consultation with the Trust.



Tables

Table 1 - Detailed Budget 22-Jul-21
 Unit 4 Area In-Situ Bioremediation Treatability Study - Phase 2
 Nevada Environmental Response Trust Attention: Andrew Steinberg

| Phases / Tasks | | | | Task 1.1 Permitting and Pre-Implementation Coordination | | Task 1.2 Site Preparation | | Task 1.3 Pilot Well Testing | | Task 1.4 Injection, Extraction, and Monitoring Well Installation | | Task 1.5 Aquifer Testing, Baseline Sampling, and GW Modeling Update | | Task 1.6 System Installation and Start-up | | Task 2.1 System Operation, Monitoring & Maintenance | | Task 2.2 Performance Monitoring and Data Management | | Task 3 Reporting | | Task 4 System Demobilization | |
|--|-----------|---------------------|------------------------|--|---------------------|------------------------------|----------------------|--------------------------------|----------------------|---|----------------------|--|----------------------|--|----------------------|--|------------------------|--|----------------------|---------------------|----------------------|---------------------------------|---------------------|
| | Hrly Rate | Tot Est. Hrs | Total Est. Cost | Hours | Cost | Hours | Cost | Hours | Cost | Hours | Cost | Hours | Cost | Hours | Cost | Hours | Cost | Hours | Cost | Hours | Cost | Hours | Cost |
| Tetra Tech Labor | | | | | | | | | | | | | | | | | | | | | | | |
| Principal Specialist | \$258.00 | 260.0 | \$ 67,080.00 | 4.0 | \$ 1,032.00 | - | \$ - | - | \$ - | 4.0 | \$ 1,032.00 | 10.0 | \$ 2,580.00 | 8.0 | \$ 2,064.00 | 109.0 | \$ 28,122.00 | 27.0 | \$ 6,966.00 | 98.0 | \$ 25,284.00 | - | \$ - |
| Sr Program Manager | \$225.00 | 186.0 | \$ 41,850.00 | 6.0 | \$ 1,350.00 | - | \$ - | 12.0 | \$ 2,700.00 | 24.0 | \$ 5,400.00 | 24.0 | \$ 5,400.00 | 12.0 | \$ 2,700.00 | 46.0 | \$ 10,350.00 | 50.0 | \$ 11,250.00 | 8.0 | \$ 1,800.00 | 4.0 | \$ 900.00 |
| Principal | \$213.00 | 212.0 | \$ 45,156.00 | 42.0 | \$ 8,946.00 | 22.0 | \$ 4,686.00 | 8.0 | \$ 1,704.00 | 8.0 | \$ 1,704.00 | 8.0 | \$ 1,704.00 | 45.0 | \$ 9,585.00 | 41.0 | \$ 8,733.00 | 12.0 | \$ 2,556.00 | 24.0 | \$ 5,112.00 | 2.0 | \$ 426.00 |
| Sr Consultant | \$210.00 | 1,918.0 | \$ 402,780.00 | 85.0 | \$ 17,850.00 | 36.0 | \$ 7,560.00 | 21.0 | \$ 4,410.00 | 133.0 | \$ 27,930.00 | 75.0 | \$ 15,750.00 | 80.0 | \$ 16,800.00 | 746.0 | \$ 156,660.00 | 74.0 | \$ 15,540.00 | 660.0 | \$ 138,600.00 | 8.0 | \$ 1,680.00 |
| Sr Project Manager | \$188.00 | 978.0 | \$ 183,864.00 | 9.0 | \$ 1,692.00 | 27.0 | \$ 5,076.00 | 11.0 | \$ 2,068.00 | 34.0 | \$ 6,392.00 | 6.0 | \$ 1,128.00 | 10.0 | \$ 1,880.00 | 109.0 | \$ 20,492.00 | 589.0 | \$ 110,732.00 | 178.0 | \$ 33,464.00 | 5.0 | \$ 940.00 |
| Project Engineer/Scientist III | \$175.00 | 352.0 | \$ 61,600.00 | 8.0 | \$ 1,400.00 | 14.0 | \$ 2,450.00 | 17.0 | \$ 2,975.00 | 23.0 | \$ 4,025.00 | 26.0 | \$ 4,550.00 | 23.0 | \$ 4,025.00 | 83.0 | \$ 14,525.00 | 45.0 | \$ 7,875.00 | 106.0 | \$ 18,550.00 | 7.0 | \$ 1,225.00 |
| Project Engineer/Scientist II | \$165.00 | 983.0 | \$ 162,195.00 | - | \$ - | - | \$ - | - | \$ - | 15.0 | \$ 2,475.00 | 16.0 | \$ 2,640.00 | - | \$ - | 66.0 | \$ 10,890.00 | 713.0 | \$ 117,645.00 | 173.0 | \$ 28,545.00 | - | \$ - |
| Project Engineer/Scientist I | \$145.00 | 523.0 | \$ 75,835.00 | 13.0 | \$ 1,885.00 | 15.0 | \$ 2,175.00 | 22.0 | \$ 3,190.00 | 36.0 | \$ 5,220.00 | 27.0 | \$ 3,915.00 | 33.0 | \$ 4,785.00 | 175.0 | \$ 25,375.00 | 74.0 | \$ 10,730.00 | 122.0 | \$ 17,690.00 | 6.0 | \$ 870.00 |
| Sr Project Controls Specialist | \$140.00 | 19.0 | \$ 2,660.00 | - | \$ - | - | \$ - | - | \$ - | 3.0 | \$ 420.00 | 3.0 | \$ 420.00 | - | \$ - | 7.0 | \$ 980.00 | 6.0 | \$ 840.00 | - | \$ - | - | \$ - |
| Sr Staff | \$137.00 | 6,128.5 | \$ 839,604.50 | 13.0 | \$ 1,781.00 | 8.0 | \$ 1,096.00 | 73.0 | \$ 10,001.00 | 557.0 | \$ 76,309.00 | 191.0 | \$ 26,167.00 | 210.0 | \$ 28,770.00 | 3,993.5 | \$ 547,109.50 | 790.0 | \$ 108,230.00 | 213.0 | \$ 29,181.00 | 80.0 | \$ 10,960.00 |
| Staff II | \$127.00 | 3,970.0 | \$ 504,190.00 | 144.0 | \$ 18,288.00 | 65.0 | \$ 8,255.00 | 285.0 | \$ 36,195.00 | 611.0 | \$ 77,597.00 | 106.0 | \$ 13,462.00 | 184.0 | \$ 23,368.00 | 1,258.0 | \$ 159,766.00 | 518.0 | \$ 65,786.00 | 755.0 | \$ 95,885.00 | 44.0 | \$ 5,588.00 |
| Staff I | \$117.00 | 313.0 | \$ 36,621.00 | 8.0 | \$ 936.00 | 6.0 | \$ 702.00 | 31.0 | \$ 3,627.00 | 24.0 | \$ 2,808.00 | 97.0 | \$ 11,349.00 | 4.0 | \$ 468.00 | 72.0 | \$ 8,424.00 | 35.0 | \$ 4,095.00 | 27.0 | \$ 3,159.00 | 9.0 | \$ 1,053.00 |
| Sr Technician | \$100.00 | 7,637.0 | \$ 763,700.00 | 108.0 | \$ 10,800.00 | 44.0 | \$ 4,400.00 | 36.0 | \$ 3,600.00 | 123.0 | \$ 12,300.00 | 116.0 | \$ 11,600.00 | 64.0 | \$ 6,400.00 | 6,799.0 | \$ 679,900.00 | 121.0 | \$ 12,100.00 | 223.0 | \$ 22,300.00 | 3.0 | \$ 300.00 |
| Document Management | \$95.00 | 212.0 | \$ 20,140.00 | 10.0 | \$ 950.00 | 1.0 | \$ 95.00 | 6.0 | \$ 570.00 | 1.0 | \$ 95.00 | - | \$ - | 8.0 | \$ 760.00 | 40.0 | \$ 3,800.00 | 12.0 | \$ 1,140.00 | 130.0 | \$ 12,350.00 | 4.0 | \$ 380.00 |
| Technician | \$90.00 | 1,263.0 | \$ 113,670.00 | - | \$ - | - | \$ - | 16.0 | \$ 1,440.00 | 8.0 | \$ 720.00 | 4.0 | \$ 360.00 | - | \$ - | 1,087.0 | \$ 97,830.00 | 16.0 | \$ 1,440.00 | 130.0 | \$ 11,700.00 | 2.0 | \$ 180.00 |
| Subtotal Tetra Tech Labor | | 24,954.5 hrs | \$ 3,320,945.50 | 450.0 | \$ 66,910.00 | 238.0 | \$ 36,495.00 | 538.0 | \$ 72,480.00 | 1,604.0 | \$ 224,427.00 | 709.0 | \$ 101,025.00 | 681.0 | \$ 101,605.00 | 14,631.5 | \$ 1,772,956.50 | 3,082.0 | \$ 476,925.00 | 2,847.0 | \$ 443,620.00 | 174.0 | \$ 24,502.00 |
| --Total Tetra Tech Labor | | | \$ 3,320,945.50 | | \$ 66,910.00 | | \$ 36,495.00 | | \$ 72,480.00 | | \$ 224,427.00 | | \$ 101,025.00 | | \$ 101,605.00 | | \$ 1,772,956.50 | | \$ 476,925.00 | | \$ 443,620.00 | | \$ 24,502.00 |
| Subcontractors | | | Total Est. Cost | | Cost | | Cost | | Cost | | Cost | | Cost | | Cost | | Cost | | Cost | | Cost | | Cost |
| Geophysical Survey | | | \$ 2,205.00 | | \$ 2,205.00 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - |
| Land Survey | | | \$ 8,662.50 | | \$ 4,725.00 | | \$ - | | \$ 2,625.00 | | \$ 1,312.50 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - |
| Steel Plates Placement, Rental, Removal | | | \$ 17,640.00 | | \$ - | | \$ 17,640.00 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - |
| Automatic Gate | | | \$ 56,017.50 | | \$ - | | \$ 56,017.50 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - |
| Drilling | | | \$ 737,845.50 | | \$ - | | \$ 29,562.75 | | \$ 90,636.00 | | \$ 617,646.75 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - |
| Extensometers Equip | | | \$ 7,619.85 | | \$ - | | \$ 7,619.85 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - |
| Waste Disposal | | | \$ 35,515.04 | | \$ - | | \$ 1,743.00 | | \$ 3,255.00 | | \$ 30,517.04 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - |
| Electrical Connections and Controls | | | \$ 185,576.11 | | \$ - | | \$ 185,576.11 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - |
| Analytical Laboratory | | | \$ 434,850.70 | | \$ - | | \$ - | | \$ 2,422.22 | | \$ - | | \$ 53,474.56 | | \$ - | | \$ 31,312.42 | | \$ 347,641.50 | | \$ - | | \$ - |
| Transport Water | | | \$ 440,421.45 | | \$ - | | \$ - | | \$ 4,452.00 | | \$ - | | \$ 6,678.00 | | \$ - | | \$ 429,291.45 | | \$ - | | \$ - | | \$ - |
| Injection/Extraction System | | | \$ 270,842.25 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ 270,842.25 | | \$ - | | \$ - | | \$ - | | \$ - |
| Frac Tanks | | | \$ 56,674.01 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ 56,674.01 | | \$ - | | \$ - | | \$ - |
| Dye Testing | | | \$ 22,575.00 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ 22,575.00 | | \$ - | | \$ - | | \$ - |
| Road Maintenance | | | \$ 35,437.50 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ 35,437.50 | | \$ - | | \$ - | | \$ - |
| Well Maintenance | | | \$ 131,670.00 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ 131,670.00 | | \$ - | | \$ - | | \$ - |
| Frac Tank Demobilization | | | \$ 9,450.00 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ 9,450.00 |
| Trailer Demobilization | | | \$ 3,675.00 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ 3,675.00 |
| Injection/Extraction System Demobilization | | | \$ 28,612.50 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ 28,612.50 |
| Subtotal Subcontractors | | | \$ 2,485,289.91 | | \$ 6,930.00 | | \$ 298,159.21 | | \$ 103,390.22 | | \$ 649,476.29 | | \$ 60,152.56 | | \$ 270,842.25 | | \$ 706,960.38 | | \$ 347,641.50 | | \$ - | | \$ 41,737.50 |
| --Total Subcontractors | | | \$ 2,485,289.91 | | \$ 6,930.00 | | \$ 298,159.21 | | \$ 103,390.22 | | \$ 649,476.29 | | \$ 60,152.56 | | \$ 270,842.25 | | \$ 706,960.38 | | \$ 347,641.50 | | \$ - | | \$ 41,737.50 |
| Other Direct Costs | | | Total Est. Cost | | Cost | | Cost | | Cost | | Cost | | Cost | | Cost | | Cost | | Cost | | Cost | | Cost |
| Permit Fee | | | \$ 1,500.00 | | \$ 1,500.00 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - |
| Field Office | | | \$ 16,164.86 | | \$ - | | \$ 16,164.86 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - |
| SLMW Connection Materials and Equipment | | | \$ 5,250.00 | | \$ - | | \$ 5,250.00 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - |
| Travel Allocation | | | \$ 161,316.54 | | \$ - | | \$ 5,943.00 | | \$ 14,454.30 | | \$ 31,237.50 | | \$ 5,880.00 | | \$ 16,739.10 | | \$ 64,648.50 | | \$ 22,414.14 | | \$ - | | \$ - |
| Field Equipment | | | \$ 140,501.52 | | \$ - | | \$ - | | \$ 6,588.75 | | \$ 2,415.00 | | \$ 20,475.00 | | \$ 1,186.50 | | \$ 34,023.12 | | \$ 75,813.15 | | \$ - | | \$ - |
| Multiparameter Sondes | | | \$ 112,325.30 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ 112,325.30 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - |
| Wellhead Assembly Materials (18) | | | \$ 47,250.00 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ 47,250.00 | | \$ - | | \$ - | | \$ - | | \$ - |
| Carbon Substrate | | | \$ 72,123.32 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ 72,123.32 | | \$ - | | \$ - | | \$ - |
| Amendments | | | \$ 28,100.69 | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ - | | \$ 28,100.69 | | \$ - | | \$ - | | \$ - |
| Subtotal Other Direct Costs | | | \$ 584,532.22 | | \$ 1,500.00 | | \$ 27,357.86 | | \$ 21,043.05 | | \$ 33,652.50 | | \$ 138,680.30 | | \$ 65,175.60 | | \$ 198,895.62 | | \$ 98,227.29 | | \$ - | | \$ - |
| --Total Other Direct Costs | | | \$ 584,532.22 | | \$ 1,500.00 | | \$ 27,357.86 | | \$ 21,043.05 | | \$ 33,652.50 | | \$ 138,680.30 | | \$ 65,175.60 | | \$ 198,895.62 | | \$ 98,227.29 | | \$ - | | \$ - |
| Project/Task --Total | | | \$ 6,390,767.63 | | \$ 75,340.00 | | \$ 362,012.06 | | \$ 196,913.27 | | \$ 907,555.79 | | \$ 299,8 | | | | | | | | | | |