



TETRA TECH

June 14, 2019

Mr. Ryan McCormick
Farmers Union Oil Company Cenex
P.O. Box 110
Kremlin, Montana 59532

**Subject: Additional Corrective Action and Work Plan
Farmers Union Oil Company Cenex
110 Main Street, Kremlin, MT
MDEQ Facility I.D. No. 21-10030; Releases 833 and 3760
Work Plan 33862 & 33863**

Dear Mr. McCormick:

Tetra Tech is pleased to submit this Additional Corrective Action Plan (CAP) and Work Plan for additional investigation activities at the Farmers Union Oil Company Cenex in Kremlin, Montana (Site), Montana Department of Environmental Quality (MDEQ) Facility I.D. No. 21-10030. Site location is provided on **Figure 1** (Attachment A).

This additional CAP is intended to fulfill the requirements of the MDEQ, as set forth in their May 14, 2019, *Additional Corrective Action and Work Plan Required for Petroleum Release at the Farmers Union Oil Company* letter. The following section presents our proposed scope of work. Referenced figures are included in Attachment A. An outline of anticipated costs is included as Attachment B. Subcontractor bids for drilling services are contained in Attachment C.

SCOPE OF WORK

In order to meet the requirements of the MDEQ for this release, Tetra Tech proposes the following four tasks:

Task 1 – Additional Corrective Action Plan (CAP AC-03) Preparation

Activities associated with the preparation of this Additional CAP are included in Task 1. These activities include correspondence with you, the MDEQ and the Petroleum Tank Release Compensation Board (PTRCB). Preparation of the CAP also includes solicitation and review of bids from qualified subcontractors for drilling, site surveying and laboratory analytical services and off-site property access agreements (if necessary). Completion of the project cost estimate, project setup, and project contracting are also performed under this task.

Task 2 – Health and Safety Plan (HASP) Preparation

In order to comply with Occupation Safety and Health Administration Code of Federal Regulations (CFR) 29 1910.120, Tetra Tech routinely prepares a health and safety plan (HASP) for projects that involve field investigation activities, especially for those projects where environmental contaminants may be encountered. The objective of each HASP is to disclose potential chemical and physical hazards that may be encountered at a site, identify job hazards associated with field activities, describe safe work practices, identify personal protective equipment and decontamination procedures, and identify project contacts, emergency medical procedures, and the location of medical facilities. The existing HASP this project will be updated to include the tasks presented below to fulfill applicable regulatory requirements.

Tetra Tech

2525 Palmer St, Suite 2
Missoula, Montana 59808

Tel 406.543.3045 Fax 406.543.3088 www.tetrattech.com



Task 3 – Subsurface Investigation

The additional subsurface investigation at the site will be accomplished by completing four main sub-tasks. The sub-tasks included in Task 3 are: 1) Soil Boring & Monitoring Well Installation; 2) Drill Cuttings Disposal; 3) Monitoring Well Survey; and 4) Monitoring Well Development and Sampling. The scope of work for each sub-task is defined below.

Sub-Task 3.1 – Soil Boring & Monitoring Well Installation

Tetra Tech's environmental staff will oversee soil boring and monitoring well installation activities performed during this additional subsurface investigation. Three soil borings will be advanced during this investigation and completed as groundwater monitoring wells. **Figure 2** (Attachment A) illustrates the proposed boring and monitoring well locations. Actual boring locations may vary depending on utility locations, physical obstructions, our interpretation of field data and observations, and/or the input of the MDEQ-PTCS.

For this investigation, Tetra Tech will contract with Boland Drilling of Great Falls, Montana, for soil boring/sampling and monitoring well installation services. Copies of the three drilling services bids are included in Attachment C.

Tetra Tech will request underground utilities be surface-marked prior to initiation of field activities. The request will be submitted to the Utilities Underground Location Center (UULC) using their 24-hour utility notification service. Mobilization costs for a Tetra Tech employee to evaluate the proposed drilling locations and mark the proposed drilling locations as well as inspect the condition and complete minor repairs if needed, on the existing monitoring wells at the site. Tetra Tech will also rely on you to inform us of any privately-owned underground utilities on your property.

Soil borings will be advanced to approximately 20 feet bgs in each location using Boland's drill rig, which features eight-inch diameter hollow-stem augers and split-spoon soil sampling capabilities. Boring depth may vary depending on occurrence of groundwater, presence of petroleum hydrocarbon-impacted soil, and soil formations encountered. Soil samples will be collected continuously to depth using properly decontaminated split-spoon samplers. Hollow-stem augers will be used to advance borings selected to be completed as groundwater monitoring wells. All reusable down-hole equipment will be decontaminated prior to initiation of drilling at each boring location. Decontamination of all down-hole drilling equipment will be completed prior to each boring using a high-pressure steam cleaner.

Tetra Tech will record lithology and collect soil samples from the core samples. Lithologic descriptions will be logged on field forms along with other visual and olfactory observations. Drill cuttings will be staged on site for later disposal (see *Sub-Task 3.2*, below). Cuttings will be placed in a dump trailer for transportation to the Hill County Unified Disposal (HCUD) landfill for disposal.

Soil sample from each split spoon will be screened in the field for total volatile organic compounds (VOCs) using a flame-ionization detector (FID) field-calibrated against a 100 parts per million (ppm) isobutylene-in-air standard. Each soil sample will be comprised of a discrete, vertical interval of approximately six inches. Soil samples will be placed in zip-top plastic bags and warmed to approximately 75 degrees Fahrenheit in a shaded environment prior to analysis of total VOCs. Field screening data will be recorded on field forms. Discrete zones exhibiting visual or olfactory evidence of petroleum impacts will also be sampled and field screened for total VOCs, as will soil obtained from the inferred capillary fringe (i.e. immediately above the inferred water table, or the "groundwater interface").

Up to two soil samples will be collected from each boring and submitted for laboratory analysis of VPH and EPH screen. Soil sample intervals from the inferred capillary fringe and those exhibiting

the highest concentrations of total VOCs will be preferentially selected for laboratory analyses. If total VOC concentrations in a soil boring indicate petroleum impacts to soil are negligible, only the sample obtained from the groundwater interface in that boring will be submitted for laboratory analyses.

Laboratory soil samples will be labeled, containerized in glass vessels provided by the laboratory, placed in coolers with ice, and shipped to Energy Laboratories (Energy) in Helena, Montana for analysis of VPH and EPH Screen, EPA Method 8260b for lead scavengers 1,2 dichloroethane and EDB. In accordance with the RBCA screening criteria, soil samples exhibiting total extractable hydrocarbon (TEH) concentrations greater than 200 milligrams per kilogram (mg/kg) will be further analyzed for EPH fractions. For purposes of estimating costs, we assume up to two samples will require EPH fraction analyses.

The three monitoring wells will be completed with 2-inch diameter, flush threaded polyvinyl chloride (PVC) well casing. Approximately 10 to 15 feet of factory-slotted (0.02-inch) PVC well screen will be placed in the boring. The top of the well screen will be placed approximately five feet above the observed groundwater level in anticipation for higher water levels in the spring. Solid PVC "blank" will be placed from the top of the screened interval to approximately six inches bgs. All well casing joints will be threaded and sealed with o-rings. The top, north quadrant of the well casing will be marked with indelible ink; this will serve as the measuring point reference mark for future groundwater monitoring activities.

Inert sand will be placed in the annular space surrounding the well casing to at least one foot above the top of the screened interval. Each well will be sealed with hydrated, granular bentonite, placed directly above the sand. A locking well plug will be placed in each well casing, and a common-keyed padlock will be installed on each plug. Steel well casing protectors with bolt-on lids will be grouted in place and finished flush with the surrounding surface.

Observations, field data, lithology, and monitoring well completion information will be recorded on field forms. Boland will submit drilling logs for each monitoring well to the Montana Bureau of Mines and Geology, Ground-Water Information Center (GWIC).

Sub-Task 3.2 – Drill Cuttings Disposal

Tetra Tech will load, haul, and properly dispose of the drill cuttings generated during the subsurface investigation. Drill cuttings will be disposed at the Hill County Unified Disposal (HCUD) landfill located approximately 10 miles east of Havre, Montana.

Sub-Task 3.3 – Monitoring Well Survey

Following completion of monitoring well installation activities, Tetra Tech will contract Arrow Creek Survey Company (Arrow Creek) of Geysers, Montana, to perform a latitudinal/longitudinal and elevation (a.k.a. "X/Y, Z") survey of the monitoring wells. The previously-established measuring point for each well (the top, north quadrant of the PVC well casing) will be surveyed. Tetra Tech will use these data to update the existing site diagram and confirm top of casing elevations of previously installed monitoring wells.

In accordance with the MDEQ's *Technical Guidance Document #2 – Surveying Monitoring Wells*, Tetra Tech will require the surveyor to provide elevation data relative to the North American Vertical Datum of 1988 (NAVD 88) and latitudinal/longitudinal data relative to the North American Datum of 1983 (NAD 83). Tetra Tech will require the surveyor to provide data with measurement precision of 1.0 foot (X/Y) and 0.01 foot (Z).



Sub-Task 3.4 – Monitoring Well Development & Sampling

Monitoring well development will be performed immediately following installation. Prior to development, depth to water (DTW) will be measured in each well using an electronic probe. Measurements will be taken relative to the previously-established measuring point, and DTW data will be used to calculate the volume of water (“casing volume”) in each well.

Tetra Tech personnel will develop the three new wells using a “surge and purge” technique. New, disposable polyethylene bailers and a reusable bailer reel with Teflon®-coated cable will be used to agitate groundwater in each well casing for the purpose of suspending sediment particles in the water. Suspended solids will be evacuated using the bailers. Development of each well will continue until turbidity of the evacuated water declines noticeably.

Evacuated water will be spread on the ground surface proximate to the well from which it originated. All reusable down-hole equipment will be decontaminated prior to development of each well. Decontamination will consist of a Liquinox® detergent solution scrub, a 10-percent methanol solution rinse, and a deionized (DI) water rinse. Observations and field measurements will be recorded on field forms. Monitoring wells will be allowed to recharge a minimum of 24 hours before initiating groundwater monitoring activities.

Tetra Tech will complete one groundwater monitoring event as part of this CAP. Groundwater monitoring will consist of measuring DTW, measuring select intrinsic biodegradation indicators (IBIs) during evacuation, and collecting groundwater samples for laboratory analyses from the eight existing wells and the three newly installed wells. DTW will be measured as described above, and DTW data will be used to calculate casing volumes for the monitoring wells. Approximately three casing volumes of water will be evacuated from each well if possible prior to collection of laboratory analytical samples. Well evacuation will be accomplished using a peristaltic pump and a new, disposable sample tubing for each well. IBI parameters will be measured from representative aliquots for each casing volume, and evacuation will continue until IBI parameters for the individual wells stabilize. Evacuated water will be dispersed on paved surfaces proximate to each well.

IBI parameters monitored will include dissolved oxygen (DO), temperature, pH, specific conductance (SC), and oxidation/reduction potential (ORP). Temperature, pH, SC, and ORP will be measured for representative aliquots using electronic probes in an open vessel.

Laboratory analytical samples will be containerized and preserved in accordance with the requirements of the analytical laboratory, using vessels and preservatives provided by the laboratory. The sample vessels will be labeled, placed in coolers with ice, and shipped to Energy using chain-of-custody protocol for VPH and EPH screen analyses in accordance with the Massachusetts Method, EPA Method 8260b for 1,2-dichloroethane and EPA Method 8011 for EDB. In accordance with RBCA screening criteria, groundwater samples exhibiting TEH concentrations greater than 1,000 micrograms per liter ($\mu\text{g/l}$ – i.e. “parts per billion,” or “ppb”) will be further analyzed for EPH fractions. Each groundwater sample will also be analyzed for intrinsic biodegradation parameters including methane, manganese, ferrous iron, sulfate and nitrate.

All reusable, down-hole equipment will be decontaminated before monitoring each well. Decontamination will include the Liquinox®/methanol/DI procedure outlined above. Groundwater monitoring observations and field data will be recorded on field forms.

Task 4 – Report Preparation (AR-03 and RCP)

Following our receipt of laboratory analytical data from the well installation a groundwater monitoring event, Tetra Tech will prepare an Abbreviated Report Format for Soil Boring and Groundwater Monitoring Well Installation (AR-03) which will include soil and initial groundwater results, boring and well installation logs, an updated site map, conclusions and recommendations.



After the second groundwater monitoring event is completed, we will prepare a Standardized Generic Applications Report (Report_AR-07) which will include all of the sections contained in the Groundwater Monitoring Report (Report_MR-01) and include an alternatives analysis presenting options to bring this site to closure.

Tetra Tech will also complete the DEQ Release Closure Plan (RCP) which includes an evaluation of cleanup alternatives. Tetra Tech will contact the DEQ to determine cleanup methods that will be evaluated as part of the RCP process. Results of the RCP will be discussed with the DEQ project manager and the completed form will be appended to the project report.

SCHEDULE

Tetra Tech will coordinate the project schedule with you, the MDEQ, and our subcontractors (Boland and Arrow Creek) following our receipt of your authorization to proceed and our receipt of MDEQ and PTRCB approval of this work plan and associated cost estimate. For the purpose of the work plan, we assume the soil boring and monitoring well installation activities can be completed in three field days including travel. Drill cuttings disposal and monitoring well survey activities will be completed following monitoring well installation. Laboratory analyses of soil and groundwater samples typically takes three to four weeks. The monitoring report will be prepared and submitted following our receipt of final laboratory data.

FEE

Attachment B contains a detailed project cost estimate for the scope of work described above. The costs are based on the 2019 unit rates approved by the PTRCB.

ACCEPTANCE

A copy of this work plan was submitted to the MDEQ and the PTRCB on your behalf. Following their approval and obligation of funds, we will submit a work order to you for signature. Our receipt of the signed work order will be our authorization to proceed with activities approved by the MDEQ and PTRCB.

If you have any questions regarding this project, please contact Jerry Armstrong in our Missoula office at your earliest convenience (406-543-3045). We appreciate the opportunity to prepare this scope of work for you, and look forward to helping you meet the requirements of the MDEQ for this release.

Best Regards:

Don M. May
Sr. Environmental Scientist
jerry.armstrong@tetratech.com

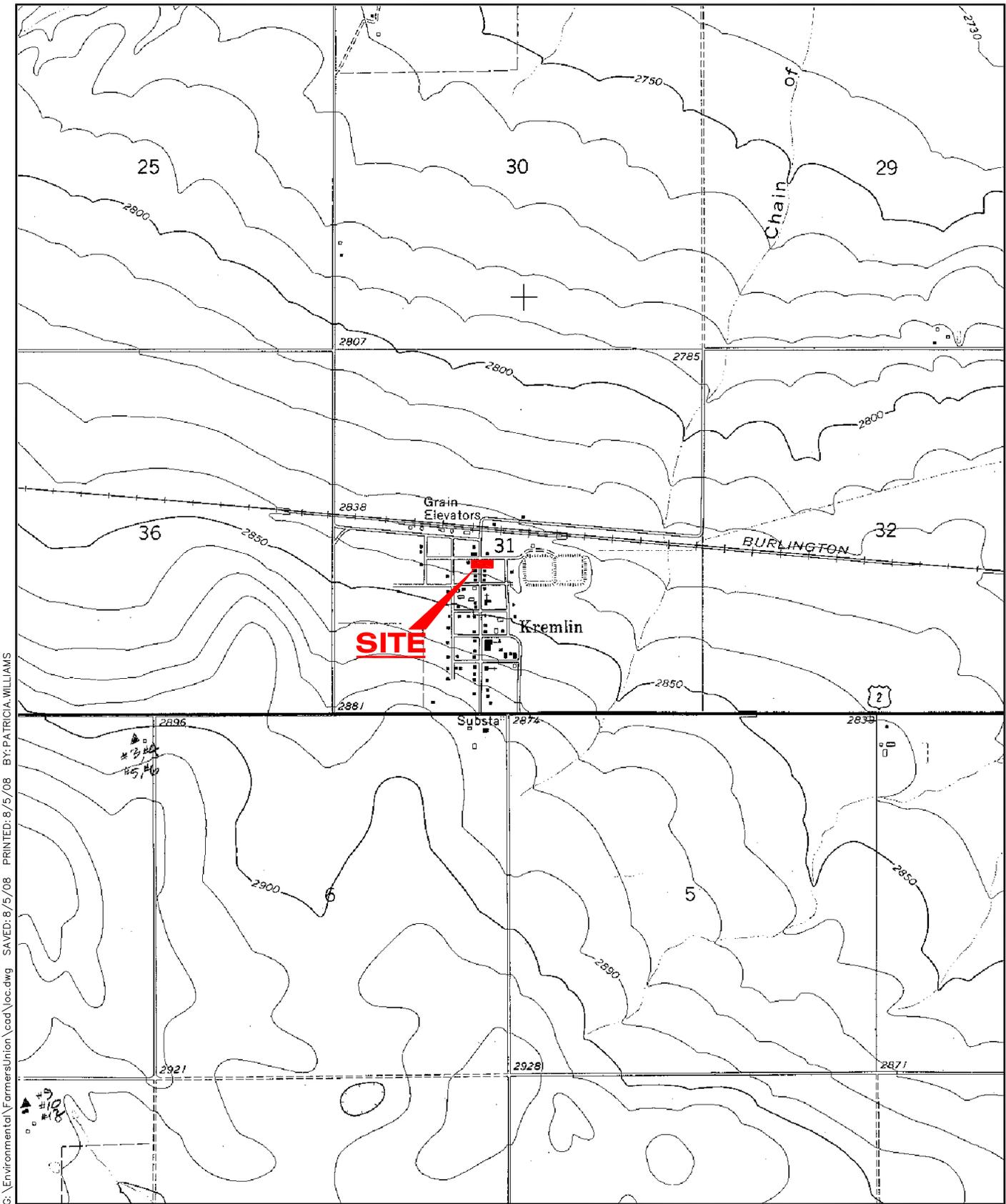
Jerold A. Armstrong, L.G.
Sr. Project Manager

Attachments: A – Figures
B – Project Cost Estimate
C – Work Authorization No. 2

cc w/ Att: Mr. Donnie McCurry, MDEQ-PTCS, Via ePass
Ms. JoAnne Adydan, PTRCB, Via ePass

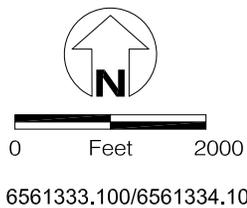
ATTACHMENT A

Figures

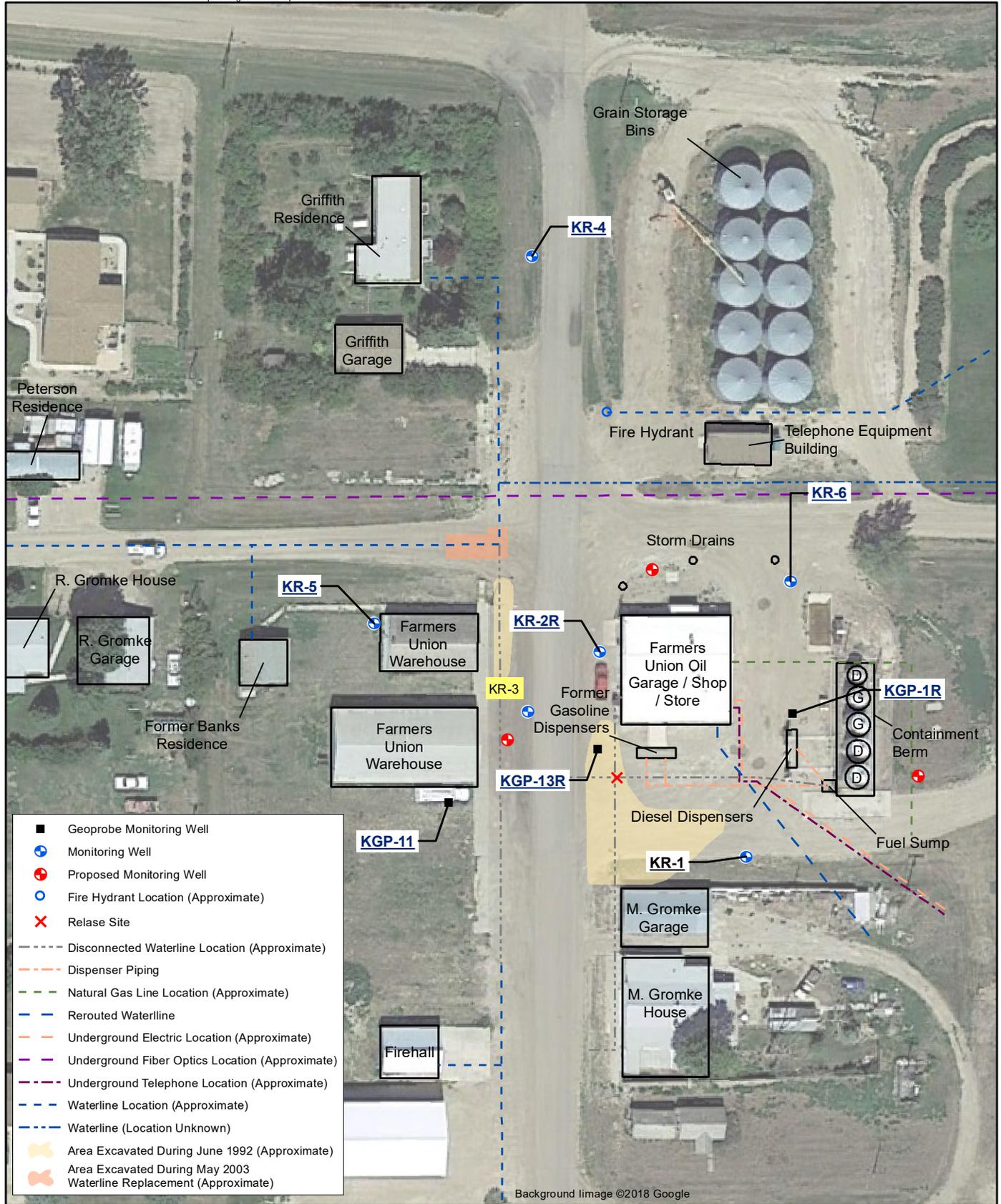


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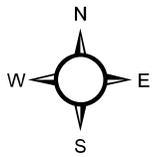
From USGS 7.5' Kremlin Quad



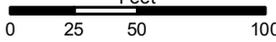
Location Map
Farmers Union Oil Company Cenex
Kremlin, Montana
FIGURE 1



114-570944A
6/14/2019



1:900
Feet



KR-3 Indicates Well Destroyed



**Site Map
Farmers Union Oil Company Cenex
Kremlin, Montana**

Figure 2

ATTACHMENT B

Project Cost Estimate

**PETROFUND APPROVED COST ESTIMATE
CORRECTIVE ACTION PLAN - ADDITIONAL CAP**

Farmers Union Oil Company Cenex

MDEQ Facility I.D. No. 21-10030; Releases 833 and 3760; Work Plan 33862 & 33863
June 2019

TASK NO. 1 (101): WORK PLAN PREPARATION

	<u>RATE</u>	<u>UNITS</u>	<u>COST</u>
CAP_AC-03 prep	\$965.00	1	\$965.00
TOTAL TASK 1			\$965.00

TASK NO. 2 (102): PROJECT MANAGEMENT

(project management and off-site access agreements)

	<u>RATE</u>	<u>UNITS</u>	<u>COST</u>
Project Manager, per hr	\$127.14	10	\$1,271.40
TOTAL TASK 2			\$1,271.40

TASK NO. 3 (103): MOBILIZATION

	<u>RATE</u>	<u>UNITS</u>	<u>COST</u>
Utility Locate and Well Survey/Repair (Technician III)	\$2.18	620	\$1,351.60
Well Installation Oversight (Staff Scientist)	\$2.18	620	\$1,351.60
Groundwater Monitoring (Technician III)	\$2.18	620	\$1,351.60
TOTAL TASK 3			\$4,054.80

TASK NO. 4 (104): UTILITY LOCATE AND WELL REPAIR FIELDWORK

	<u>RATE</u>	<u>UNITS</u>	<u>COST</u>
Technician III, per hr	\$94.21	8	\$753.68
TOTAL TASK 4			\$753.68

TASK NO. 5 (105): WELL INSTALLATION FIELDWORK

	<u>RATE</u>	<u>UNITS</u>	<u>COST</u>
Staff Scientist, per hr	\$108.78	30	\$3,263.40
TOTAL TASK 5			\$3,263.40

TASK NO. 6 (106): MONITORING WELL INSTALLATION

	<u>RATE</u>	<u>UNITS</u>	<u>COST</u>
Drilling Subcontractor, per attached bid (plus 7%)	\$4,846.00	1	\$5,185.22
TOTAL TASK 6			\$5,185.22

TASK NO. 7 (107): SITE SURVEY

	<u>RATE</u>	<u>UNITS</u>	<u>COST</u>
Survey Subcontractor, estimate (plus 7%)	\$1,350.00	1	\$1,444.50
TOTAL TASK 7			\$1,444.50

TASK NO. 8 (108): WELL REPAIR AND INSTALLATION MISCELLANEOUS

	<u>RATE</u>	<u>UNITS</u>	<u>COST</u>
Well Repair Materials, est	\$250.00	1	\$250.00
Trailer Rental (cuttings disposal)	\$100.00	2	\$200.00
TOTAL TASK 8			\$450.00

TASK NO. 9 (109): LODGING & PER DIEM

	<u>RATE</u>	<u>UNITS</u>	<u>COST</u>
Lodging, per night	\$120.00	4	\$480.00
Per Diem	\$23.00	7	\$161.00
TOTAL TASK 9			\$641.00

TASK NO. 10 (110): GROUNDWATER MONITORING

	<u>RATE</u>	<u>UNITS</u>	<u>COST</u>
Groundwater Sampling, per well	\$182.00	11	\$2,002.00
TOTAL TASK 10			\$2,002.00

TASK NO. 11 (111): LABORATORY ANALYSES

<u>SOIL</u>	<u>RATE</u>	<u>UNITS</u>	<u>COST</u>
VPH, soil, per sample	\$120.00	6	\$720.00
EPH screen, soil, per sample	\$75.00	6	\$450.00
EDB and EDC (8260), per sample	\$150.00	3	\$384.00
EPH Fractionation, soil, per sample	\$150.00	3	\$450.00
Soil Sampling Fee	\$10.00	3	\$30.00

GROUNDWATER

VPH, groundwater, per sample	\$120.00	11	\$1,320.00
EPH screen, groundwater, per sample	\$75.00	11	\$825.00
EPH Fractionation, groundwater, per sample	\$150.00	11	\$1,650.00
EDB (801 I), per sample	\$75.00	11	\$825.00
EDC (8260), per sample	\$75.00	11	\$825.00
Ferrous Iron, groundwater, per sample	\$10.00	11	\$110.00
Total Manganese, groundwater, per sample	\$25.00	11	\$275.00
Nitrate / Nitrite, groundwater, per sample	\$25.00	11	\$275.00
Sulfate, groundwater, per sample	\$10.00	11	\$110.00
Methane, groundwater, per sample	\$50.00	11	\$550.00
Groundwater Sampling Fee	\$10.00	11	\$110.00

TOTAL TASK 10 **\$8,909.00**

TASK NO. 12 (112): WELL INSTALLATION REPORT (Report AR-07 / Report AR-03)

	<u>RATE</u>	<u>UNITS</u>	<u>COST</u>
Abbreviated Soil Boring & Groundwater Monitoring Well Installation Report (Rpt_AR-03)	\$2,525.00	1	\$2,525.00
TOTAL TASK 12			\$2,525.00

TASK NO. 13 (113): RCP REPORT

	<u>RATE</u>	<u>UNITS</u>	<u>COST</u>
	\$127.14	8	\$1,017.12
TOTAL TASK 13			\$1,017.12

TOTAL ESTIMATED COST	\$32,482.12
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ATTACHMENT C
Subcontractor Bids

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

Phone: 406-761-1063

Date:

Signature:

Project Information and Specifications

Site Name: Kremlin

Address:

City:

Facility ID #

Release #

WP ID #

Type of Drilling Equipment

Hollow-Stem Augers

Air Rotary

Direct Push

Other (please specify)

Monitoring Well Specifications

Number of Wells 3

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 Boring

Number of Borings - 3 Boring Diameter (inches) - 8

Depth (per boring - ft) - 20

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-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	\$	2.50 /mile	250	\$ 625.00
Mobilization/Demobilization: Support Vehicle	\$	1.50 /mile	250	\$ 375.00
Soil Boring Installation (2)				
Drilling (0'-50' range per boring)	\$	30.00 /foot	60	\$ 1,800.00
Drilling (50'-100' range per boring)		/foot		\$ -
Other (please specify) _____				\$ -
Monitoring Well Installation (3)				
Drilling (0'-50' range per well)	\$	30.00 /foot	60	\$ 1,800.00
Drilling (50'-100' range per well)		/foot		\$ -
Other (please specify) _____				\$ -
Drilling Standby (4)				
-prior approval needed	\$	110.00 /hour		\$ -
Well Development (5)				
Well Development	\$	100.00 /well		\$ -
Monitoring Well Abandonment (6)				
Abandonment	\$	100.00 /well		\$ -
Lodging may only be paid at actual costs when documented by receipts.				
Per Diem				
Lodging: number of individuals =	2	\$ 100.00 /person per day	1	\$ 200.00
Food: number of individuals =	2	\$ 23.00 /person per day	1	\$ 46.00
(Breakfast 5.00, Lunch 6.00, Dinner 12.00)				
TOTAL PROJECT EXPENSE				\$ 4,846.00

Additional Conditions/Comments/Costs:

Drill & Construct 2 monitor wells to 20' each at Kremlin site.

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: Tetra Tech
Attention: Jerry Armstrong
Project: Kremlin, MT

Date: 04-Jun-19
Direct: 406-543-3045
Cell: 406-240-7497

PROJECT SPECIFICATIONS:			
Type of Rig:	<u>Mobile B-61 Auger</u>	Number of Wells:	<u>3</u>
Location:	<u>Kremlin, MT</u>	Expected Footage:	<u>20</u>
Formation:	<u>Sands Gravels</u>	Screen Length:	<u>10</u>
Sampling:	<u>Yes, continuous</u>	Screen Size:	<u>0.01</u>
Decontamination:	<u>Yes</u>		
Other Details:	<u>Flushmounts</u>		

Monitor Well Installation

Unit Cost Worksheet

Task	Unit Cost	Number of Units	Total Cost
Mobilization/Demobilization			
Drill Rig	\$ 2.50 Miles	560	\$ 1,400.00
Support Vehicle/Daily Travel	\$ 1.50 Miles	560	\$ 840.00
Interim Travel	\$ 1.50 Miles		\$ -
Per Diem <i>Crew Members</i>			
Motel	2 \$ 90.00 Per Person Per Day	2	\$ 360.00
Food	2 \$ 40.00 Per Person Per Day	3	\$ 240.00
Soil Boring Installation			
8.75 Drilling 0-50 ft range	\$ 30.00 Per Foot	60	\$ 1,800.00
Monitor Well Installation			
2" Drilling 0-50 ft range	\$ 32.00 Per Foot	60	\$ 1,920.00
Drilling Standby & Safety Meeting			
Prior Approval Needed	\$ 115.00 Per Hour	1	\$ 115.00
Other:			
Asphalt Patch	\$ 16.55 Per Bag	3	\$ 49.65
Total Project Expenses			\$ 6,724.65

***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.

HAZTECH 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: Tetra Tech, Inc.
 ATTN: Jerry Armstrong
 2525 Palmer Street, Suite 2
 Missoula, MT 59808
 Ph: 406-543-3045

DATE: 6/4/2019

PROJECT: Kremlin, MT

Description:

3-2 inch wells to 20 feet with 15 feet of .010 screen and flush mount covers.

TERMS: Net 30 days

	UNITS EST.	UNIT PRICE	AMOUNT EST.
*****	*****	*****	*****
Mob/ Demob, Per Mile	550	\$3.25	\$1,787.50
Support Truck, Per Day	2	\$150.00	\$300.00
Perdiem, Per Crew Day	2	\$46.00	\$92.00
Lodging, Per Night, Estimated	1	\$250.00	\$250.00
Auger Drilling, Per Ft	60	\$19.50	\$1,170.00
Well Installation, Per Ft	60	\$26.50	\$1,590.00
Flush Mount Vaults, Each	3	\$100.00	\$300.00
Well Development, Each	0	\$150.00	\$0.00
Standby	0	\$150.00	\$0.00

	ESTIMATED TOTAL:		\$5,489.50

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