



Resource Technologies, Inc.

1050 East Main Street Suite 4, Bozeman, MT 59715

Internet: mail@rtimt.com • Voice: (406) 585-8005 • Telefax: (406) 585-0069

April 12, 2019

Latysha Pankratz
Montana Department of Environmental Quality
Petroleum Tank Cleanup Section
PO Box 200901
Helena, Montana 59620

Subject: Work Plan Modification;
Stagecoach Inn; 209 Madison Avenue; West Yellowstone, Montana
Facility ID 16-00464, Release 3358, Workplan 10910

Responsible Party: Pat Povah & Neil Pringle
Ventures West, Inc.
24 Faithful Street, West Yellowstone, MT 59758
Contact: (406) 646-9290

Dear Ms. Pankratz,

On behalf of Mr. Povah and Mr. Pringle Resource Technologies, Inc. (RTI), is submitting the following work plan modification for subsurface soil investigation associated with the petroleum release at the Stagecoach Inn located at 209 Madison Avenue in West Yellowstone, Montana. This work plan was prepared pursuant to the Montana Department of Environmental Quality (MDEQ) – Petroleum Tank Cleanup Section (PTCS) letter to Mr. Povah and Mr. Pringle dated March 6, 2019. The original work plan was submitted August 21, 2018.

SCOPE OF WORK

Concentrations of diesel range hydrocarbons in groundwater at the Facility during the most recent sampling event completed in November 2018 continue to exceed the Tier 1 risk-based screening levels (RBSLs) for groundwater established by MDEQ. After review of the release file, reports, and analytical results, MDEQ discussed data gaps with Joe Laudon of RTI and determined a modification to the scope of work would be

necessary to complete the Release Closure Plan. The purpose of the subsurface investigation is to collect information on soil conditions in the source area and evaluate the viability of Soil Vapor Extraction (SVE) as a remedial option. Specific objectives of the subsurface investigation described herein are to:

- Install up to 20 subsurface soil borings using Direct Push Technology (DPT) and field screen soil samples;
- Submit selected soil samples for laboratory analysis;
- Install four monitoring wells and collect groundwater samples from newly installed wells;
- Submit groundwater samples for laboratory analysis;
- Validate laboratory data;
- Conduct SVE Pilot Study; and
- Prepare a Standardized Generic Application Report (AR-07).

Project Management

RTI will manage and coordinate all aspects of the project including planning, collection of samples, analysis of data, and reporting. Work plan tasks and laboratory reports will be discussed with MDEQ's project manager; agreed upon work plan modifications will be submitted in writing as required to complete the work plan objectives.

RTI will notify Mr. Pat Provah and Neil Pringle of upcoming field activities.

RTI will update the existing Site Health & Safety Plan for the planned field activities.

The one-call underground utility locate service will be contacted to identify public utilities near the soil boring and monitoring well locations. Private utilities will be researched through public records and identified based on review of existing maps.

RTI will obtain the necessary encroachment permit from the Town of West Yellowstone to complete soil borings and install monitoring wells in the public way along Madison Avenue and the common area south of the alley. The Town of West Yellowstone has requested that work not be completed during their busy season (May 5 through September 15).

DPT Soil Borings

Areas for DPT soil borings are shown on the attached map and include the fuel oil source area south of the building, the former Underground Storage Tank (UST) location west of the Shop building, and the open area extending from the UST basin to the west towards MW-1A. A work zone will be established around the drill rig and support vehicles to reroute traffic and provide pedestrian control.

The soil borings will be advanced using a DPT rig to the target depth of 40 feet. The estimated depth to water is 35 to 40 feet. DPT systems use a hydraulic and percussion method of advancing a small diameter steel probe (with a disposable PVC liner). Soil

samples will be continuously collected from each borehole. Following sample collection, each borehole will be abandoned using bentonite chips, and the surface restored with like material of original condition.

Soil characteristics (including color, texture, moisture content, etc.) in each borehole will be documented by the RTI scientist supervising drilling activities using USCS logging on a soil borehole log. Soil samples will be field screened for the presence of organic vapors using a photoionization detector (PID) and standard headspace methods.

The soil sample from each borehole exhibiting the highest PID reading and the sample collected immediately above the soil groundwater interface will be submitted for laboratory analysis. If PID readings are elevated in the surface sample (0'-2') and near surface samples (2'-10'), these samples will be retained for possible laboratory analysis. Only a representative number of surface and near surface sample will be submitted to the laboratory for purposes of evaluating direct contact pathway. If PID readings are not elevated, only the sample from the soil-groundwater interface will be submitted for laboratory analysis.

All downhole drilling and sampling equipment will be pressure washed with hot water prior to initiating the investigation and between locations to prevent possible cross-contamination.

Laboratory Analysis. The soil samples will be placed on ice and transported under chain-of-custody procedures to the laboratory for Extractable Petroleum Hydrocarbons (EPH) Screen analyses within the required holding times. Soil samples exceeding the EPH screening limit (200 mg/kg) will be further analyzed for EPH fractions. Soil samples collected from around the UST basin and any surface/near surface samples will also be analyzed for Volatile Petroleum Hydrocarbons (VPH).

Monitoring Well Installation

Proposed Monitoring Well locations are shown on the attached map and include a well west of MW-2, a well north of the building, a well west of MW-1A, and a well north of MW-1A and the UST basin.

Soil borings will be completed with a hollow-stem auger drill rig. A hammer will be used to drive standard, split-spoon samplers to a total penetration of 18 to 24 inches below the tip of the lead auger. Samples will be collected at approximate ten-foot intervals to the bottom depth (\approx 50 feet). The estimated depth to water is 37 feet. The split-spoon sampler will be cleaned in a detergent wash and distilled water rinse after each sample is obtained.

Soil characteristics (including color, texture, moisture content, etc.) in each borehole will be documented by the RTI scientist supervising drilling activities using USCS logging on a soil borehole log. Soil samples will be field screened for the presence of organic vapors using a standard headspace method.

The soil sample from each borehole exhibiting the highest PID reading and the sample collected immediately above the soil groundwater interface will be submitted for laboratory analysis. If PID readings are not elevated, only the sample from the soil-groundwater interface will be submitted for laboratory analysis.

The soil borings will be completed as groundwater monitoring wells. Monitoring wells will be constructed using two-inch schedule 40 PVC casing and 0.020-inch well screen. Screen lengths will be 20 feet and will be positioned to intercept the water table allowing for seasonal fluctuations. The remainder of the borehole will be completed with schedule 40 PVC solid riser pipe to grade. A filter pack composed of 10/20 silica sand will be placed in the borehole annulus to a depth of no less than two feet above the screen. A bentonite seal will be placed above the sand filter pack. The well will be fitted with a locking expandable well cap, and the wellhead will be completed in a traffic-rated flush-mount manhole set in concrete.

Laboratory Analysis. The soil samples will be placed on ice and transported under chain-of-custody procedures to the laboratory for EPH Screen analyses within the required holding times. Soil samples exceeding the EPH screening limit will be further analyzed for EPH fractions. The soil samples from the monitoring well north of the UST basin will also be analyzed for VPH.

Well Development. The newly installed monitoring wells will be developed by surging and-pumping. Pumping will continue until either the water becomes clear or until the visual turbidity of the groundwater no longer improves. The wells will be allowed to equilibrate for at least 24 hours prior to sampling.

Well Surveying and Mapping. The new and existing wells will be surveyed by a licensed Public Land Surveyor. Vertical control based on a USGS benchmark and elevation will be reported to the nearest 0.01 feet. Locations (horizontal control) of the monitoring wells will be measured relative to site features (buildings, road boundaries, utilities, etc.).

SVE Pilot Study

A pilot study using SVE will be conducted to determine its effectiveness as a remedial technology option. To facilitate the pilot study, one SVE well and two vapor points will be installed. The locations of the SVE well and vapor points will be determined on the basis of direct push sampling results.

Vapor Points Installation. The DPT rig will also be used to install two vapor points around the SVE Well. These vapor points will be used to test the lateral and vertical permeability of the subsurface soils to evaluate the radius of influence. The bottom depth of the vapor points will be approximately 30 feet. Vapor points will be installed at distances of 25 and 50 feet from the intended SVE well location. Soil samples will be evaluated in the field, but no samples are expected to be submitted for laboratory analysis. Vapor points wells will be constructed using one-inch schedule 40 PVC casing and 0.010-inch well screen. Screen lengths will be 5 feet and the remainder of the borehole will be completed with schedule 40 PVC solid riser pipe to grade. A filter pack composed of 10/20 silica sand will be placed in the borehole annulus to a depth of no less than two feet above the screen. A bentonite seal will be placed above the sand filter pack. The vapor point will be fitted with a locking expandable well cap, and the wellhead will be completed in a traffic-rated flush-mount manhole set in concrete.

SVE Well Installation. The hollow-stem auger rig will also be used to install an SVE Well for the pilot test (and possible future groundwater monitoring). The bottom depth of the SVE well will be approximately 40 feet. The SVE Well will be constructed using four-inch schedule 40 PVC casing and 0.020-inch well screen. Screen length will be 10 feet. The remainder of the borehole will be completed with schedule 40 PVC solid riser pipe to grade. A filter pack composed of 10/20 silica sand will be placed in the borehole annulus to a depth of no less than two feet above the screen. A bentonite seal will be placed above the sand filter pack. The well will be fitted with a locking expandable well cap, and the wellhead will be completed in a traffic-rated flush-mount manhole set in concrete.

24-hour Pilot Test. The SVE Well will be used as the extraction well. Prior to commencing the test, soil vapor pressure readings will be collected from the extraction well and vapor monitoring points to determine if there is any difference between air pressure and soil-vapor pressure. During the test, air will be extracted from the SVE Well with a portable, 2-horsepower blower. Vacuum exerted by the blower will be measured with an in-line pressure gauge. Volatile organic compounds (VOCs) concentration in SVE discharge will be measured with a PID calibrated with 100 parts per million (ppm) isobutylene standard span gas. Concentrations of oxygen (O₂) and carbon dioxide (CO₂) in SVE discharge will be measured with a multi-gas meter. Soil vapor pressure at vapor monitoring points will be measured using a magnehelic gauge array with a measuring range of 0.01 to 100 inches of water. Monitoring data will be collected at approximate 30 minute intervals for the first hour of the test and at approximate one hour intervals thereafter. The duration of the pilot test will be 24 hours.

Air Sample Collection and Laboratory Analysis. Immediately prior to shutting off the blower at the end of the test, a discharge sample will be collected in a 1 liter Tedlar bag from the discharge line of the blower. The air sample will be transported under chain-of-custody procedures to the laboratory for VPH analysis.

Groundwater Monitoring

Groundwater monitoring will be conducted during high (June/July 2019) seasonal water level conditions. A work zone will be established around the well and support vehicle during sampling to reroute traffic and provide pedestrian control.

Water level measurements will be obtained from all Facility wells using an electronic water level indicator. Water levels in wells suspected of containing free product will be measured with an oil-water interface probe.

Groundwater samples will be collected from the newly installed wells. The wells will be sampled with a stainless-steel low-flow submersible pump and clean vinyl tubing. During sampling, groundwater stabilization parameters including pH, oxidation/reduction potential, conductance, dissolved oxygen, and turbidity will be monitored and recorded on a groundwater sampling log. When groundwater parameters have stabilized in accordance with Section 2.5 of *Groundwater Sampling Guidance* (MDEQ Contaminated Site Bureau [DEQ-WMRD-GWM-1], March 6, 2018), groundwater samples will be collected in laboratory provided containers, and appropriately preserved as specified by each analytical method.

After each water level measurement, the probes will be decontaminated using a detergent wash followed by a distilled water rinse. Following sample collection at each location, sampling pumps, cables, and flow-through cell with probes, will be decontaminated by cycling the pump in a detergent wash, tap water rinse and distilled water final rinse.

Laboratory Analysis. The groundwater samples will be placed on ice and transported under chain-of-custody procedures to the laboratory for VPH and EPH Screen analyses within the required holding times. Water samples exceeding the EPH screening limit (1,000 µg/l) will be further analyzed for EPH fractions.

Disposal of Investigation-Derived Waste

Obviously contaminated soil will be segregated and stockpiled on plastic sheeting pending analysis and proper disposal of the material. The remaining “clean” soil will be spread on open surfaces within the property boundaries. Development and purge water will be handled and disposed in accordance the MDEQ Purgewater Disposal Flow Chart.

Data Validation

Following receipt of the analytical reports from the laboratory, RTI will validate the analytical data using MDEQ Data Validation Summary Forms.

Evaluation and Reporting

Upon completion of all work tasks described in the previous sections and receipt of analytical data, RTI will prepare and submit a Standardized Abbreviated Generic Application Report (AR-07) that will consist of a Standardized Abbreviated Soil Boring and Monitoring Well Installation Report (AR-03) and a Standardized Groundwater Monitoring Report (MR-01). The Report AR-07 will also include the following:

- Discussion of all field work conducted with detailed procedural descriptions and data interpretation (lithology, hydrogeology, groundwater monitoring results, and contaminant trends);
- Results of the SVE pilot study;
- Updated site map, potentiometric map and plume maps;
- Tabular presentation of soil data and cumulative groundwater data;
- Conclusion section that summarizes current site conditions and identifies data gaps that may exist following proposed subsurface investigation; and
- Recommendation section for future work to resolve the release, supported by the discussion and conclusions;

Soil boring logs, well completion records, groundwater sampling logs, laboratory reports, and data validation checklists will be appended to the report.

The Release Closure Plan (RCP) included in the original scope will be appended to the AR-07 Report.

Electronic versions of the report will be submitted as required by MDEQ. A hard copy of the report will be submitted to Mr. Povah and Mr. Pringle.

SCHEDULE AND BUDGET

Following approval of this work plan by MDEQ, RTI will obtain the necessary encroachment permit from the Town of West Yellowstone. They have advised RTI that the work has to be completed before May 5th or after September 15th to avoid their busy season. We anticipate that the DPT soil borings will be completed in four days. The soil boring data will be reviewed to best position the monitoring wells to enhance the groundwater monitoring network. We expect that the well installation and development will be completed in four days. The SVE pilot test will be completed in two days. The groundwater monitoring event will be completed in two days. The combined subsurface investigation and groundwater monitoring report will be submitted within 30 days following receipt of all laboratory results for the 2019 project activities.

The attached Cost Estimate Detail provides a breakdown of costs for the soil boring, well installation, SVE pilot test, and groundwater monitoring. Soil boring and well installation estimates were submitted by qualified DPT contractors and drillers (see attached).

The attached groundwater sampling worksheet provides a breakdown of costs the four new wells only. The total estimated cost of the CAP Modification for the Stagecoach Inn is \$72,085.97.

Respectfully Submitted,
Resource Technologies, Inc.



Joe Laudon
Hydrogeologist

Attachments

cc: Pat Povah & Neil Pringle

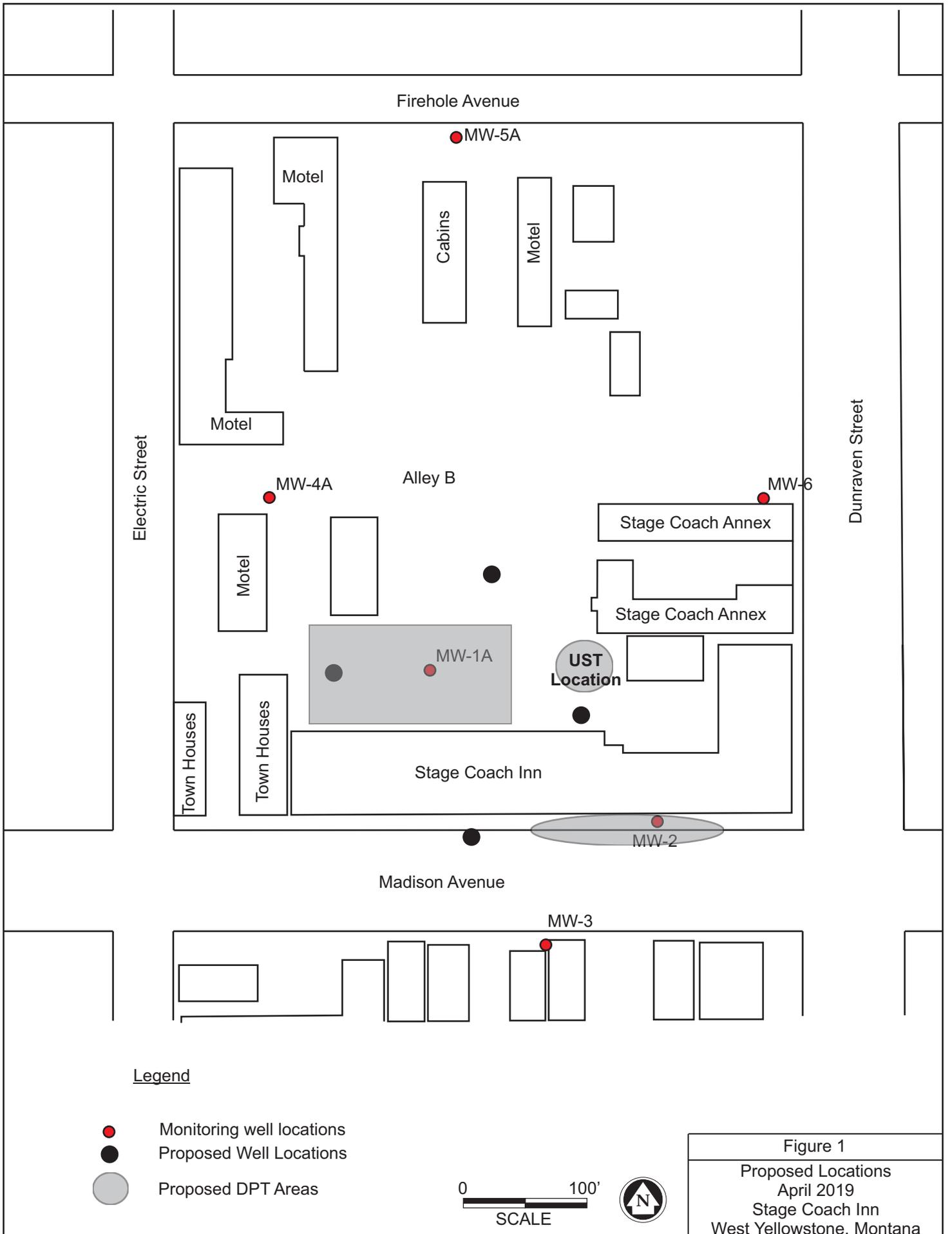


Figure 1
 Proposed Locations
 April 2019
 Stage Coach Inn
 West Yellowstone, Montana

COST ESTIMATE DETAIL

Task	Unit Cost	Number of Units	Total Cost
Project Management			
Work Plan Modification	\$134.75 /hour	20	\$2,695.00
Project Manager: Coordination/Scheduling/Budget Tracking	\$134.75 /hour	16	\$2,156.00
Management Subtotal			\$4,851.00
Mobilization and Travel			
DPT Investigation	\$3.62 /mile	190	\$687.80
Well Install	\$3.62 /mile	190	\$687.80
SVE Test (3 trips)	\$3.30 /mile	570	\$1,881.00
Per Diem: Meals	\$23.00 /day	8	\$184.00
Per Diem: Lodging	\$150.00 /night	5	\$750.00
Travel Subtotal			\$4,190.60
Field Work			
Field Work: Encroachment Permit (West Yellowstone)	\$250.00 /each	1	\$250.00
Field Work: Staff Sci/Eng (DPT investigation)	\$118.50 /hour	36	\$4,266.00
Field Work: DPT Contractor	\$12,867.00 /each	1	\$12,867.00
Subcontractor Mark-up	7 %	1	\$900.69
Field Work: Staff Sci/Eng (well install)	\$118.50 /hour	27	\$3,199.50
Field Work: Driller	\$14,615.00 /each	1	\$14,615.00
Subcontractor Mark-up	7 %	1	\$1,023.05
Well Development (Driller - includes 7% mark-up)	\$187.25 /each	5	\$936.25
Photoionization Detector (DPT & well install)	\$15.25 /hour	40	\$610.00
Field Work: Sr Tech (SVE Test)	\$106.00 /hour	28	\$2,968.00
SVE Pilot Unit	\$48.37 /hour	24	\$1,160.88
SVE Meters (PID, MagGauge, Multi-gas, Velocity)	\$47.75 /hour	24	\$1,146.00
Tedlar Bag	\$28.00 /each	1	\$28.00
Well Survey	\$1,600.00 /each	1	\$1,600.00
Field Work Subtotal			\$45,570.37
Laboratory Analysis			
Soil VPH	\$150.00 /sample	22	\$3,300.00
Soil EPH Screen	\$70.00 /sample	58	\$4,060.00
EPH Afterscreen	\$180.00 /sample	10	\$1,800.00
Air VPH	\$150.00 /sample	1	\$150.00
Sampling Fee	\$10.00 /sample	59	\$590.00
Data Validation	\$118.50 /hour	4	\$474.00
Laboratory Subtotal			\$10,374.00
Groundwater Sampling (see attached)			Groundwater Subtotal
			\$2,614.00
Reporting			
Abbrev. Soil Boring/Well Installation Report (AR-03)	\$2,525.00 /each	1	\$2,525.00
Reporting: Staff Sci/Eng - SVE Test	\$118.50 /hour	12	\$1,422.00
Reporting: Project Sci/Eng - SVE Test	\$134.75 /hour	4	\$539.00
Reporting Subtotal			\$4,486.00
TOTAL ESTIMATED COSTS			\$72,085.97

Notes:

Cost for Groundwater Monitoring Report (MR-01) included in original CAP Unit Cost Worksheet.

Petroleum Tank Release Compensation Board Groundwater Monitoring and Sampling Unit Cost Worksheet

Contractor Information

Company Name:

Address:

City, State, Zip:

Cost Estimator:

Phone:

Signature:

Date:

Project Information

Site Name:

Address:

City:

Facility ID#

Release #

WP ID#

Monitoring Well Details

Total Number of Wells at Site

Number of Water Level Measurements Only ⁽²⁾

Number of Wells to be Monitored/Sampled ⁽³⁾

Well Casing Diameter (inches)

Average Depth to Groundwater (ft)

Average Depth of Wells (ft)

Well Purging Method

Hand Bailing

Peristaltic Pump

Submersible Pump

Micropurge

No Purge

Other (please specify)

Monitoring/Sampling Interval

Estimated Start Date:

Quarterly # of events

Semi-annual # of events

Annual # of events

Other # of events (specify)

Other Services

Free Product Recovery

Groundwater Well survey

Wellhead retrofit/reconstruction

Other (please specify)

Cost Estimate Explanation:

⁽¹⁾ Mobilization/Demobilization: Includes all costs and mileage to transport equipment, materials, and personnel to and from the site location. More than one mobilization event will require justification and pre-approval by the DEQ-PTCS and Board staffs. This item should be on a per mile unit rate.

⁽²⁾ Water Level Measurements: Includes all costs (labor, equipment, materials, and well consumables) to measure groundwater depth, collect other groundwater information from well, and decontaminate equipment. The well monitoring costs should be on a per well basis and does not include purging and sampling of the well.

⁽³⁾ Well Monitoring/Purging/Sampling: Includes all costs (labor, equipment, materials, and well consumables) to monitor (see above), purge, sample groundwater, decontaminate equipment, take water level measurements and handle disposal of contaminated purge water. The cost should be on a per well basis.

⁽⁴⁾ Laboratory Analysis: Includes all laboratory costs for all wells, for duration of project. It is realized that some laboratory analyses will not be conducted for every event and that the well sampling frequency may change.

⁽⁵⁾ PTRCB Sampling Fee: Includes all costs related to management of the sample including: sample container, cooler, packing, shipping, handling, sample preservation, and office related handling charges. The sample is defined as the laboratory ID number on the laboratory invoice.

⁽⁶⁾ Report Preparation and Project Management: Includes all costs (labor and materials) project management, report preparation, and report submittal, including all office related costs, per groundwater sampling event.

Groundwater Monitoring and Sampling Unit Cost Worksheet

Task	Unit Cost	Number of Units	Total Cost
Work Plan Preparation			
Project Management	/hr		
Mobilization/Demobilization ⁽¹⁾	/mile		
Field Work			
Water Level Measurements ⁽²⁾	/well		
Well Monitoring/Purging/Sampling ⁽³⁾	/well		
Other Service (please specify)			
Other Service (please specify)			
Lodging & Per Diem (Lodging – actual only)			
Lodging: # of people	/person per day		
Food: # of people (\$23.00 max a day allowed)	/person per day		
Laboratory Analysis ⁽⁴⁾			
Volatile Petroleum Hydrocarbons (VPH)	/sample		
Extractable Petroleum Hydrocarbons (EPH)			
EPH “screen”	/sample		
EPH “fractions”	/sample		
BTEX/MTBE/Naphthalene only-method:	/sample		
Polyaromatic Hydrocarbons (PAHs)	/sample		
PTRCB sampling fee (\$10.00 allowed) ⁽⁵⁾	/sample		
Other (please specify)	/sample		
Other (please specify)	/sample		
Report Preparation ⁽⁶⁾			
Quarterly	/report		
Semi-annual	/report		
Annual	/report		
Other (Please specify)			
Monitoring & Sampling Total:			

Additional Conditions/Comments/Costs:

If you require assistance, call 406-444-9710
Submit completed form to:
Petroleum Tank Release Compensation Board
PO Box 200902, Helena MT 59620-0902

Subcontractor Bids

Petroleum Tank Release Compensation Board Soil Boring/Monitoring Well Installation Unit Cost Worksheet

Contractor Information

Company Name:
 Address:
 City, State, Zip:
 Cost Estimator: Phone:

Signature: Digitally signed by Jim Rolle
DN: cn=Jim Rolle, o=WCEC, ou, email=jrolle@wcec.com, c=US
Date: 2019.04.10 08:39:59 -06'00' Date:

Project Information and Specifications

Site Name: Facility ID #
 Address: Release #
 City: WP ID #

Type of Drilling Equipment

- Hollow-Stem Augers
 Air Rotary
 Direct Push
 Other (please specify)

Monitoring Well Specifications

Number of Wells
 Surface: Concrete: Asphalt: Barren:
 Depth (per well)
 Estimated Depth to Groundwater (ft)
 Boring Diameter (inches)
 Casing Diameter and type (inches)
 Surface Completion: Flush Mount Aboveground

Soil Boring

Number of Borings
 Boring Diameter (inches)
 Depth (per boring - ft)
 Surface: Concrete: Asphalt: Barren:
 Soil Disposal: Onsite: Stockpile: Drums:
 Abandonment: Bentonite: Soil Cuttings:

Soil Sampling

- Continuous Soil Sampling
 Interval Soil Sampling
 (specify interval)
 No Sampling

Cost Estimate Explanation:

- (1) Mobilization/Demobilization: Includes all costs and mileage to transport equipment, materials, and personnel to and from the site location. More than one mobilization event of either the drilling rig or support vehicle will require justification and pre-approval by the DEQ-PTCS and Board staffs. This item should be estimated on a per mile unit rate.
- (2) Soil Boring Installation: Includes all costs (labor, equipment, and materials) to drill, collect soil samples and abandon soil borings, as well as decontaminate equipment. Drilling costs should be estimated using a per foot unit rate. Unit cost should include handling of contaminated soil by stockpiling or placing in drums. Assume level "C" personal protective equipment.
- (3) Monitoring Well Installation: Includes all costs (labor, equipment, and materials) to drill, collect soil samples, and complete monitoring well to specifications and according to Montana Well Drillers Board rules, as well as decontaminate equipment. Drilling costs should be estimated using a per foot unit rate. Unit cost should include handling of contaminated soil by stockpiling or placing in drums. Assume level "C" personal protective equipment.
- (4) Drilling Standby: Drilling standby should be estimated on an hourly basis. Prior approval and justification for accumulating standby time is needed prior to billing.
- (5) Well Development: Includes all costs (labor, equipment, and materials) to develop monitoring wells. This task should be estimated using a per well unit rate.
- (6) Monitoring Well Abandonment: Includes all costs (labor, equipment, and materials) to properly abandon a well location according to the Montana Well Drillers Board rules. Abandonment costs should be estimated using a per well unit rate.

Soil Boring/Monitoring Well Installation Unit Cost Worksheet

TASK	UNIT COST	NUMBER OF UNITS	TOTAL COST
<u>Mobilization/Demobilization</u> ⁽¹⁾			
Mobilization/Demobilization: Drilling Rig	\$2.50 /mile	540	\$ 1,350.00
Mobilization/Demobilization: Support Vehicle	/mile		\$ 0.00
<u>Soil Boring Installation</u> ⁽²⁾			
Drilling (0'-50' range per boring)	\$10.00 /foot	1,060	\$ 10,600.00
Drilling (50'-100' range per boring)	/foot		\$ 0.00
Other (please specify) _____	/foot		\$ 0.00
<u>Monitoring Well Installation</u> ⁽³⁾			
Drilling (0'-50' range per well)	\$5.00 /foot	60	\$ 300.00
Drilling (50'-100' range per well)	/foot		\$ 0.00
Other (please specify) Flushmount monuments	\$75.00	2	\$ 150.00
<u>Drilling Standby</u> ⁽⁴⁾			
-prior approval needed	/hour		\$ 0.00
<u>Well Development</u> ⁽⁵⁾			
Well Development	/well		\$ 0.00
<u>Monitoring Well Abandonment</u> ⁽⁶⁾			
Abandonment	/well		\$ 0.00
Lodging may only be paid at actual costs when documented by receipts.			
<u>Per Diem</u>			
Lodging: (number of individuals) 1	\$125.00/person per day	3	\$375.00
Food: (number of individuals) 1 (Breakfast 5.00, Lunch 6.00, Dinner 12.00)	\$23.00/person per day	4	\$92.00
TOTAL PROJECT EXPENSE			\$ 12,867.00

Additional Conditions/Comments/Costs:

If you require assistance, call 406-444-9710.
 Submit completed form to:
 Petroleum Tank Release Compensation Board
 PO Box 200902, Helena MT 59620-0902



Olympus Technical Services, Inc.

April 4, 2019

Pam McDevitt
RTI
1050 E Main St #4
Bozeman, MT 59715

Re: Cost Proposal for Direct Push Drilling
West Yellowstone, MT

Dear Ms. McDevitt:

Olympus Technical Services, Inc. (Olympus) is pleased to present this cost estimate to advance soil borings at the above referenced location. We understand that the scope of work will consist of the following tasks:

- Advance 20 borings to a depth of 50 feet below ground surface (bgs), collecting samples on a continuous basis in five-foot intervals;
- Advance two borings to a depth of 30 feet bgs and complete as 1-inch PVC Vapor points with flush-mount monuments finished with concrete;
- Surge and develop vapor point wells;
- Backfill borings and rehabilitate surface cover of disturbed areas.

We propose to complete the borings with a track-mounted 7822DT Geoprobe™ and a two-person crew based out of our Billings, MT office. We propose to mobilize to the site, and begin advancing borings on day one, advance borings and install vapor monitoring points on days 2-4, and complete borings, abandon and rehabilitate surface cover, and demobilize back to Billings on day five.

The estimate is based on the following assumptions:

- Subsurface lithology is suitable for use of the direct push drill rig;
- Client will be responsible for making a One-Call utility locate notification prior to drilling and providing Olympus with a locate ticket number;
- Client will be responsible for contracting traffic control if needed;
- Client is responsible for disposal of investigation derived waste; and
- Client will be responsible for sample containerization and management.

We propose to complete the above scope of work on a unit cost basis not to exceed \$15,273.18 in accordance with the attached quote sheet. Should you authorize these Services, you will be invoiced on a unit cost basis in accordance with this proposal. Invoices will be submitted on a monthly basis, as a percent of project completed. Should unforeseen circumstances arise and

warrant further work and additional costs, Olympus will contact you prior to further efforts. Any changes to our agreement must be mutually agreed and in writing.

Our current General Services Agreement shall govern this Task Order. Please acknowledge your acceptance of these Services by having this Task Order properly executed by a person authorized to purchase these Services and returning a signed copy to us. We appreciate the opportunity to offer this proposal and look forward to working with you on this project. Please contact me should you have any questions regarding this proposal.

Sincerely,
Olympus Technical Services, Inc.



Jake Hover
Project Scientist

Approved for _____ by:

Signature

Date

Name/Title – Please Print

Olympus Technical Services, Inc. Cost Estimate

Date: 4/3/2019

Client: RTI

Project Name: Direct Push Soil Borings

Olympus Project No.: AP4854

ODC 14%

Project Management:

Program Manager	1	/hr	\$126.00	\$126.00
Admin	0.5	/hr	\$48.00	\$24.00
				<hr/> \$150.00

Mobilization:

Mileage	480	/mile	\$4.25	\$2,040.00
				<hr/> \$2,040.00

Lodging

Lodging	4	/day	\$220.00	\$880.00
				<hr/> \$880.00

Per Diem

Per Diem	5	/day	\$100.00	\$500.00
				<hr/> \$500.00

Drilling

Daily Rate	4	Days	\$2,000.00	\$8,000.00
				<hr/> \$8,000.00

Drilling Supplies

Liners	200	Each	\$6.00	\$1,200.00
Bentonite	45	Each	\$13.00	\$585.00
Asphalt Cold Patch	5	Each	\$15.00	\$75.00
Concrete Core barrel	10	Each	\$20.00	\$200.00
				<hr/> \$2,060.00

Vapor Points

1 inch x 5 ft.Screen	2	Each	\$19.58	\$39.16
1 inch x 10 ft.Risers	4	Each	\$18.07	\$72.28
1 inch x 5 ft Risers	2	Each	\$11.79	\$23.58
1 inch Screen points	2	Each	\$9.25	\$18.50
Expendable point 3.25 inch	2	Each	\$24.00	\$48.00
Monuments 6inch W/ 9 inch skirt	2	Each	\$46.00	\$92.00
Well sand/Silica Beads	4	Per bag	\$25.00	\$100.00
Bentonite	55	Per bag	\$13.00	\$715.00
				<hr/> \$1,108.52

Other Direct Charges (ODC)	Quantity	Unit	Rate	ODC*	Cost
Hotsy Rental	1	Week	\$469.00	*	\$469.00
ODC Items*	469	LS	14.0%		\$65.66
				Other Direct Charges Subtotal	\$534.66
Comments/Notes:					
1. 20 borings to 50ft bgs				Subtotal	\$15,273.18
2. 2 borings to 30ft bgs with vapor points				Contingency	\$0.00
3. Restore surface condition					
4.					
5.				GRAND TOTAL	\$15,273.18

RECORD OF COMMUNICATION
Stagecoach Inn – West Yellowstone

Name: Brett Richardson
Affiliation: Monterra Logic
Address: Butte, MT
Phone Number: (406) 498-5277
Date: April 2, 2019
By: Joe Laudon/Pam McDevitt

Summary:

Discussed project requirements and determined that because of the depth and expected lithologies, Monterra Logic's DPT rig does not have the needed power.

HAZ TECH Drilling, Inc.



P.O. Box 30622
 2910 Hannon Road, Suite #6
 Billings, MT 59107
 Phone: 406-896-1164 or 800-359-1502
 Fax: 406-896-1462

Proposal

TO: Resource Technologies, Inc.
 ATTN: Pam McDevitt
 1050 East Main St. #4
 Bozeman, MT 59715
 Ph-406-585-8005

DATE: 3/29/2019

PROJECT: Stage Coach Inn
 West Yellowstone, MT

Description:

4-50' wells with 20't of .020 screen and flush mount covers. 1-4" well to 40' with 10' of .020 and a flush mount cover.

TERMS: Net 30 Days

	UNITS EST.	UNIT PRICE	AMOUNT EST.
	*****	*****	*****
Mob/ Demob, Per Mile	460	\$3.25	\$1,495.00
Support Truck, Per Day	5	\$150.00	\$750.00
Perdiem, Per Crew Day	5	\$46.00	\$230.00
Lodging, Per Night, Estimated	4	\$300.00	\$1,200.00
Auger Drilling, Per Ft	240	\$19.50	\$4,680.00
2 Inch Well Installation, Per Ft	200	\$22.75	\$4,550.00
4 Inch Well Installation, Per Ft	40	\$29.00	\$1,160.00
8" X 12" Flush Mount Vaults, Each	4	\$100.00	\$400.00
12" X 12" Flush Mount Vaults, Each	1	\$150.00	\$150.00
Well Development, Each	5	\$175.00	\$875.00

ESTIMATED TOTAL: \$15,490.00

Notes:

- 1) No soils will be containerized.
- 2) Client is responsible to clear location of utilities.
- 3) Client is responsible for disposal of drill cuttings.
- 4) Client will be invoiced only the amounts used.
- 5) We assume that site is accessible by truck mount drill rig.

Proposal By: Paul Bray



P.O. Box 3810 - Butte, MT 59702
 Office: (406) 494-3310 Fax: (406) 494-3301
 Email: info@okeefedrilling.com

Client: Resource Technology
 Attention: Pam McDevitt
 Project: Stage Coach Inn, West Yellowstone
 209 Madison Ave

Date: 04-Apr-19
 Phone: 406-585-8005
 Email: pam@rtimt.com

PROJECT SPECIFICATIONS:			
Type of Rig:	<u>Mobile B-61 Auger</u>	Number of 2" Wells:	4
Location:	<u>Stage Coach Inn, West Yellowstone</u>	Expected Footage:	50
Formation:	<u>Volcanic Sand</u>	Well Size:	2
Sampling:	<u>Yes, every 10' to bottom</u>	Screen Length:	20
Decontamination:	<u>Yes</u>	Screen Size:	0.02
Other Details:	<u>OSHA Hazwoper Required; clean cuttings will be</u>	Number of 4" Wells:	1
	<u>placed in open gravel area; contaminated cuttings will be</u>	Expected Footage:	40
	<u>stock-piled on site; locking caps for casing & flushmount</u>	Well Size:	4"
	<u>Covers finished in Concrete.</u>	Screen Length:	10
		Screen Size:	0.02

Bid for Soil Boring/Monitoring Well Installation

Unit Cost Worksheet

Task	Unit Cost	Units	Number of Units	Total Cost
Mobilization/Demobilization				
Drill Rig	\$ 2.75	Miles	300	\$ 825.00
Support Vehicle	\$ 1.50	Miles	300	\$ 450.00
Interm Travel	\$ 1.50	Miles	300	\$ 450.00
Per Diem or Crew Daily Travel				
Motel	\$ 115.00	Per Person Per Day	5	\$ 1,150.00
Food	\$ 40.00	Per Person Per Day	7	\$ 560.00
Soil Boring Installation				
8.25 Drilling 0-50' w/Sampling	\$ 30.00	Per Foot	200	\$ 6,000.00
10.75 Drilling 0-50ft range	\$ 34.00	Per Foot	40	\$ 1,360.00
Monitoring Well Installation				
2" Monitoring Well 0-50' Range	\$ 34.00	Per Foot	200	\$ 6,800.00
4" Monitoring Well 0-50' Range	\$ 38.00	Per Foot	40	\$ 1,520.00
Drilling Standby & Safety Meeting				
	\$ 150.00	Per Hour		\$ -
Operating Time: Unidentified Hourly Rate if necessary				
Other Operating Rate	\$ 175.00	Per Hour		\$ -
Other:				
Move/Setup	\$ 175.00	Per Hour	2	\$ 350.00
Decon	\$ 175.00	Per Hour	2	\$ 350.00
Well Development	\$ 175.00	Per Hour	10	\$ 1,750.00
Bentonite Chips	\$ 12.00	Per Bag		\$ -
Pre-mix Cement	\$ 15.54	Per Bag	2	\$ 31.08
Asphalt Patch	\$ 19.82	Per Bag	2	\$ 39.64
Total Project Expenses				\$ 21,565.00

***Client is responsible for any line locates. Locate number can then be given to O'Keefe Drilling who then will request a ticket default.

****This bid is subject to change as warranted when the addition of prior unexpressed need for additional certifications, medical monitoring, sampling, containerization or other unforeseen change in the scope of work.



Proposal for Environmental Drilling CME 75HT or Deidrich D-120

Scope Install 4-2 inch monitoring well to 50 feet and 1-4 inch monitoring well to 40 feet. SPT will be across 10, 20, 30, 40, and bottom depths. Surfaces are concrete, asphalt and gravel. Cuttings to be disposed on site by RTI personnel. Well development water will be surface discharged. We propose to use 4.25" and 6.25" hollow stem auger for well installation.

Proposal P-19043
Date March 29, 2019
Project Stagecoach Inn, West Yellowstone, MT

Client Pam McDevitt,

Monitoring Well Installation

Project Setup	4	hours @	\$105	\$	420
Mobilization and Demobilization	1	each @	\$3,090	\$	3,090
Daily Travel	5	trips @	\$100		500
Per Diem	5.5	days @	\$320		1,760
Soil Boring Installation	240	feet @	\$22		5,200
Additional Spit-spoon samples		each @	\$15		
Monitoring Well Const. and Steam Cleaning	240	feet @	\$30		7,265
Well Development	5	each @	\$300		1,500
TOTAL				\$	19,735

Bid Conditions

- *Work will be invoiced on the hourly and unit cost based on the numbers provided above.*
- *Landowner access, staking, clearing utilities and cutting/fluid disposal will be handled by others.*
- *Client to log soil borings.*
- *Asphalt or concrete cutting will be at additional cost if unable to drill through.*
- *Boreholes will be accessible to truck mounted CME 75 HT or Diedrich D-120 drill rig.*
- *Plowing, towing, or other site access preparation requirements will be provided by others. Standby time at \$150 per hour applies if we are not working due to delays.*
- *Boring will be extended to depth indicated above or auger refusal.*
- *Travel between boreholes will be less than 0.25 hours.*
- *On-site orientation will be performed the first day of drilling.*
- *Our current safety certifications meet companies requirements.*
- *On-site water supply. Owner will have water truck deliver water to our drill crew as needed. If unable to deliver water, a water supply with a minimum 2-inch discharge and a 25-gallon per minute flow rate will be required. Water delivery will be charged at standby rate.*
- *Monitoring wells to be constructed with 2-inch PVC with 20-foot of 20 slot screen, 22' of sand backfill, bentonite chips to 1' bgs, then sacherete to set flushmount surface protection, 4 inch will only have 10 foot of screen and 12 foot of sand and then completed to surface the same as 2" wells.*
- *Weather to be 30 degrees and rising if drilling fluids and or steam cleaning are used.*
- *Costs for insurance coverage above our current amounts is not included.*
- *Prices are based on Standard Labor Rates (not Davis Bacon or Prevailing Wage).*