



Resource Technologies, Inc.

1050 East Main Street Suite 4, Bozeman, Montana 59715
Voice: (406) 585-8005 • Fax: (406) 585-0069 • e-mail: rti@montana.net

December 6, 2019

Mr. Allen Schiff
MDEQ-PTCS
P.O. Box 200901
Helena, MT 59620

Subject: Additional Corrective Action Work Plan and Budget;
Bruce's Quick Lube and Car Care Center; 1111 East Front Street;
Butte, Montana; Facility ID #47-06099; Release #4250; WP# 33945

Responsible Party: Bruce Metcalf
3626 Saddle Rock Road
Butte, MT 59701
(406) 494-5165

Dear Mr. Schiff:

On behalf of Mr. Bruce Metcalf, Resource Technologies, Inc. (RTI) is submitting the following work plan for sub slab soil investigation and soil vapor extraction (SVE) pilot testing at the former Bruce's Quick Lube and Car Care located at 1111 East Front Street in Butte, Montana (Facility). This work plan was prepared in accordance with the letter from the Montana Department of Environmental Quality-Petroleum Technical Section to Mr. Bruce Metcalf, dated September 23, 2019.

This work plan was prepared by: Resource Technologies, Inc.
1050 East Main Street #4
Bozeman, MT 59715

SCOPE OF WORK

Work tasks described in this plan will assess effectiveness of soil vapor extraction (SVE) as a corrective action, and provide data for basis of SVE system design. In addition, soil underlying the below-grade service bays will be assessed to refine location of SVE system wells and to provide a preliminary assessment of petroleum vapor intrusion (PVI) potential. Work tasks to be completed include:

- Advance up to four soil boreholes below the service bays in the southern portion of the building to better assess source-area soil conditions;
- Collect soil samples from each borehole and submit samples for laboratory analysis;
- Install SVE well and vapor monitoring points;

- Collect soil samples from monitoring point on East side of building and submit sample for laboratory analysis;
- Conduct SVE pilot test (one week duration);
- Validate soil analytical data using DEQ Data Validation Summary form;
- Update the Release Closure Plan and discuss results with DEQ's project manager; and
- Present findings in a Standardized Abbreviated Generic Applications Report format (AR-07).

Proposed work tasks are discussed in the following sections.

Project Management

RTI will manage and coordinate all aspects of the project including planning, collection of samples, analysis of data, and reporting. RTI will update the Site Health & Safety Plan for the planned field activities. A work zone will be established around the interior soil boring equipment to provide worker/pedestrian control and around the soil boring rig and support vehicle during exterior borehole activities and subsequent pilot test monitoring.

Subslab Investigation

To determine the source of groundwater impacts that appear to originate in the vicinity of the former dispenser area that underlies the southern addition of the Facility building, RTI will advance four soil borings through the floor of the service bays. Proposed soil boring locations are shown in Figure 1. Twelve-inch by twelve inch cuts will be made in the floor at each sampling location. After initial opening of the floor slab, RTI will assess vapor concentrations immediately below the slab with a photoionization detector (PID). If substantial vapor concentrations are indicated immediately below the slabs, we will recommend sub-slab vapor sampling to quantify vapor concentrations after the soil borehole has been sealed.

The borehole will then be advanced using hand auger equipment until the native material is encountered (estimated to be 1 to 3 feet below the concrete slab and fill material). Borehole lithologies and any other relevant information will be recorded on a borehole log by the RTI geologist supervising sampling activities.

Soil samples will be collected from the hand auger. Soil samples will be field screened for the presence of hydrocarbon vapors with a PID and standard headspace methods. A sample of the native material will be submitted to the laboratory for Volatile Petroleum Hydrocarbons (VPH) analysis.

Boreholes will be abandoned by backfilling with bentonite chips and the concrete surfacing will be patched and resealed with non-shrink concrete.

SVE Pilot Test

A pilot test using SVE technology will be conducted to assess the permeability of shallower fine grained soil and deeper sandy soils, and determine its effectiveness as a remedial technology option. To facilitate the pilot test, one SVE extraction well and two vapor monitoring points will be installed. The proposed locations of the SVE extraction well and vapor monitoring points are provided on Figure 1. The locations will be adjusted, as necessary, pending the interior subslab investigation results.

SVE Extraction Well Installation. A hollow-stem auger rig will be used to install the SVE extraction well for the pilot test (and possible future groundwater monitoring). The bottom depth of the borehole will be 35 feet. The estimated depth to water is 30 feet. Soil samples will be evaluated in the field, but no samples are expected to be submitted for laboratory analysis because there is already sufficient data for subsurface conditions in the immediate vicinity.

The SVE Well will be constructed using four-inch schedule 40 PVC casing and 0.040-inch well screen. Screen length will be 25 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.

Vapor Monitoring Points Installation. Vapor monitoring points will be installed to test the lateral and vertical permeability of the subsurface soils to evaluate the radius of influence. A hollow-stem auger rig will be used. The bottom depth of the borehole for the vapor monitoring points will be approximately 20 feet. Vapor monitoring points will be installed at distances of 15 feet and 40 feet from the intended SVE well location (see Figure 1).

Two nested vapor probes will be placed in each vapor monitoring point borehole; one screened in the shallow finer grained soils at depths of 11 to 12 feet, and one screened in the deeper sandy soils at a depth of approximately 20 feet. Vapor points wells will be constructed using one-inch schedule 40 PVC casing. Hand sawn slots will be cut into the bottom one-foot of the casing. A filter pack composed of 10/20 silica sand will be placed in the borehole annulus to a depth of no less than one foot above the deeper screen. A bentonite seal will be placed above the sand filter pack of the bottom screen to one foot below the shallow screen. Another 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 shallow screen. Another bentonite seal will be placed above the sand filter pack. The vapor probes 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.

Soil Sample Collection and Laboratory Analysis. Soil samples from the vapor monitoring point on the west side of the building will be evaluated in the field, but no samples are expected to be submitted for laboratory analysis.

For the vapor monitoring point location on the east side of the building, soil samples will be collected at approximate five-foot intervals to the bottom depth. 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. 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.

For the eastern vapor monitoring point a sample from the shallower fine grained soil and another sample from the deeper sandy soils will be submitted to the laboratory for VPH analysis.

One Week 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, vapor monitoring points, and existing monitoring well MW-3 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 one hour intervals for the first 12 hours of the test, then daily for the next three days, and again at the end of the test. The duration of the pilot test will be one week.

Air Sample Collection and Laboratory Analysis. After the initial four hours of the SVE pilot test, a discharge sample will be collected in a one-liter Tedlar bag from the discharge line of the blower. Another discharge sample will be collected immediately prior to shutting off the blower at the end of the test. The air samples will be transported under chain-of-custody procedures to the laboratory for VPH analysis.

Well Surveying and Mapping. The elevation of new SVE extraction well will be tied into existing wells using a level and rod. Locations of the SVE extraction well and vapor

monitoring points will be measured relative to site features (buildings, road boundaries, utilities, etc.).

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. It is assumed that the contaminated soil will be transported to the Butte-SilverBow landfill in Rocker, Montana.

Development water will be handled and disposed in accordance the DEQ Purgewater Disposal Flow Chart.

Data Validation

All soil analytical data will be validated using the DEQ Data Validation Summary Form (DVSF). On the basis of data validation, any suspect analytical results will be identified in the sampling report.

Release Closure Plan

On the basis of data collected during this phase of investigation, RTI will update the existing Release Closure Plan (RCP). RTI will discuss the findings of the RCP update with the DEQ case manager to facilitate identifying the preferred corrective action for mitigating soil and groundwater impacts at the site.

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 discuss the findings of the additional soil investigation, the methods used to implement the SVE pilot test, the results of the SVE pilot test, and recommendations to remediate the petroleum release at the Facility. The Report will also include the following:

- Discussion that details the results of the completed work plan;
- Tabular presentation of soil data;
- Tabular presentation and interpretation of the SVE pilot test data, and proposed remedial system design and layout;
- Updated site map;
- 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, laboratory reports, and DVSFs will be appended to the report.

The updated RCP will also be appended to the AR-07 Report.

Electronic versions of the report will be submitted as required by MDEQ and Mr. Briggs Anderson (current site owner). A hard copy of the report will be submitted to Mr. Metcalf.

Cost

A breakdown of costs associated with work plan preparation, soil investigation, and SVE pilot testing is attached. Bids for concrete sawing services and IDW disposal, and soil boring/well installation services were requested from qualified contractors (copies attached). The only concrete cutting bid was provided by High Country Concrete at \$1,000.00; none of the other contractors provided bids. The low drilling bid was provided by O'Keefe Drilling. The total cost for workplan preparation, soil investigation, SVE pilot test, and reporting is \$27,300.55. If you have any questions or comments regarding this workplan, please do not hesitate to call.

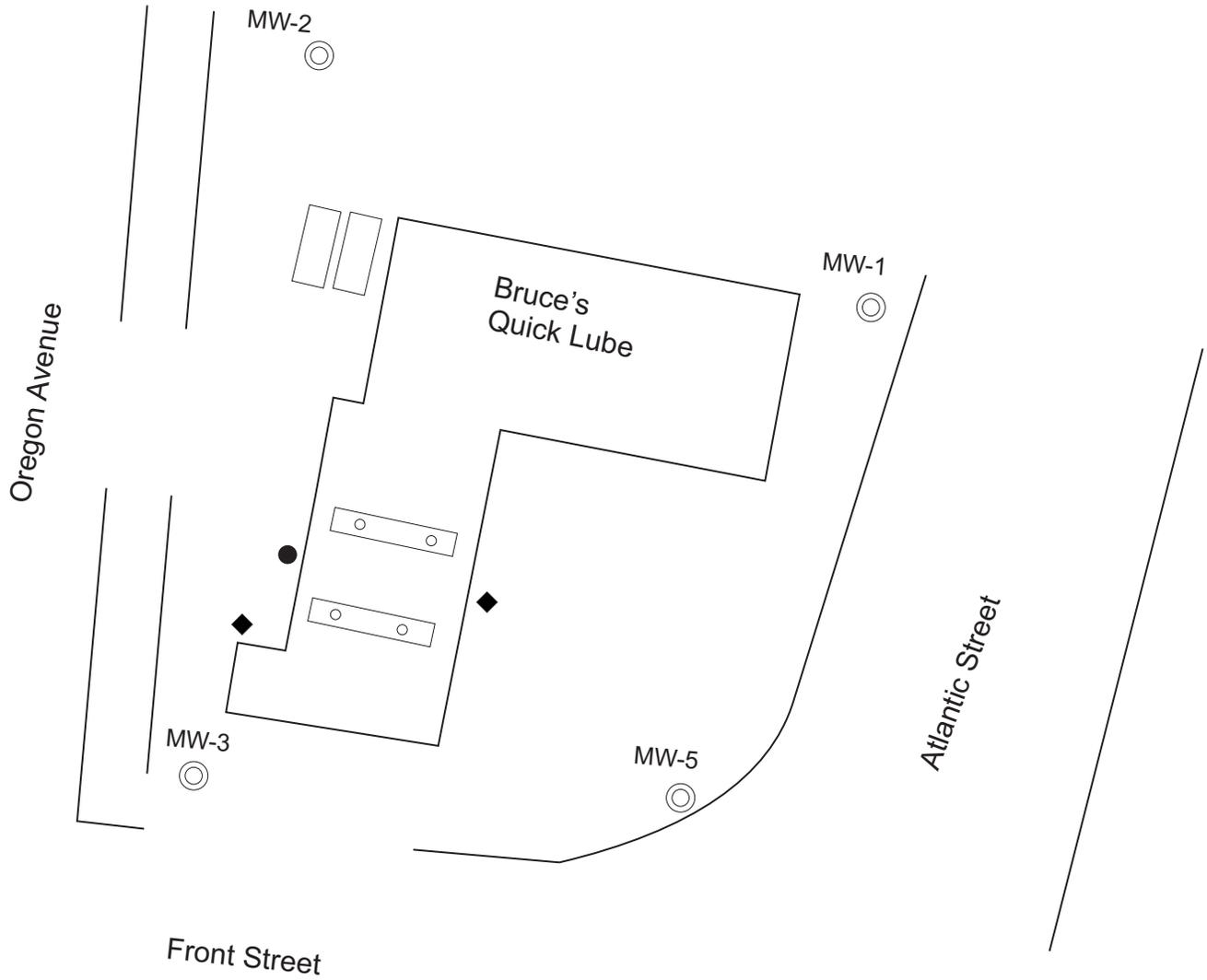
Respectfully Submitted,
Resource Technologies, Inc.



Joe Laudon
Hydrogeologist

Attachments

cc: Mr. Bruce Metcalf – Bruce's Quick Lube and Car Care Center
Mr. Briggs Anderson – Current site owner – 109 Applehouse Lane; Missoula, MT 59802
briggs.anderson@gmail.com



- ⊙ Existing groundwater monitoring well
- Proposed SVE well
- ◆ Proposed SVE monitoring point
- Proposed hand auger borehole

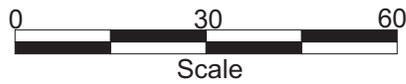


Figure 1	
Site Map and Proposed Test Well Locations Bruce's Quick Lube & Car Care Center 1111 East Front Street Butte, Montana	
	Resource Technologies Inc.

COST ESTIMATE DETAIL

Task	Unit Cost	Number of Units	Total Cost
Project Management			
Work Plan (AC-07)	\$134.75 /hour	12	\$1,617.00
Project Sci/Eng: Coordination/Scheduling/Budget Tracking	\$134.75 /hour	16	\$2,156.00
Management Subtotal			\$3,773.00
Mobilization and Travel			
Interior Soil Borings	\$3.11 /mile	180	\$559.80
SVE Well Install	\$3.11 /mile	180	\$559.80
Pilot Test (5 trips)	\$2.56 /mile	900	\$2,304.00
Per Diem: Meals	\$30.50 /day	4	\$122.00
Per Diem: Lodging	\$150.00 /night	2	\$300.00
Travel Subtotal			\$3,845.60
Field Work			
Field Work: Staff Sci/Eng (Interior Soil Borings)	\$118.50 /hour	8	\$948.00
Field Work: Concrete Contractor (includes 7% mark-up)	\$1,070.00 /each	1	\$1,070.00
Field Work: Staff Sci/Eng (SVE Well Install)	\$118.50 /hour	16	\$1,896.00
Field Work: Drilling Contractor (O'Keefe)	\$5,770.00 /each	1	\$5,770.00
Subcontractor Mark-up	7 %	1	\$403.90
IDW Transport Contractor (includes 7% mark-up)	\$642.00 /each	1	\$642.00
IDW Disposal (Butte-SilverBow Landfill)	\$20.00 /ton	5	\$100.00
Field Work: Technician (SVE Pilot Test)	\$106.00 /hour	19	\$2,014.00
Photoionization Detector	\$15.25 /hour	34	\$518.50
Well Survey Equipment	\$24.40 /hour	2	\$48.80
SVE Pilot Unit (includes round trip freight - Billings)	\$600.00 /each	1	\$600.00
Magnehelic Gauge	\$8.50 /hour	16	\$136.00
Multi-gas Meter	\$15.25 /hour	16	\$244.00
Field Supplies (IDW Sheeting/Decon/PPE)	\$100.00 /each	1	\$100.00
Field Work Subtotal			\$14,491.20
Laboratory Analysis			
Soil VPH	\$120.00 /sample	6	\$720.00
Waste Characterization (VPH/EPH)	\$195.00 /sample	1	
Air VPH	\$120.00 /sample	2	\$240.00
Tedlar Bag	\$28.00 /sample	2	\$56.00
Sample Shipping	\$20.00 /each	3	\$60.00
Sampling Fee	\$10.00 /sample	8	\$80.00
Data Validation (3 data sets)	\$118.50 /hour	4.5	\$533.25
Laboratory Subtotal			\$1,689.25
Groundwater Sampling (No GW Sampling)			Groundwater Subtotal
			\$0.00
Reporting			
Update Release Closure Plan: Staff Sci/Eng	\$118.50 /hour	4	\$474.00
Corrective Action Report: Staff Sci/Eng	\$118.50 /hour	16	\$1,896.00
Corrective Action Report: Project Sci/Eng	\$134.75 /hour	4	\$539.00
Corrective Action Report: Drafting (CAD)	\$98.75 /hour	6	\$592.50
Reporting Subtotal			\$3,501.50
TOTAL ESTIMATED COSTS			\$27,300.55

Notes:

Subcontractor Bids



Quote

Date: 11/19/2019
 Expiration Date: N/A

TO

RTI

Project	
1111 Front St Contaminated Soil Investigation	
Description	Line Total
Test Holes: 4	
• Saw Cut and Remove Concrete floor with 12-inch x12-inch saw cut square hole.	1,000.00
• Patch Holes with non-shrink grout	
Remove Contaminated soil	600.00
• Approximately 3 yards	
• Load, haul and dump at Butte Landfill, if soil is acceptable	
Total	\$1,600.00

High Country Concrete PO Box 501, Butte, MT, 59703 Office 406-782-5721 Cell 406-565-7361

O'KEEFE DRILLING

Environmental

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: Butte, MT
Bruce's Quick Lube

Date: 11-Nov-19
Phone: 406-585-8005
Email: pam@rtimt.com

PROJECT SPECIFICATIONS:			
Type of Rig:	<u>Mobile B-61 Auger</u>	Number of 1" Wells:	2
Location:	<u>Butte, MT</u>	Expected Footage:	20
Formation:	<u>Gravels, clay and sand</u>	Well Size:	1"
Sampling:	<u>Yes, every 10' to bottom</u>	Screen Length:	1'
Decontamination:	<u>Yes</u>	Screen Size:	Saw Slots
Other Details:	<u>OSHA Hazwoper Required: clean cuttings will be placed in open gravel area; contaminated cuttings will be stock-piled on site; locking caps for casing & flushmount. Covers finished in Concrete.</u>	Number of 4" Wells:	1
		Expected Footage:	35
		Well Size:	4"
		Screen Length:	25
		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		\$ -
Support Vehicle		\$ 1.50	Miles		\$ -
Per Diem or Crew Daily Travel					
Motel	2	\$ 90.00	Per Person	Per Day	\$ -
Food	2	\$ 40.00	Per Person	Per Day	\$ -
Soil Boring Installation					
8.25	Drilling 0-50' w/Sampling	\$ 30.00	Per Foot	40	\$ 1,200.00
10.75	Drilling 0-50ft range	\$ 34.00	Per Foot	35	\$ 1,190.00
Monitoring Well Installation					
	1"(Nested) Monitoring Well 0-20' Range	\$ 32.00	Per Foot	40	\$ 1,280.00
	4" Monitoring Well 0-50' Range	\$ 40.00	Per Foot	35	\$ 1,400.00
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		\$ -
	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					\$ 5,770.00

***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.

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: 11/7/2019

PROJECT: Bruce's Quick Lube
 Butte, MT

Description:

1-4" well to 35' with 25' of .020 screen and a flush mount cover. 2 vapor probes to 20' with 2-1" wells in each boring and flush mount covers.

TERMS: Net 30 Days

	UNITS EST.	UNIT PRICE	AMOUNT EST.
	*****	*****	*****
Mob/ Demob, Per Mile	450	\$3.25	\$1,462.50
Support Truck, Per Day	3	\$150.00	\$450.00
Per diem, Per Crew Day	3	\$61.00	\$183.00
Lodging, Per Night, Estimated	2	\$250.00	\$500.00
Auger Drilling, Per Ft	75	\$21.00	\$1,575.00
4 Inch Well Installation, Per Ft	35	\$38.75	\$1,356.25
Vapor Probe Well Installation, Per Ft	40	\$42.50	\$1,700.00
8" X 12" Flush Mount Vaults, Each	1	\$100.00	\$100.00
12" X 12" Flush Mount Vaults, Each	2	\$150.00	\$300.00

ESTIMATED TOTAL: \$7,626.75

Notes:

- 1) Client is responsible to clear location of utilities.
- 2) Client is responsible for disposal of drill cuttings.
- 3) Client will be invoiced only the amounts used.
- 4) We assume that site is accessible by truck mount drill rig.

Proposal By: Paul Bray

From: [Chris Boland](#)
To: [Pam McDevitt](#)
Subject: Bid former Bruce's Quick Lube
Date: Monday, November 11, 2019 1:48:25 PM

Hey Pam, Here is our bid for former Bruce's quick Lube

Mob and demob. 300 miles @ \$5.00 per mi. \$1,500
Drilling footage 75' @ \$54.00 per foot- \$4,050
4" well. 35' @ \$44.00 per foot, \$1,540
1" vapor wells. 64' @ \$40.00 per foot- \$2,560
Per diem. 2 @ \$300 - \$600

Total \$10,250

If you have any questions please let me know.

Respectfully,
Chris

Sent from my iPhone

RECORD OF COMMUNICATIONS

Bruce's Quick Lube, Butte, MT

Name of Caller: Skip Waleors
Affiliation: Skip's Carpentry & Concrete
Address: Butte, MT
Phone Number: (406) 498-6069
Date: November 12, 2019
By: Pam McDevitt

Summary:

The purpose of the call was to inquire about concrete coring services. Mr. Waleors does not have a coring machine and declined to provide a bid. He referred RTI to LeProwse Construction.

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Name of Caller: Steve
Affiliation: TSD
Address: Billings, MT
Phone Number: (406) 256-7782
Date: November 12, 2019
By: Pam McDevitt

Summary:

The purpose of the call was to inquire about rental of the 2 hp blower. Weekly rental rate is \$200.00.

Freight is \$194.18 with a lift gate truck one way Billings/Butte.