



September 30, 2019

Mr. William Bergum
MDEQ Petroleum Tank Cleanup Section
P.O. Box 200901
Helena, MT 59620-0901

RE: Abbreviated Soil Boring and Monitoring Well Installation Work Plan (AC-03)
Stanfield 7th St Exxon, 700 Central Ave, Great Falls, MT
Facility ID 07-00622 (TID 18356), Release #0809; Work Plan ID 33886

Dear Mr. Bergum,

In accordance with the Montana DEQ (MDEQ) request letter dated September 13, 2019, Big Sky Civil & Environmental, Inc. (BSCE) has prepared this Abbreviated Soil Boring and Monitoring Well Installation Work Plan (WP) for the subject property. Additional Investigation will include up to five (5) soil borings that will be converted into monitoring wells to define the extent and magnitude of petroleum contamination at the subject facility.

Proposed Scope of Services

BSCE proposes to conduct investigative activities at the subject release site as defined herein.

- Prior to initiating fieldwork, underground utilities will be located and marked on the ground surface by U-Dig (811). Additionally, BSCE proposes to contract with a private utility locate service for the purpose of locating other onsite utilities that will otherwise not be located by One-Call; examples of such utilities include water & sewer services; see attached bid.
- All fieldwork will be scheduled and coordinated with property owners and MDEQ representative.
- Up to five (5) soil borings will be completed at the subject facility; see **Figure 1** for approximate locations. All borings will be converted into monitoring wells. Soil sampling and well installation details will be as follows:
 - Soil samples will be collected from soil borings from surface to depth @ ~2-ft intervals. Samples will be field-screened for VOC's using head-space screening with BSCE's Photoionization Detector (PID). All field data will be properly recorded including olfactory/visible signs of petroleum contamination, soil sediment types, zones of saturation, etc.
 - We anticipate selecting up to three (3) soil samples from each soil boring for analytical lab testing. Generally samples will be collected from: the zone exhibiting the highest PID reading, the soil/groundwater interface, and the bottom of the boring. If no elevated PID readings are encountered, samples from the soil/groundwater interface and/or from the bottom of the borehole will be submitted for analytical laboratory testing.

- All borings will be converted into monitoring wells. Monitoring wells will be installed to a total depth of 15-20 feet bgs, with a screened interval approximately five feet above the mean groundwater interface to the depth of the boring (estimated screening from about 3' bgs to 15' or 20' bgs). The monitoring wells will be 2" in diameter and will be installed with an 8" diameter auger.
- The soil samples selected for testing will be sent to TestAmerica in Tacoma WA for, EPH Screen (w/ Fractionation if screen exceeds 1,000 ug/L) and VPH analysis. Additionally, soil samples will be analyzed for lead scavengers (1,2-DCA and EDB) and RCRA metals (for hazardous/non-hazardous determination by the landfill).
- After monitoring wells are constructed, the new and existing wells will be surveyed to a common datum using survey-grade GPS equipment. A base drawing for the site will be created using the survey data.
- Prior to groundwater monitoring, newly installed wells will be developed which will consist of purging wells until visibly non-turbid water is achieved. Monitoring wells will also be given ~one month to equilibrate prior to completion of groundwater monitoring.
- Also prior to groundwater monitoring and due to the age/unknown condition of the wells, an assessment will be completed on existing monitoring wells at the facility. The assessment will include evaluation of viability for monitoring as well as minor repairs if practical and as deemed necessary.
- Two groundwater monitoring events will be completed, one during each: seasonal high and low groundwater levels. Prior to sampling static water level measurements will be collected from all wells. The following wells will be sampled for both monitoring events: newly installed wells and four (4) existing wells (MW-2, MW-3, MW-4, and MW-5), a total of nine (9) monitoring wells. Prior to sampling, wells will be purged and field parameters will be collected (dissolved oxygen, pH, temperature, conductivity, and oxygen reduction potential). Groundwater samples will be submitted to TestAmerica in Tacoma WA for EPH Screen (and fractionation if screen >1000 ug/L), VPH analysis, Lead Scavengers (EDB and DCA), and Intrinsic Biodegradation Indicators (IBIs).
- After the completion of soil borings, monitoring well installation, and soil sampling a Standardized Abbreviated Soil Boring and Monitoring Well Installation Report (Report_AR-03) will be prepared and submitted to MDEQ.
 - At a minimum the report will include the following: exhibits depicting the location of site features, utilities, soil boring locations, monitoring wells, soil boring logs, all pertinent data tables, analytical data in tabular format, lab reports, data validation summary form, data interpretations, conclusions, and recommendations.
- After completion of groundwater monitoring events a Standardized Groundwater Monitoring Report (Report_MR-01) will be prepared and submitted to MDEQ.
 - At a minimum the report will include the following: exhibits depicting the location of site features, utilities, monitoring wells, all pertinent data tables, analytical data in tabular format, lab reports, data validation summary form(s), Release Closure Plan, data interpretations, conclusions, and recommendations.

- Reports and supporting documentation will be submitted following DEQ submittal requirements.
- Standardized MDEQ report formats will be used for all documents.

All soil sampling and groundwater monitoring will be completed in strict accordance with BSCE's standard QA/QC procedures. The following procedures will be used during sample collection to provide quality assurance and quality control (QA/QC), to minimize loss of volatiles, and to maintain the suitability of samples for analysis. Sample collection and analytical procedures will be consistent with SW-846: *Test Methods for Evaluating Solid Waste*, November 1986, and updates published by the U.S. EPA. QA/QC methods used are defined below:

- All sample containers/preservatives will be supplied by a state-certified laboratory. Analyses will be performed by a state-certified laboratory.
- All samples will be handled in a manner which minimizes the loss of organic compounds to volatilization and biodegradation.
- All samples for analyses will be placed in a cooler on ice (at a temperature of 4° C) immediately following collection.
- Chain-of-custody procedures will be utilized during sampling and delivery.
- Documentation of the sampling and QA/QC procedures including notes will be available for DEQ inspection. These notes will document the procedures for sampling and all other routine activities, along with field notes describing activities that took place during monitoring well construction and sampling.

For soil boring/monitoring well installation BSCE received bids from Boland Drilling of Great Falls, Haztech Drilling of Billings, and O'Keefe Drilling of Butte. See attached bids. Upon review of the bids Boland appeared to have the most competitive pricing and is therefore included in the cost estimate below. Also included is pricing for the private utility locate, see attached quote.

Please feel free to contact us with any questions or concerns you may have.

Respectfully,

Big Sky Civil & Environmental, Inc.



Joseph N. Murphy, P.E.



Paxton Ellis, E.I.

encl. Fig 1 – Site Map, Cost Estimate, Bids

cc: Ms. Sandra Johnson-Thares
P.O. Box 1667
Great Falls, MT 59401

FIELDWORK/SAMPLING COST ESTIMATE

Task	Cost	Unit	Number of Units	Total Cost
Senior Engineer⁽¹⁾	\$ 145.00	/hr	8	\$ 1,160.00
Project Engineer⁽¹⁾	\$ 131.50	/hr	20	\$ 2,630.00
<u>Mobilization/Demobilization</u>				
Mobilization/Demobilization ⁽²⁾ (9 RT, 10 mi/RT)	\$ 9.00	/mile	90	\$ 810.00
<u>Monitoring Well Installation</u>				
Private Utility Locate with 7% markup (see bid)	\$ 600.00	/bid	1.07	\$ 642.00
Contractor Bid with 7% markup (see Boland bid)	\$ 6,925.00	/bid	1.07	\$ 7,409.75
Monitoring Well Installation Fieldwork	\$ 101.00	/hr	28	\$ 2,828.00
PID meter	\$ 14.00	/hr	28	\$ 392.00
<u>Well Development (5 wells)</u>				
Senior Engineering Tech	\$ 101.00	/hr	10	\$ 1,010.00
Pump - Peristaltic	\$ 10.50	/hr	10	\$ 105.00
Tubing - Silicon (1'/well for five wells)	\$ 2.80	/ft	5	\$ 14.00
Tubing - Polyethylene (20'/well for five wells)	\$ 1.05	/ft	100	\$ 105.00
<u>Survey</u>				
Surveyor	\$ 135.00	/hr	10	\$ 1,350.00
Survey Equipment	\$ 100.00	/hr	10	\$ 1,000.00
Drafter (survey breakdown & base drawing creation)	\$ 78.00	/hr	6	\$ 468.00
Computer - CADD	\$ 13.75	/hr	6	\$ 82.50
<u>Well Assessment/Repairs</u>				
Senior Engineering Tech	\$ 101.00	/hr	10	\$ 1,010.00
Oil/water interface probe	\$ 12.00	/hr	10	\$ 120.00
<u>Groundwater Monitoring</u>				
Water Level Measurements: 4 total (2 wells [MW-1, MW-6]; 2 events)	\$ 42.25	/well	4	\$ 169.00
GW Monitoring/Purging/Sampling	\$ 186.00	/well	18	\$ 3,348.00
<u>Work Plan & Report Preparation</u>				
Work Plan prep	\$ 1,590.00	/report	1	\$ 1,590.00
Report_AR-03	\$ 2,525.00	/report	1	\$ 2,525.00
Report_MR-01 (two events) ⁽³⁾	\$ 2,185.00	/report	1	\$ 2,185.00
Data Validation Summary Forms (x3)	\$ 131.50	/hr	6	\$ 789.00
Release Closure Plan (RCP)	\$ 1,500.00	/report	1	\$ 1,500.00
Estimated Project Expenses				\$ 33,242.25

FIELDWORK/SAMPLING COST ESTIMATE

Laboratory Analysis - 18 water, and 15 soil samples (assume 3 samples per soil boring [x5])				
Volatile Petroleum Hydrocarbons (VPH)	\$ 125.00	/sample	33	\$ 4,125.00
EPH Screen	\$ 80.00	/sample	33	\$ 2,640.00
EPH Fractionation ⁽⁴⁾ (assume 1/3 be fractionated)	\$ 190.00	/sample	11	\$ 2,090.00
EPA Method 8260B (1,2-dichloroethane)	\$ 110.00	/sample	33	\$ 3,630.00
EPA Method 8011 (ethylene dibromide (EDB))	\$ 85.00	/sample	33	\$ 2,805.00
EPA 300.0 (Nitrate, Nitrate as N)	\$ 49.00	/sample	18	\$ 882.00
EPA 300.0 (Sulfate)	\$ 15.00	/sample	18	\$ 270.00
RSK 175 (Methane)	\$ 120.00	/sample	18	\$ 2,160.00
EPA 200.7 (Iron and Manganese)	\$ 26.00	/sample	18	\$ 468.00
RCRA metals (EPA 6010, 7470/1) ⁽⁵⁾	\$ 76.00	/sample	2	\$ 152.00
PTRCB sampling fee	\$ 10.00	/sample	33	\$ 330.00
Misc. Costs (copies, gloves, DI water, gallon bags, etc.)				\$ 200.00
	Estimate of Per Diem & Lab			\$ 19,752.00
	Estimated Total Project Cost			\$ 52,994.25

(1) Project Management (scheduling, DEQ/client correspondence, Health and safety plan/meetings, etc.)

(2) 3 RT - Monitoring Well Installation, 1 RT - Survey, 2 RT - Groundwater Monitoring, 3 RT sample shipping

(3) Report prep takes additional time to include two events (tables - analytical results, figures - gradient maps, etc.) Cost increase from \$1,815 (typical) to \$2,185

(4) EPH Fractionation will be completed if EPH Screen results exceed screening level

(5) For hazardous/non-haz determination for landfill

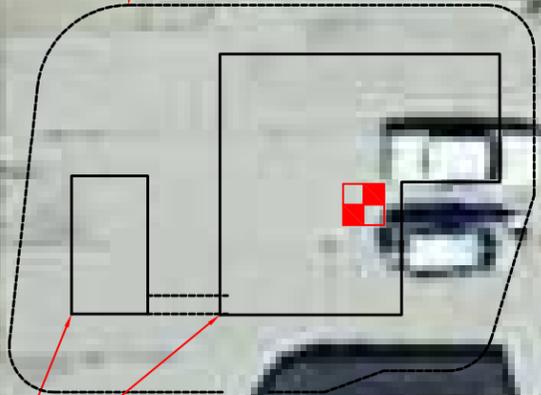
CENTRAL AVE.

7th St S

FORMER DIG-OUT

UST'S, DISPENSERS & UNDERGROUND PIPING

FORMER WASTE OIL TANK



MW#1

MW#2

MW#3

MW#4

MW#5

MW#6

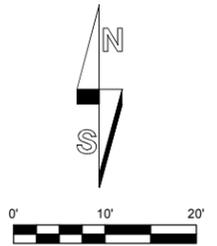
LEGEND



PROPOSED SOIL BORING



EX. MONITORING WELL



BIG SKY CIVIL & ENVIRONMENTAL, INC

ENGINEERS - PLANNERS - DESIGNERS - LAND SURVEYORS - ENVIRONMENTAL SPECIALISTS

1324 13th Ave. SW
P.O. BOX 3625
GREAT FALLS, MT 59403
(406)727-2185 OFFICE
(406)727-3656 FAX
www.bigskyce.com

PROFESSIONAL SEAL

BY: CJM
DATE: 9/23/19

OWNER:

PROJECT NAME:

FORMER STANFIELD EXXON

SHEET TITLE:

SITE PLAN

DRAWING INFORMATION:

OFFICE PROJECT NUMBER: 19BG
OWNER FILE NUMBER:
CADD FILE NAME:
ASSOCIATED PROJECTS: 19BG-BASE

FIGURE:

FIG. 1

Petroleum Tank Release Compensation Board

Soil Boring/Monitoring Well Installation Unit Cost Worksheet

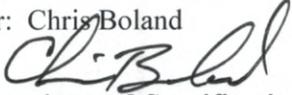
Contractor Information

Company Name: Boland Drilling

Address: 4701 N Star Blvd

City, State, Zip: Great Falls, MT 59405

Cost Estimator: Chris Boland

Signature: 

Phone: 406-761-1063

9/18/2019

Project Information and Specifications

Stanfield 7th Street Exxon

700 Central Avenue

Great Falls

Facility ID #

Release #

WP ID #

Type of Drilling Equipment

Hollow-Stem Augers

x

Air Rotary

Direct Push

Other (please specify)

Soil Boring

Number of Borings

5

Boring Diameter (inches)

8

Depth (per boring - ft)

20

Surface: Concrete Asphalt Barren

Soil Disposal: Onsite Stockpile Drums

Abandonment: Bentonite Soil Cuttings

Monitoring Well Specifications

Number of Wells

5

Surface: Concrete Asphalt Barren

Depth (per well)

20

Estimated Depth to Groundwater (ft)

Boring Diameter (inches)

8

Casing Diameter and type (inches)

2" pvc

Surface Completion: Flush Mount Aboveground

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-PRS 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
Mobilization/Demobilization (1)				
Mobilization/Demobilization: Drilling Rig	\$	15.00 /mile	10	\$ 150.00
Mobilization/Demobilization: Support Vehicle	\$	5.00 /mile	10	\$ 50.00
Soil Boring Installation (2)				
Drilling (0'-50' range per boring)	\$	28.00 /foot	100	\$ 2,800.00
Drilling (50'-100' range per boring)		/foot		\$ -
Other (please specify) _____				\$ -
Monitoring Well Installation (3)				
Drilling (0'-50' range per well)	\$	28.00 /foot	100	\$ 2,800.00
Drilling (50'-100' range per well)		/foot		\$ -
Other (please specify) _____				\$ -
Drilling Standby (4)				
-prior approval needed	\$	125.00 /hour		\$ -
Well Development (5)				
Well Development	\$	150.00 /hour		\$ -
Monitoring Well Abandonment (6)				
Abandonment	\$	350.00 /well		\$ -
Lodging may only be paid at actual costs when documented by receipts.				
Per Diem				
Lodging: number of individuals =	2	\$ 125.00 /person per day	1	
Food: number of individuals =	2	\$ 23.00 /person per day	1	
(Breakfast 5.00, Lunch 6.00, Dinner 12.00)				

TOTAL PROJECT EXPENSE \$ 5,800.00

D.O.T. Drums \$95.00 5 \$ 475.00

Additional Conditions/Comments/Costs:

Drill 5 soil borings to 20' each and construct monitor wells at 700 Central Avenue Great Falls. Transport and dispose drill cuttings to landfill after receiving non-hazardous waste manifest \$650.00

If you require assistance, call 406-841-5090.

Submit completed form to:

Petroleum Tank Release Compensation Board PO Box 200902, Helena MT 59620-0902

O'KEEFE DRILLING

Environmental

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

Client: Big Sky Civil & Environmental, In.
PO Box 3625
Great Falls, MT 59403

Date: 19-Sep-19
Phone: 406.727.2185
Cell: 406.438.1136
Email: pellis@bigskyce.com

Attention: Paxton Ellis, E.I.

Project: Stanfield 7th St, Exxon, 700 Central Ave

PROJECT SPECIFICATIONS:			
Type of Rig:	<u>Mobile B-61 Auger</u>	Number of Wells:	5
Location:	<u>Stanfield 7th St, Exxon, 700 Central Ave</u>	Expected Footage:	20
Formation:	<u>Silty Clay</u>	Completion PVC Size:	2"
Sampling:	<u>Yes</u>	Screen Length:	15
Decontamination:	<u>No</u>	Screen Size:	0.01
Other Details:	<u>Drum Soil Cuttings</u>		
	<u>Flush Mount w/Concrete Surface</u>		

Soil Boring/Monitor Well Installation

Unit Cost Worksheet

Task	Unit Cost	Number of Units	Total Cost
Mobilization/Demobilization			
Drill Rig:	\$ 2.75	Miles 310	\$ 852.50
Support Vehicle:	\$ 1.75	Miles 310	\$ 542.50
Per Diem or Crew Daily Travel			
Motel	2 \$ 100.00	Per Person Per Day 2	\$ 400.00
Food	2 \$ 40.00	Per Person Per Day 3	\$ 240.00
Soil Boring Drilling			
Drilling 0-50 ft range	\$ 30.00	Per Foot 100	\$ 3,000.00
Monitor Well Installation			
2" Sched 40 PVC	\$ 35.00	Per Foot 100	\$ 3,500.00
Drilling Standby & Safety Meeting			
	\$ 115.00	Per Hour	\$ -
Other:			
Containerize Cuttings	\$ 175.00	Per Hour 1	\$ 175.00
DOT Drums	\$ 115.00	Each 5	\$ 575.00
Premix Cement	\$ 5.19	Each 5	\$ 25.95
Total Project Expenses			\$ 9,310.95

*Mob/Demob could be split with another project if available.

**Client is responsible to remove Drums from the work site.

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

****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.



Paxton Ellis <pellis@bigskyce.com>

bid

Paul Bray <mthaztech@gmail.com>
To: pellis@bigskyce.com

Thu, Sep 19, 2019 at 6:49 AM

Paxton,

I am going to do a no bid on your work at Stanfield 7th Street Exxon.

Thanks,

Paul Bray



Virus-free. www.avast.com

