

Corrective Action Plan 34062 & 34071

Farmers Union Oil Co.

906 A Avenue

Circle, MT 59215

Facility ID# 29-06376, Release# 3689 & 3803

Work Plan# 34062 & 34071

TREADS ID 24902 & 32428

Prepared for:

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Farmers Union Oil Co.

906 A Avenue

Circle, MT 59215

Prepared by:

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July 17, 2020

WCEC Project No. 14-10045-70

WCEC

West Central Environmental Consultants, Inc.

Nationwide Services

www.wcec.com

Environmental



Emergency Response



Industrial Services

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1.0 Introduction

West Central Environmental Consultants (WCEC) has prepared this Standard Generic Application Corrective Action Plan (AC-07) for the Farmers Union Oil Company facility (Facility ID# 29-06376, Release# 3689 & 3803, Work Plan# 34062 & 34071 TREADS ID 24902 & 32428) as requested by the Montana Department of Environmental Quality (MTDEQ) in letters issued April 24 & 27, 2020.

1.1 Site Location

The Farmers Union Oil Company facility is located 906 A Avenue, Circle, Montana. A site location map is included as Figure 1 and a site details map is included as Figure 2. The Public Land Survey System (PLSS) description for the site is the NW/4, SW/4, SE/4 of Section 10, T19N, R48E. The geographic coordinates are Latitude 47.4159°, Longitude -105.5866°. Township, range, and section information was obtained using the United States Geological Survey (USGS) Circle, Montana 1:24,000 Quadrangle. The site is located within the Redwater River Hydrologic Unit.

1.2 Geologic/ Hydrogeologic Setting

The surficial geology at the location of Farmers Union Oil facility consists of Quaternary alluvium and colluvium deposits from the Holocene Epoch. These alluvial deposits consist of light brown and gray poorly sorted and well stratified clay, silt, sand and gravel deposits with thicknesses between 10 and 30 feet. Soil boring logs for the facility identified silt to a depth of 16 feet with increasing sand to 20 feet. From 20 feet to 32 feet, the subsurface lithology consisted of well sorted fine sand. Groundwater is present at approximately 30 feet below grade.

2.0 Scope of Work

2.1 Required Scope of Work

The Scope of Work requested by the MTDEQ consists of:

- Propose a plan to excavate petroleum-source areas based on the results of the Laser Induced Fluorescence (LIF) investigation and soil boring data. Use field observations and data to extend excavation to remove petroleum-contaminated soil in the vadose-zone and smear- zone to the extent practicable.
- Provide a draft map to DEQ illustrating the anticipated aerial extent of excavation along with anticipated volumes of overburden and contaminated soil prior to completion of the work plan.
- Collect surface (0 to 2 feet below ground surface) confirmation soil samples as needed based on field observations, including duplicates. Collect subsurface (2 to 10 feet below ground surface) confirmation soil samples including duplicates from each sidewall and the base of the completed excavation area(s) in accordance with DEQ's 2018 Risk Based Corrective Action Guidance for Petroleum Releases (RBCA); submit samples to an approved analytical laboratory. Confirmation samples should be composited to evaluate direct-contact risks. Individual sample aliquots should be submitted for the laboratory to composite.
- Propose a plan to fully install and operate an SVE/AS system including periodic system and performance checks.
- Determine if any wells associated with release 3689 will require free product recovery, if so, propose a method to recover free product to the maximum extent possible.
- Determine if any additional monitoring wells are needed for release 3689.
- Propose a groundwater monitoring schedule.
- Combine mobilization and work under this WP with the WP for release 3803 across A Avenue at the Farmers Union Oil Repair Shop FID 32428, WP 34071.
- Validate all laboratory analytical data using DEQ's Data Validation Summary Form (DVSF).
- Discuss ongoing WP tasks and results with DEQ's project manager; submit written agreed- upon WP modifications as required to complete the WP objectives.
- Prepare a Release Closure Plan (RCP); discuss results with DEQ's project manager. DEQ expects the RCP to cover the Release investigation, cleanup, and monitoring information.
- Prepare and submit Standardized Generics Applications Report AR-07 detailing the results of the cleanup. The Report is expected to include all the content outlined in the AR-07 Report format and the following:
 - o Discussion that identifies the results of the completed WP;
 - o Conclusion section that identifies data gaps that may exist following the completion of the WP which were also identified in the discussion section.
 - o Recommendation section for future work to resolve the Release, which is supported by the discussion, conclusion(s), and RCP;
 - o Tabular presentation of cumulative soil and groundwater data;
 - o Excavation map to include location and depth of confirmation soil samples;

Corrective Action Plan 34062 & 34071

Farmers Union Oil Company

Circle, MT

- o Potentiometric map; and
- o Append laboratory reports o Append field data.
- o Append the DVSF and RCP.

3.0 Remedial Excavation

3.1 Excavation Bulk Plant (Release #3689)

WCEC will direct Shennum Construction Company of Circle Montana in the removal of impacted soils from the facility [Figure 5 & 7]. WCEC will use historical LIF investigation and survey data, field observations, and photoionization detector (PID) headspace readings to delineate hydrocarbon impacts and direct the excavation of impacted soils. The remedial excavation will be extended vertically and horizontally until soils are estimated to be below applicable regulatory limits, structural impediments are encountered, excavation sidewall caving occurs at a level that cannot be addressed in a practical manner to ensure site safety, or the presences of groundwater make further excavation impracticable. It is anticipated that sidewall structural stability will be difficult to maintain past a depth of 15 feet below ground surface.

3.2 Excavation Tire Station/Store (Release #3803)

WCEC will direct Shennum Construction Company of Circle Montana in the cutting of surface concrete and removal of impacted soils from the facility [Figure 5 & 8]. WCEC will use historical LIF investigation and survey data, field observations, and photoionization detector (PID) headspace readings to delineate hydrocarbon impacts and direct the excavation of impacted soils. The remedial excavation will be extended vertically and horizontally until soils are estimated to be below applicable regulatory limits or structural impediments are encountered. It is anticipated that this excavation area will be confined by the structure to the north, water line to the northeast, and right-of-way on southwest, south, and southeast. It is anticipated that the vertical extent of this excavation will be limited to approximately 10 feet below grade to maintain sidewall sloping to ensure structural impediments are not damaged during excavation activities. Monitoring well MW7 is in the planned excavation area. WCEC will abandon this well in accordance with Montana DNRC regulations prior to the remedial excavation to ensure that it does not become a conduit for surface water penetration following excavation activities. It is expected that MW7 will be destroyed during excavation activities. A new well will need to be installed in this area following the remedial excavation to monitor groundwater impacts in this area. All utilities will be located prior to excavation. The anticipated excavation areas are depicted in Figure 5.

3.3 Soil Disposal

Petroleum hydrocarbon impacted soils will be hauled to the Oaks Disposal Services LLC near Lindsay, MT. This is the closest Class II landfill to the facilities. Disposal soil samples will be collected from the excavation

areas using a GeoProbe prior to excavation activities to allow for all soil disposal manifesting to be completed prior to initiation of remedial excavation activities. WCEC will advance 6 soil boring to a depth of 20 feet below ground surface. A composite soil samples will be collected from each boring and analyzed for VPH, EPH, TCLP Metals, and flashpoint. All utilities will be located prior to soil boring activities. The location of these soil borings is depicted in Figure 6.

3.4 Confirmation Soil Sampling Bulk Plant

WCEC will collect adequate soil aliquots for up to 30 laboratory composite soil samples from the excavation sidewalls and pit bottom to delineate any residual petroleum impacted soils. These sample aliquots will be submitted to the laboratory for the generation of a laboratory composite. Sample locations will be determined in the field by the onsite project manager and will be collected according to WCEC standard operating procedures (SOPs) as outlined in the *Standard Operating Procedures for Field Investigations* (WCEC, 2013). It is anticipated that 5 laboratory composite samples will be generated from sample aliquots collected from the pit bottom and one additional laboratory composite will be generated for every 25 feet of excavation sidewall. These discrete sample aliquots will be submitted to the laboratory composite analysis. Discrete soil aliquots will be collected from soil horizons of 0 to 2 feet below grade, and 2 feet to 10 feet below grade for laboratory composite analysis. In addition to the samples discussed above, one duplicate soil sample will be collected for every 10 confirmation samples collected in accordance with the Montana DEQ's 2018 Risk Based Corrective Action Guidance for Petroleum Releases. Soil samples will be packed on ice and submitted to Pace Analytical Services, Inc. in Billings, Montana. Samples will be analyzed for VPH and EPH screen using the Montana Method, as required by the MTDEQ technical guidance documents. EPH fractionation will be requested for all soil samples that exceed the 200 mg/kg screening limit.

3.5 Confirmation Soil Sampling Tire Station/Store

WCEC will collect adequate soil aliquots for up to 12 laboratory composite soil samples from the excavation sidewalls to delineate any residual petroleum impacted soils. Sample locations will be determined in the field by the onsite project manager and will be collected according to WCEC standard operating procedures (SOPs) as outlined in the *Standard Operating Procedures for Field Investigations* (WCEC, 2013). Adequate sample aliquots will be collected to obtain one laboratory composite soil sample for every 625 square feet of pit bottom and every 25 feet of excavation sidewall. Sidewall sampling will be conducted in a manner to allow for a minimum of one laboratory composite sample being analyzed from every independent sidewall regardless of length. Discrete soil samples will be collected from soil horizons of 0 to 2 feet below grade, and 2 feet to 10 feet below grade. In addition to the samples discussed, a duplicate soil samples will be analyzed for every 10 samples collected from the excavation in accordance with the Montana DEQ's 2018 Risk Based Corrective Action Guidance for Petroleum Releases. Soil samples will be packed on ice and submitted to Pace

Analytical Services, Inc. in Billings, Montana. Samples will be analyzed for VPH and EPH screen using the Montana Method, as required by the MTDEQ technical guidance documents. EPH fractionation will be requested for all soil samples that exceed the 200 mg/kg screening limit.

3.6 Site Reconstruction Bulk Plant

WCEC will direct the subcontractor in backfill and compaction of the remedial excavation at the site. The remedial excavation will be backfilled in 2-foot lifts with each 2-foot lift being compacted with a vibratory compactor to ensure that settling does not occur. The surface of the excavation will be topped with road gravel and graded to match the current surface that was removed.

3.7 Site Reconstruction Tire Station/Store

WCEC will direct the subcontractor in backfill and compaction of the remedial excavation at the site. The remedial excavation will be backfilled in 2-foot lifts with each 2-foot lift being compacted with a vibratory compactor to ensure that settling does not occur. Approximately 12 inches of Class 5 gravel road base will be placed on top of the compacted pit run to underlie the concrete surface paving. A 6-inch concrete slab will be poured to match current grade and curbing that was removed. ½ inch rebar will be placed on an 18-inch grid to ensure the strength of the driving surface.

4.0 SVE/AS System

4.1 SVE/AS Rational

Historic site investigations have identified LNAPL impacts at the facility. A large portion of these impacts are located approximately 30 feet below ground surface and are present in sand layers. LNAPL impacted soils are an ongoing source for groundwater impacts at the facility. Based on the depth below ground surface and soil lithology, soil vapor extraction (SVE)/ Air Sparge (AS) technology was determined to be the most feasible remedial alternative to address LNAPL impacts at greater than 15 feet in depth. WCEC conducted an SVE/AS pilot study in the spring of 2018 to determine the optimum vacuum, pressures, and flow rates for an SVE/AS system and to calculate the effective radius of influence (ROI) for system wells. The location of SVE and AS wells, system piping and system equipment are shown in Figure 5.

4.2 SVE/AS System Equipment

Three soil vapor extraction/ air sparge skids will be used across the site. Separate enclosed SVE/AS skids containing regenerative blowers and compressors are needed to operate system wells on opposite sides of public right-of -ways, and avoid larger piping runs that would have to transect underground petroleum piping runs and other utilities. Each SVA/AS system skid will contain a regenerative blower with the capability of delivering 175 ACFM @ 40" H₂O vacuum @ 60Hz will be used on the SVE portion of the systems. Each system box will contain inline vacuum relief valves and particulate filters. Inflow and discharge sampling ports will be included in the SVE system. A TotalSep 55-gallon vapor/liquid separator will be used to ensure that the SVE system does not pull water into the regenerative blower. This tank will include a high-level switch to shut the system down if excessive water is drawn at periods of the year. A liquid level site glass and drain are included on the tank for visual inspection during system operation and maintenance checks. System piping will have vacuum, temperature, and air flow meters for adjustment of flow and pressure to maximize recovery from the system. Each system skid will contain a 2-Point Manifold (Schedule 40 PVC Construction) with 4-inch gate valves to allow for control of separate SVE trunk lines at the facility.

The air sparge portion of the system will use reciprocating oil-less piston compressors capable of 10 scfm at 20 psi. The compressor will be driven with a 2HP single phase motor. The AS system will include inlet filter muffle, pressure relief valves, gate valves and galvanized piping. Pressure and flow gauges will be installed in the system plumbing as necessary to allow optimizing system performance.

Separate power drops will be required on each side of A Avenue to supply electrical service to the SVE/AS Equipment.

4.3 Air Sparge Well Drilling

Twenty-two AS wells will be installed at the site. The AS wells will be located at the approximate locations depicted in Figure 4. The AS wells will be drilled to a depth of 37 feet and constructed with 2 feet of 0.010 inch screen and 35 feet of solid riser. The well will be completed with a 12-inch flush mount monument. The AS wells will be plumbed with a gate valve to allow for regulation of air pressure at the well head.

4.4 VEW Well Drilling

Eighteen VEWs will be installed at the site. The VEW well will be located at the approximate locations depicted in Figure 4. The VEWs will be drilled to a depth of 30 feet below ground surface and be constructed with 10 feet of 2-inch 0.010 slot PVC screen and 20 feet of solid riser. The SVE wells will be completed with a 12-inch flush mount monument and plumbed with a gate valve to allow for pressure regulation at the well head.

4.5 System Piping

Piping from the system skids to the SVE well heads will be completed with 4-inch schedule 40 PVC trunk lines and 2-inch individual branch lines. All piping will be buried to a depth between 18-inches and 24-inches. Piping runs will be bedded in pea gravel or Class 5 crush road base and covered with gravel road mix. AS lines will be constructed of 2-inch schedule 40 PVC from the system skid to the well head. SVE and AS trunk lines will be placed in the same trench with individual branch lines being excavated as needed to access each well head. Schedule 80 PVC pipe will be used in areas of the site that have large amounts of truck traffic and areas that piping cannot be laid at standard depth due to other utilities that have to be crossed.

4.6 SVE / AS System Sampling, Operation & Maintenance

SVE/AS system sampling, operation, and maintenance events will be conducted monthly at the facility. WCEC will collect system operation parameters including system flows, vacuum, temperature, PID effluent readings, and SVE effluent samples during each SVE/AS event. SVE effluent sample collection will be conducted using a flow calibrated pump and charcoal tubes. SVE/AS system operation, soil gas, analytical results, and total TPH removal will be included in the cumulative annual report.

5.0 Monitoring Well Installation & Groundwater Monitoring

5.1 Monitoring Well Installation

Seven new monitoring wells will be installed at the facility. Monitoring wells will be drilled using hollow stem auger drilling methods to a depth of 35 feet below ground surface. Each well will be completed with 15 feet of 0.010 well screen and 20 feet of solid PVC riser. Monitoring wells will be completed with eight-inch flush mount completions placed in concrete. One well will be located adjacent to the remedial excavation conducted at the corner of A Avenue and 10th Street to replace MW7 that will be abandoned prior to the remedial excavation. One well will be located south of the remedial excavation conducted between A Avenue and the railroad line to provide an upgradient monitoring point at the facility. Five additional wells will be installed down gradient of the facility to define the extent and magnitude of the groundwater impacts. All the new wells are depicted in Figure 3. WCEC will collect a soil sample from the soil boring at the soil horizons that exhibits the highest PID field screening interval and the groundwater interface. Only one soil sample will be collected if the groundwater interface exhibits the highest PID reading. If field screening does not indicate the presence of petroleum impacts at a boring location, then no soil sample will be collected from the boring. Soil samples will be analyzed for VPH and EPH screen. If the EPH screen exceeds 200 mg/kg in a sample then EPH fractions analysis will be requested.

5.2 Groundwater Monitoring

WCEC will conduct semiannual groundwater monitoring at the facilities using low flow sampling methodologies. Groundwater samples for VPH will be collected from all site monitoring wells that do not contain free product at the time of the sampling event. WCEC will collect a sample for EPH Screen from MW4, MW5, MW8, and all new site monitoring wells. If the EPH screen is exceeded, then total extractable hydrocarbon fraction analysis will be requested. WCEC will collect water samples for lead scavengers (ethylene dibromide and 1,2-dichloroethane) from monitoring points MW1, MW3, MW9, MW10, and replacement well for MW7) per conversations with DEQ case manager. Duplicate samples will be collected from MW1, and MW5 for calculation of relative percent difference on the data validation form. Monitoring wells will be purged with a downhole pump until groundwater parameters stabilize prior to sampling. Groundwater quality parameters (pH, DO, conductivity, temperature, salinity, ORP, and turbidity) will be obtained using a flow through cell attached to the down hole bladder pump from all site monitoring wells. Depth to water measurements will be collected from all site monitoring wells during each groundwater monitoring event for calculation of groundwater flow direction and gradient. Groundwater samples will be preserved in accordance with the analytical method, packed on ice and shipped to Pace Analytical in Billings, Montana.

5.3 Free Product Recovery

Free product gauging and recovery will be conducted on a monthly basis from all monitoring wells that contain free product. Free product recovery events will be conducted in conjunction with the SVE/AS operation, maintenance, and sampling events. Depth to product and depth to water will be measured in each well using an oil/water interface probe accurate to 0.01 feet. Free product thickness measurements will be obtained by subtracting the depth to water in each well from the depth to product.

Free product will be removed from the wells by either a downhole skimmer pump equipped with an oil/water interface sensor or a peristaltic pump attached to downhole tubing. The pumps will be operated until either the sensor detects the oil/water interface or water is noted in the discharge line. Gallons of product removed will be measured using a graduated 5-gallon bucket modified with a sealed-top and fittings for product collection and transfer. Recovered free product will ultimately be placed in portable 5-gallon fuel containers to facilitate transport to an oil recycler in Billings, Montana for disposal. Oil absorbent socks will be placed in wells that contain less than 0.10 feet of product.

5.4 Site Surveying

WCEC will survey all site wells in accordance with the MTDEQ Technical Guidance Documents. WCEC will survey the top of casing on all monitoring wells at the facility to Fourth Order accuracy (0.10 feet times the square root of total distance of the level loop in miles). The latitude and longitude of all site wells will be surveyed using a Trimble Geo 7X GPS with 1 centimeter post processed accuracy. Site well casing elevations will be correlated to the North American Vertical Datum of 1988 (NAVD 88) using a sight specific elevation control point. The new monitoring wells, VEW, and AS Wells will be included on the site detail maps.

6.0 Report Preparation

WCEC will complete and submit an Abbreviated Excavation and Disposal of Soils Report following completion of remedial excavation activities. Tabulated analytical and field data and maps depicting the excavation boundary and location of sample collection will be overlaid over orthophotos of the site. All analytical data from the excavation event will be validated using the Montana data validation summary form. An additional report documenting monitoring well installation, SVE/AS system installation, system startup, and groundwater monitoring will be generated following receipt of all analytical data from events included in this workplan. This report will document the installation of vapor extraction wells, sparge wells, and monitoring well installed throughout the work plan. Data collected during groundwater monitoring events, and SVE/AS startup and operation will be tabulated in the final report. WCEC will provide maps of site features, depicting the location of all site wells and utilities. All data obtained throughout workplan implementation will be validated using the Montana DEQ data validation summary form. Based on the information obtained and historical lines of evidence, WCEC will generate a Release Closure Plan that will be included with the second report and make further recommendations for additional remedial actions.

7.0 Timeline and Cost

The attached *Estimated Cost Sheets* [Appendix A] details anticipated project costs to complete the MTDEQ required scope of work. The scope of work outlined in this work plan is tentatively scheduled to be initiated in Spring 2021, pending approval of the MTDEQ and review of costs by the PTRCB.

List of Figures

Figure 1: Site Location Map

Figure 2: Site Details Map

Figure 3: Proposed Well Locations

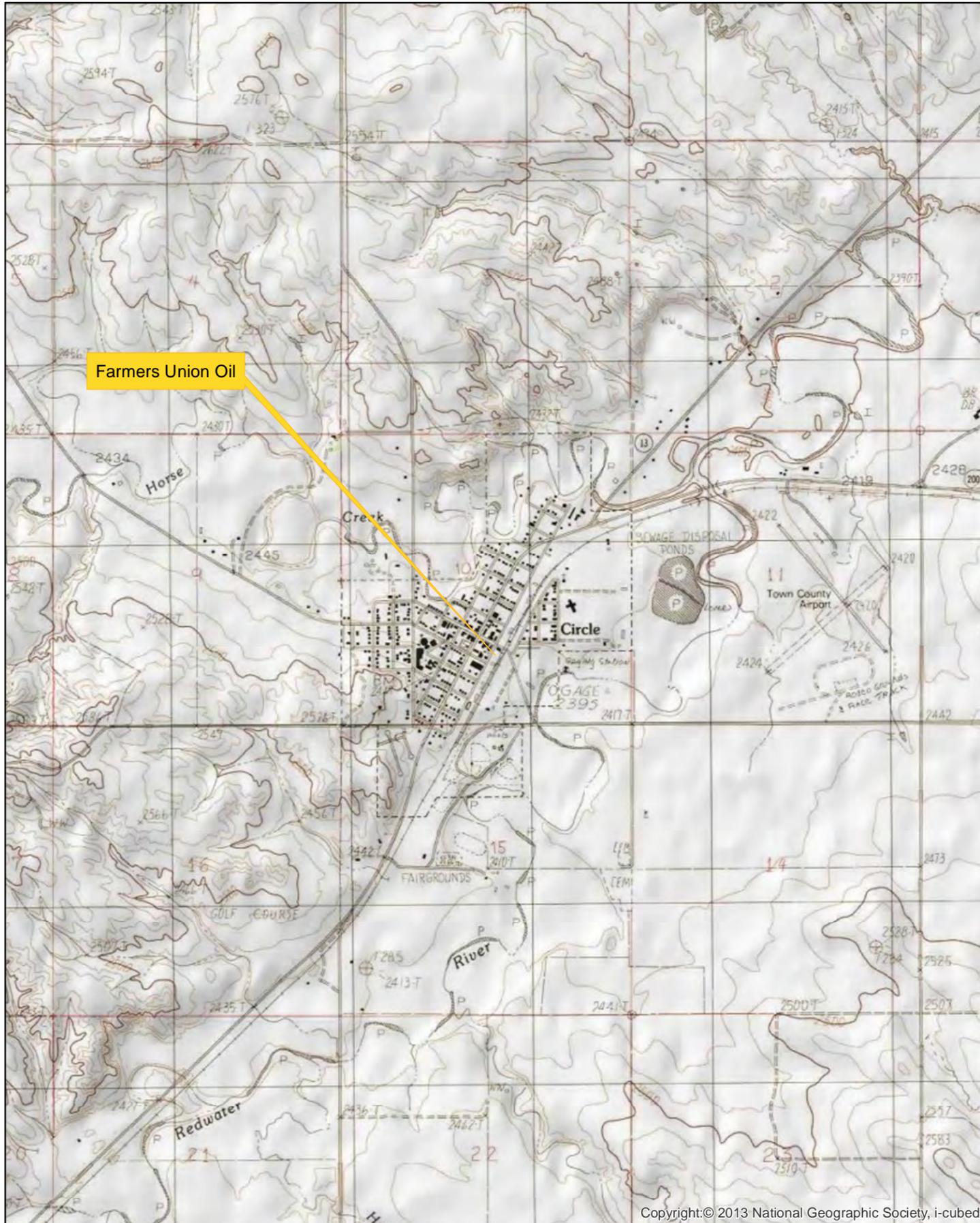
Figure 4: SVE/AS System Installation

Figure 5: Planned Excavation Areas

Figure 6: Disposal Soil Boring Locations

Figure 7: Release #3803 Excavation Cross Section A-A'

Figure 8: Excavation Area Release #3689



Farmers Union Oil Company
 906 A Avenue
 Circle, MT 59215
 Project No. 14-10045-70

Site Location Map



DRAWN BY: NGO	DATE: 07/13/16	SOURCE: ESRI	IMAGE: 07/27/13
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FIGURE 1

Legend

- Monitoring Well
- AS 1
- SVE A
- Control Point
- Water-Valves
- Fire Hydrant
- Sewer Main
- Telephone Pedestal-Vault
- Electric Underground
- Fiber
- Petroleum
- Sewer
- Telephone
- Water



Farmers Union Oil Company
906 A Avenue
Circle, MT 59215
Project No. 14-10045-70

Site Details Map

DRAWN BY: NGO DATE: 04/27/16 SOURCE: ESRI IMAGE: 07/27/13



FIGURE 2

Legend

-  Proposed Monitoring Wells
-  Monitoring Well
-  AS 1
-  SVE A
-  Control Point
-  Water-Valves
-  Fire Hydrant
-  Sewer Main
-  Telephone Pedestal-Vault
-  Electric Underground
-  Fiber
-  Petroleum
-  Sewer
-  Telephone
-  Water



Farmers Union Oil Company
 906 A Avenue
 Circle, MT 59215
 Project No. 14-10045-70

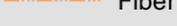
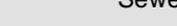
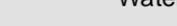
Proposed Well Locations



DRAWN BY: NGO DATE: 04/27/16 SOURCE: ESRI IMAGE: 07/27/13

FIGURE 3

Legend

-  SVE/AS System Locations
-  SVE-1
-  SVE-2
-  SVE-3
-  SVE-4
-  SVE-5
-  AS-1
-  AS-2
-  AS-3
-  Monitoring Well
-  AS 1
-  SVE A
-  Control Point
-  Water-Valves
-  Fire Hydrant
-  Sewer Main
-  Telephone Pedestal-Vault
-  Electric Underground
-  Fiber
-  Petroleum
-  Sewer
-  Telephone
-  Water



1 inch = 40 feet

Farmers Union Oil Company 906 A Avenue Circle, MT 59215 Project No. 14-10045-70	SVE/AS System Installation			WCEC
	DRAWN BY: NGO	DATE: 04/27/16	SOURCE: ESRI	IMAGE: 07/27/13
				FIGURE 4



Farmers Union Oil Company
906 A Avenue
Circle, MT 59215
Project No. 14-10045-70

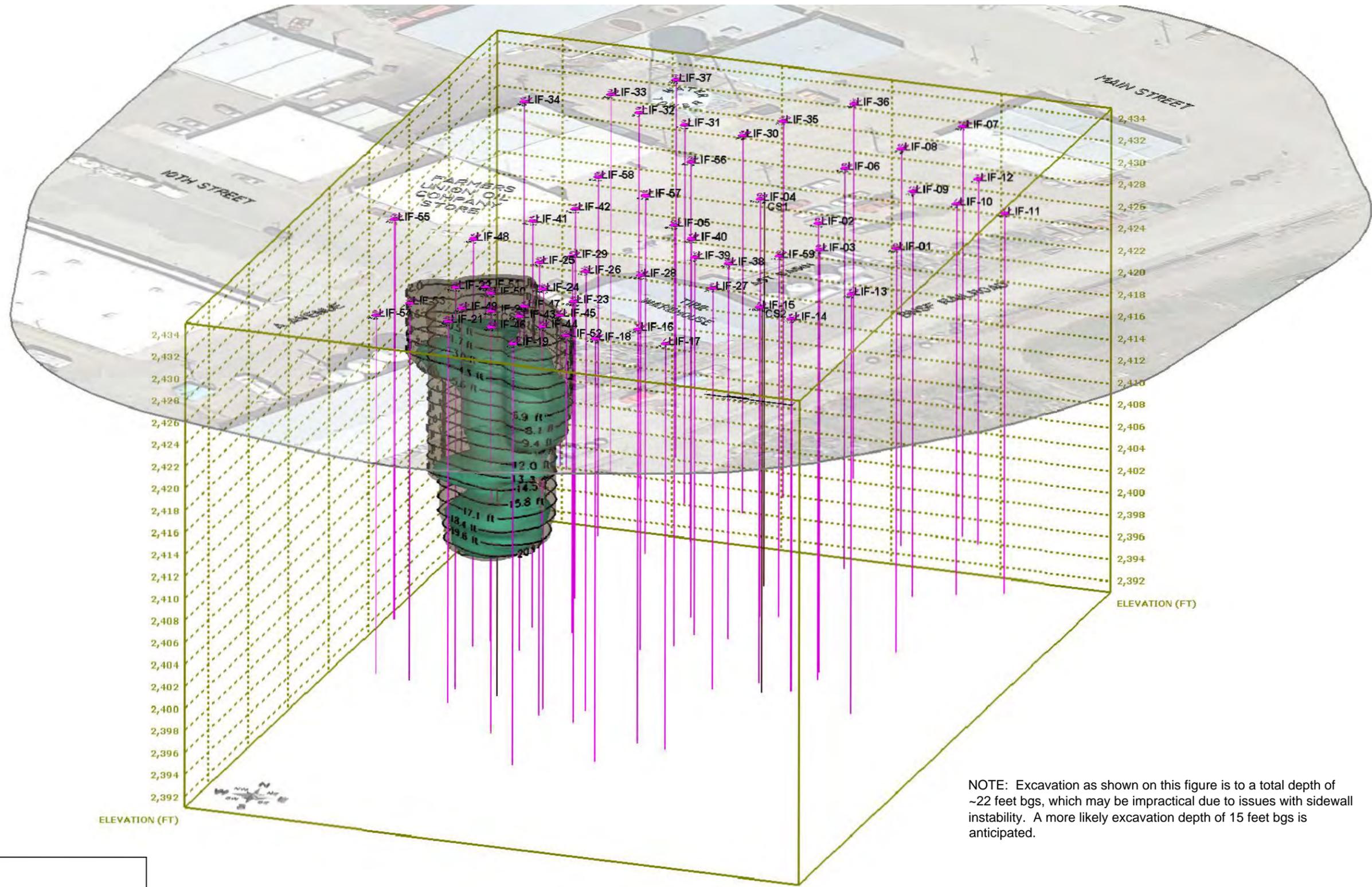
Planned Excavation Areas



DRAWN BY: NGO DATE: 04/27/16 SOURCE: ESRI IMAGE: 07/27/13

FIGURE 5





NOTE: Excavation as shown on this figure is to a total depth of ~22 feet bgs, which may be impractical due to issues with sidewall instability. A more likely excavation depth of 15 feet bgs is anticipated.

LEGEND

— LIF BOREHOLE

— CS BOREHOLE

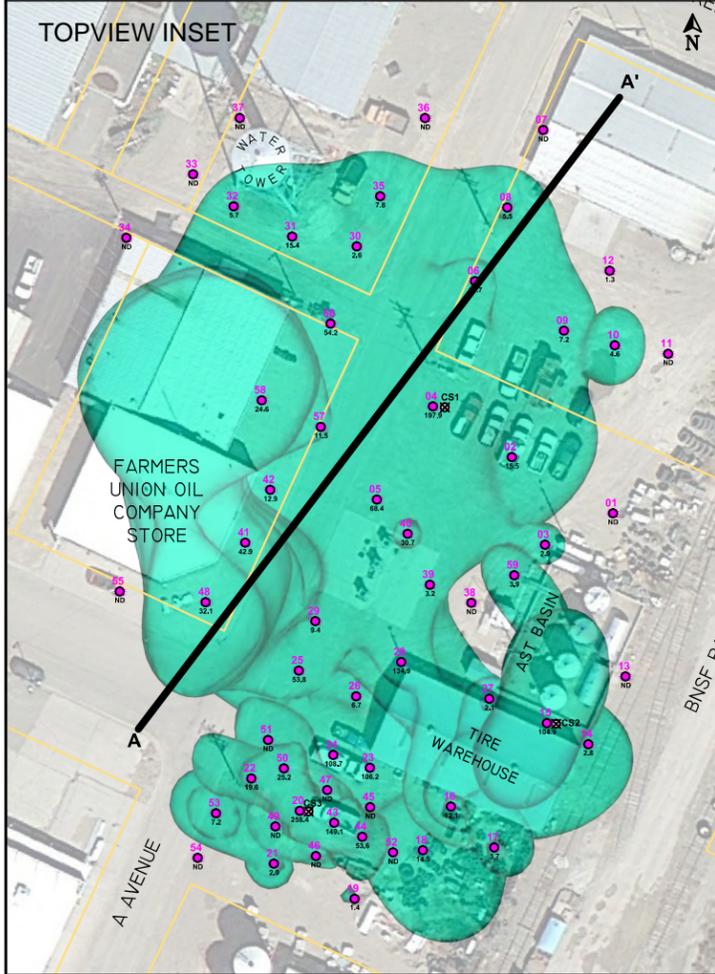
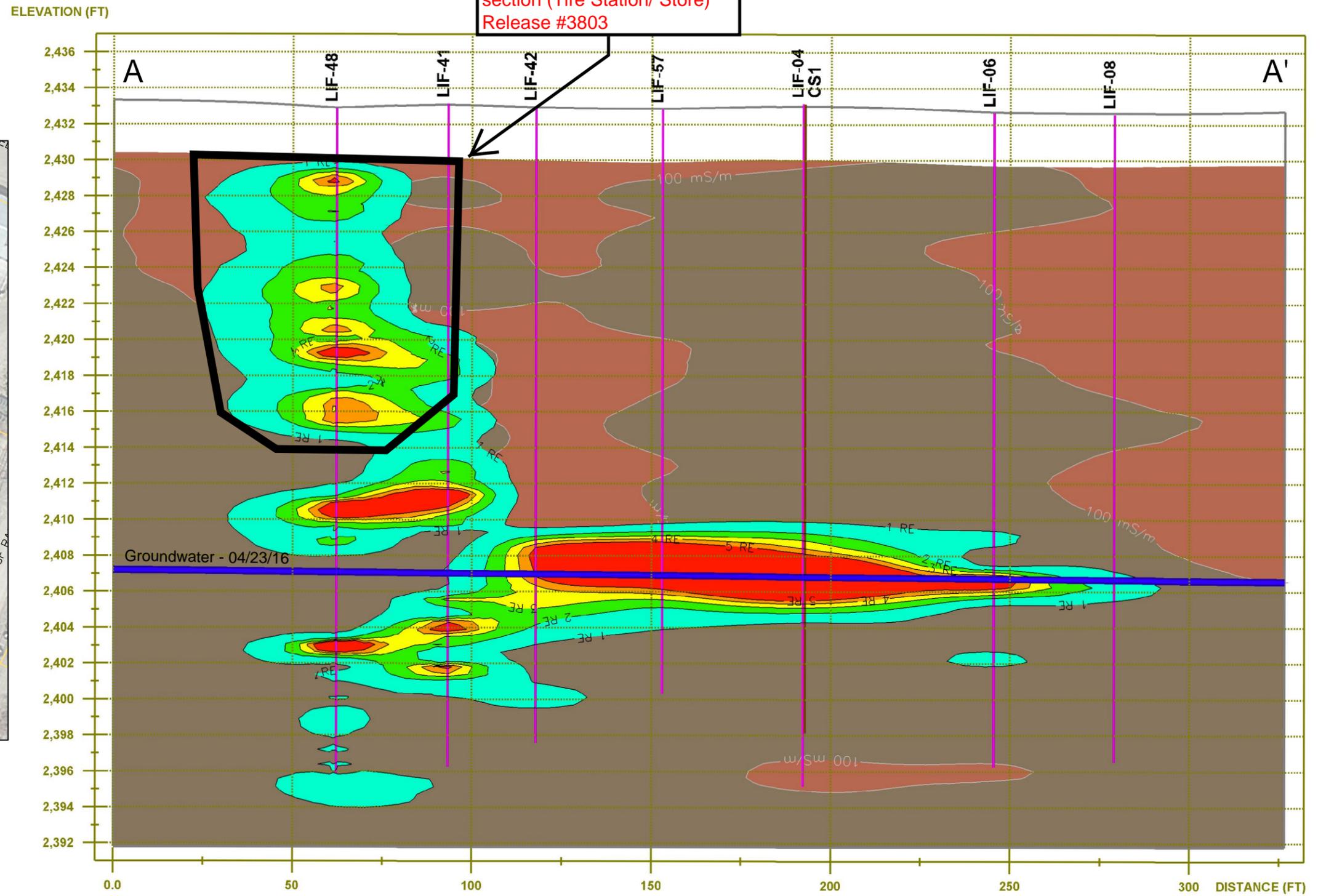
VERTICAL EXAGGERATION = 5:1

SIGNAL %RE	
■	>5
■	4-5
■	3-4
■	2-3
■	1-2

ELEVATION ANGLE = 1, AZIMUTH ANGLE = 165, LOOKING NORTHWEST
 UVOST SIGNAL >1 %RE

Farmers Union Oil Company 906 A Avenue Circle, MT Project No: 14-10045-70		Excavation Area Release #3689		
DRAWN BY: MM	DATE: 07/18/16	SCALE: NA	IMAGE DATE: NA	

Anticipated excavation cross section (Tire Station/ Store)
Release #3803



LEGEND

- LIF BOREHOLE
- CS BOREHOLE

VERTICAL EXAGGERATION = 5:1

CONDUCTIVITY

<100 mS/m >100 mS/m

SIGNAL %RE

- >5
- 4-5
- 3-4
- 2-3
- 1-2

Farmers Union Oil Company 906 A Avenue Circle, MT Project No: 14-10045-70		Release #3803 Excavation Cross Section A-A'		
DRAWN BY: MM	DATE: 07/18/16	SCALE: NA	IMAGE DATE: NA	

Appendix A - Estimated Costs Sheets

- Total Estimated Cost for Corrective Action Plan 34062 & 34071
- Estimated Cost for Remedial Excavation
- Monitoring Well Installation, SVE/AS System Installation & Operation
- Groundwater Monitoring Unit Cost Worksheet

**Total Estimated Cost for
Corrective Action Plan 34062 & 34071
906 A Avenue Circle, MT**

Facility ID# 29-06376, Release# 3803 & 3689, Work Plan# 34062 & 34071 (TREADS ID 24902 & 32428)

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TASK	Unit Cost	Units	Total Cost
Project Management			
Senior Project Manager - Coordination	\$150.00	160	\$24,000.00
	Sub Total		\$24,000.00
Work Plan Preparation			
Work Plan Preparation CAP_07	\$150.00	50	\$7,500.00
	Sub Total		\$7,500.00
Remedial Excavation Cost Sheet			
Total from Remedial Excavation Worksheet			\$461,616.01
	Sub Total		\$461,616.01
Remediation System & MW Installation Cost Sheet			
Total from Remediation System & MW Installation Cost Sheet			\$378,942.29
	Sub Total		\$378,942.29
Montana PTRCB Groundwater Monitoring Unit Cost Worksheet			
Total from Montana PTRCB Groundwater Monitoring Unit Cost Worksheet			\$28,602.40
	Sub Total		\$28,602.40
	Total Cost		\$900,660.70

**Estimated Costs for
Remedial Excavation
906 A Avenue Circle, MT**

Facility ID# 29-06376, Release# 3803 & 3689, Work Plan# 34062 & 34071 (TREADS ID 24902 & 32428)

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TASK	Unit Cost	Units	Total Cost
Mobilization - Pre Excavation Soil Disposal Sampling			
	Vehicle Mileage	940	\$582.80
A01015	Staff Scientist	15	\$1,725.00
	Tech III - Premobilization	2	\$190.00
	Sub Total		\$2,497.80
Disposal Sampling			
	Mobilization - Geoprobe w/ operator	485	\$1,479.25
	GeoProbe w/ operator	1	\$2,000.00
A01014	Staff Scientist -Soil boring/ sample collection	8	\$920.00
	Well abandonment (MW7 is located in planned excavation area)	1	\$390.00
	Sub Total		\$4,789.25
Analytical Laboratory Fees - Disposal Sampling for landfill approval			
	VPH Soil	4	\$500.00
	EPH Soil	4	\$560.00
	Flash point	4	\$240.00
	RCRA Metals	4	\$300.00
	Sample Handling Fee	4	\$40.00
	Sub Total		\$1,640.00
Mobilization - Excavation, Mapping, and Surveying			
	Vehicle Mileage	1880	\$1,165.60
	Project Manager/ Scientist	30	\$3,900.00
	Tech III	30	\$2,850.00
	Tech III - Premobilization	4	\$380.00
	Sub Total		\$8,295.60
Professional Labor - Excavation, Mapping, Surveying			
A01015	Project Manager/ Scientist	150	\$19,500.00
	Tech III	150	\$14,250.00
	Sub Total		\$33,750.00
Excavation Subcontractor			
	Shennum Construction Co. - Addendum costs	1.07	\$200,625.00
	Shennum Construction Co.	1.07	\$8,024.36
	Sub Total		\$208,649.36
Private Utility locate			
	Last Call Locating	1.07	\$2,140.00
	Sub Total		\$2,140.00
Oaks Disposal Services LLC - Lindsay MT			
	Landfill Tipping fees (2800 cubic yard - estimated 1.5 ton per yard - 4200 tons)	4200	\$168,000.00
	Sub Total		\$168,000.00

**Estimated Costs for
Remedial Excavation**

906 A Avenue Circle, MT

Facility ID# 29-06376, Release# 3803 & 3689, Work Plan# 34062 & 34071 (TREADS ID 24902 & 32428)

Page 3 of 5

TASK		Unit Cost	Units	Total Cost
Excavation - Materials, Tools, Equipment				
M00300	PID	\$102.30	20	\$2,046.00
S03100	Sample Gloves	\$1.00	200	\$200.00
	Deionized Water	\$1.50	30	\$45.00
E02100	Survey Equipment	\$165.00	10	\$1,650.00
E02350	GPS Trimble RTK	\$231.00	10	\$2,310.00
	Fencing & Traffic Control	\$1,800.00	1	\$1,800.00
			Sub Total	\$8,051.00
Analytical Laboratory Fees - Confirmation and Disposal Sampling				
	VPH Soil	\$125.00	48	\$6,000.00
	EPH Screen	\$75.00	48	\$3,600.00
	EPH Fractions	\$140.00	48	\$6,720.00
	Sample Handling Fee	\$10.00	48	\$480.00
			Sub Total	\$16,800.00
Per Diem				
	Lodging	\$140.00	40	\$5,600.00
	Per Diem Excavation	\$30.50	46	\$1,403.00
			Sub Total	\$7,003.00
			Total Cost	\$461,616.01

**Estimated Costs for
Monitoring Well Installation, SVE/AS System Installation & Operation
906 A Avenue Circle, MT**

Facility ID# 29-06376, Release# 3803 & 3689, Work Plan# 34062 & 34071 (TREADS ID 24902 & 32428)

Page 4 of 5

TASK		Unit Cost	Units	Total Cost
Mobilization - System Well Installation, SVE System Plumbing, System Startup				
	Vehicle Mileage	\$0.62	2820	\$1,748.40
	Staff Scientist	\$115.00	45	\$5,175.00
	Tech III - 2 people	\$95.00	90	\$8,550.00
	Tech III - Premobilization	\$95.00	15	\$1,425.00
	Sub Total			\$16,898.40
Professional Labor - System Well Installation oversight, system plumbing, & System Startup w/sampling				
A01015	Project Manager/ Scientist (3 weeks + system startup time)	\$130.00	165	\$21,450.00
	Staff Scientist	\$105.00	165	\$17,325.00
	Tech III	\$95.00	165	\$15,675.00
	Sub Total			\$54,450.00
WCEC - HSA Drill Rig				
D01200	HSA Drill Rig Mobilization	\$4.50	980	\$4,410.00
D01210	Drill Rig Support Vehicle	\$3.50	980	\$3,430.00
	Auger drilling per ft	\$27.00	1410	\$38,070.00
	Monitoring Well installation per ft	\$26.00	245	\$6,370.00
	Sparge Well installation per ft	\$31.00	630	\$19,530.00
	SVE Well installation per ft	\$29.00	570	\$16,530.00
	8 inch monuments	\$95.00	6	\$570.00
	12 inch monuments	\$130.00	37	\$4,810.00
	Concrete (42 monuments)	\$750.00	1	\$750.00
	Sub Total			\$94,470.00
System skids - SVE/AS				
	System Specialty Integrators Inc. - (3 SVE/AS System Skids, Freight, & System Startup Assistance)	\$127,350.00	1	\$127,350.00
	Sub Total			\$127,350.00
Excavation contractor - Trenching				
	Shennum Construction Co	\$18,050.00	1.07	\$19,313.50
	Sub Total			\$19,313.50
Electrician				
	Gladder Electric, Inc. (Connect electrical service supply to system skids)	\$2,500.00	1.07	\$2,675.00
	Sub Total			\$2,675.00
McCone Electrical Co-op				
	Service Drop	\$1,500.00	2	\$3,000.00
	McCone Electrical Co-op (monthly system electrical cost)	\$700.00	12	\$8,400.00
	Sub Total			\$11,400.00

**Estimated Costs for
Monitoring Well Installation, SVE/AS System Installation & Operation
906 A Avenue Circle, MT**

Facility ID# 29-06376, Release# 3803 & 3689, Work Plan# 34062 & 34071 (TREADS ID 24902 & 32428)

Page 5 of 5

SVE/AS System Piping, valves, Materials, Tools, Equipment

E02100	Survey Equipment	\$118.80	2	\$237.60
E02350	GPS Trimble RTK	\$165.00	4	\$660.00
M02000	Water Level Meter	\$51.15	1	\$51.15
	Concrete saw	\$125.00	3	\$375.00
	Rediflow Pump	\$115.80	2	\$231.60
	Fencing & Traffic Candles	\$850.00	1	\$850.00
	PVC Piping	\$4,500.00	1	\$4,500.00
	PVC fitting, brass gate valves, PVC ball valves, pressure gauges, primer & glue, etc.	\$5,825.00	1	\$5,825.00
	System service wire	\$680.00	1	\$680.00
	Power tools & hand tools	\$250.00	1	\$250.00
	Sub Total			\$13,660.35

SVE/AS Operation & Maintenance Equipment

M00300	PID	\$102.30	12	\$1,227.60
S03100	Sample Gloves	\$1.00	36	\$36.00
M01100	Air Velocity Meter	\$54.45	12	\$653.40
P00200	Pump - Sensidyne Air Sampling	\$82.50	12	\$990.00
M02300	Analyzer - Landfill Gases	\$107.25	12	\$1,287.00
M01000	Magnehelic gauge	\$57.42	12	\$689.04
	Sub Total			\$4,883.04

SVE/AS Testing & Quarterly Effluent Testing - Analytical Costs

	SVE Effluent Analytical Analysis (3 samples - SVE 1, SVE 2, & SVE 3)	\$125.00	36	\$4,500.00
	Sample Handling Fee	\$10.00	36	\$360.00
	Sub Total			\$4,860.00

Analytical Laboratory Fees - Monitoring Well Installation

	VPH Soil	\$125.00	15	\$1,875.00
	EPH Screen	\$75.00	15	\$1,125.00
	EPH Fractions	\$140.00	15	\$2,100.00
	Sample Handling Fee	\$10.00	15	\$150.00
	Sub Total			\$5,250.00

Report Preparation - (AR-07)

	Excavation Report (AR_04)	\$3,200.00	1	\$3,200.00
	SVE/AS/MW installation - operation report	\$2,800.00	1	\$2,800.00
	Groundwater monitoring & free product recovery	\$1,960.00	1	\$1,960.00
	Release Closure Plan	\$1,400.00	1	\$1,400.00
	Sub Total			\$9,360.00

Per Diem

	Lodging	\$140.00	80	\$11,200.00
	Per Diem Well Installation SVE/AS system installation	\$30.50	92	\$2,806.00
	Per Diem System O&M	\$30.50	12	\$366.00
	Sub Total			\$14,372.00

Total Cost \$378,942.29

Appendix B

Subcontractor Excavation Bids

Corrective Action Plan 34062 & 34071

Farmers Union Oil Company

Circle, MT

Shennum Construction Co.

Excavation Contractor Bid Worksheet (Page 1 of 2)

Farmers Union Oil Company, Circle, MT

Facility ID# 29-06376: Release# 3689, Work Plan# 34062

Contractor Company Name:

Contractor Representative Signature:

TASK	Unit Cost	Units	Total Cost
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Mobilization/ Demobilization of Equipment

This task includes the movement of all equipment and personnel to and from the site.

Unit Cost	Units	Total Cost
6000 ⁰⁰	1	6000 ⁰⁰
Sub Total:		

Soil Excavation, Segregation, Loading

This task includes all equipment and labor to excavate, segregate impacted and unimpacted soils, load impacted soils into trucks for hauling, and stockpile unimpacted soils for use as backfill. WCEC personnel will direct the excavation and segregation activities. It is estimated that 150 cubic yards of overburden will be segregated and stockpiled adjacent to excavation. Price must be a firm fixed rate per banked cubic yard. It is anticipated that a total volume of 2800 CY will be excavated. Adjustments from this volume will be based on this per CY price.

Unit Cost	Units	Total Cost
12.86	2800	36000 ⁰⁰
Sub Total:		

Soil Hauling To Landfill

This task includes all equipment and labor costs for hauling impacted soils to the Oaks Disposal facility in Lindsay, MT. Price must be a firm fixed rate per banked cubic yard with an anticipated volume of 2800 CY.

Unit Cost	Units	Total Cost
22.25	2800	62,300 ⁰⁰
Sub Total:		

Backfilling & Compaction (Imported Backfill)

This task includes all equipment, labor, and material costs related to sourcing, importing, placing, and compaction of suitable pit run, or processed backfill materials. Placement of stockpiled materials. Backfilling and compaction is to be completed using maximum lifts of 2 feet. An additional 50 cubic yards of road gravel for the surface of the excavation will be required. Price must be a firm fixed rate per banked cubic yard with an anticipated volume of 2850 CY.

Unit Cost	Units	Total Cost
22 ⁷⁰	2850	64700 ⁰⁰
Sub Total:		

Assumptions

- 1) For bidding purposes, assume removal of a banked soil volume of 2800 CY and **weight conversion factor of 1.3 tons** per banked CY
- 2) Invoicing must be based on actual banked CY removed and replaced and categorized to match this bid worksheet
- 3) Surveying of the excavation and/or tonnage delivered to the Oaks Disposal Facility will be used for volume reconciliation
- 4) WCEC will supervise and direct contractor in segregation of impacted and unimpacted soils
- 5) WCEC will determine the final extent of the excavation
- 6) WCEC will conduct all necessary ambient air monitoring during excavation and backfilling activities
- 7) WCEC will develop and implement a site specific health & safety plan and conduct daily health & safety meetings which must be attended by all site personnel
- 8) WCEC will coordinate all site access and utility locates

Excavation Contractor Bid Worksheet (page 2 of 2)

Farmers Union Oil Company, Circle, MT

Facility ID# 29-06376; Release# 3689, Work Plan# 34062

Concrete Removal & Disposal

This task includes all equipment and labor to remove 1000 square feet of concrete from the area depicted on the attached maps and dispose of this material. This included hauling the material off site.

	Square feet	
\$ 5.00	1000	5000.00
Sub Total:		

Concrete Replacement After Excavation

This task included placement of 12 inches of Class 5 gravel road base and pouring a 6 inch thick slab with 1/2 inch rebar on an 18 inch grid. A valley curb will need to be completed to match the exiting curb for proper drainage.

	Square feet	
11.50	1000	11,500.00
Sub Total:		

Excavation Equipment Sampling Support

This item includes excavator & operator time to aid WCEC in the collection of soil samples from the sidewall of the excavation. WCEC anticipates this to take up to 1 h. per day (total time of 8 hrs)

	Hr.	
250.00	8	2000.00
Sub Total:		

Total Cost:	187,500.00
Anticipated haul capacity per day	320 yards

Assumptions

- 1) For bidding purposes, assume removal of a minimum banked soil volume of 2800 CY and weight conversion factor of 1.3 tons per banked CY
- 2) Invoicing must be based on actual banked CY removed and replaced and categorized to match this bid worksheet
- 3) Surveying of the excavation and/or tonnage delivered to the Oaks Disposal Facility will be used for volume reconciliation
- 4) WCEC will supervise and direct contractor in segregation of impacted and unimpacted soils
- 5) WCEC will determine the final extent of the excavation
- 6) WCEC will conduct all necessary ambient air monitoring during excavation and backfilling activities
- 7) WCEC will develop and implement a site specific health & safety plan and conduct daily health & safety meetings which must be attended by all site personnel
- 8) WCEC will coordinate all site access and utility locates

Price Does NOT Include Disposal cost

Excavation bid addendum

Farmers Union Oil Company, Circle, MT

Facility ID# 29-06376: Release# 3689, Work Plan# 34062

Contractor Company Name:

Contractor Representative Signature:

TASK	Unit Cost	Units	Total Cost
Trenching 18 inches deep Trench 145 feet at a depth of 18 inches. One electrical utility crossing will require hand excavation across utility to prevent damage. PVC piping will be placed by WCEC prior to backfill and completion of concrete placement.	10.34	145 Feet	1499 30
		Sub Total:	
Concrete Removal & Disposal This task includes concrete cutting, equipment and labor to remove 290 square feet of concrete from the area depicted on the attached maps and dispose of this material. This included hauling the material off site.	12.07	290 Square feet	3500 30 3500
		Sub Total:	
Concrete Replacement and sub grade bedding for trench This task included placement of 12 inches of Class 5 gravel road base and pouring a 6 inch thick slab with 1/2 inch rebar on an 18 inch grid. A valley curb will need to be completed to match the exiting curb for proper drainage.	8.62	290 Square feet	2499 80
		Sub Total:	
Total Cost:			7499 40

Assumptions

- 1) Cut an trenching will be conducted at time of excavation. Concrete pouring will be conducted with pouring in original bid
- 2) Invoicing must be based on actual banked CY removed and replaced and categorized to match this bid worksheet
- 3) Surveying of the excavation and/or tonnage delivered to the Oaks Disposal Facility will be used for volume reconciliation
- 4) WCEC will supervise and direct contractor in segregation of impacted and unimpacted soils
- 5) WCEC will determine the final extent of the excavation
- 6) WCEC will conduct all necessary ambient air monitoring during excavation and backfilling activities
- 7) WCEC will develop and implement a site specific health & safety plan and conduct daily health & safety meetings which must be attended by all site personnel
- 8) WCEC will coordinate all site access and utility locates

Trenching Contractor Bid Worksheet

Farmers Union Oil Company, Circle, MT
 Facility ID# 29-06376: Release# 3689, Work Plan# 34062

Contractor Company Name: _____ Contractor Representative Signature: _____

TASK	Unit Cost	Units	Total Cost
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Mobilization/ Demobilization of Equipment

This task includes the movement of all equipment and personnel to and from the site.

Unit Cost	Units	Total Cost
1000 ⁰⁰	1	1000 ⁰⁰
Sub Total:		

Trenching

Excavation of 1200 feet of trench, 24 inches wide and 18 inches deep. All areas are currently gravel unpaved surface. Crossing 4 existing buried utilities (phone & electrical) will be required and should be expected potentially requiring additional time to cross.

Unit Cost	Units	Total Cost
10	1200	1200 ⁰⁰
Sub Total:		

Disposal of excess material

Cost of removing soils that are replaced pipe bedding materials (120 yards)

Unit Cost	Units	Total Cost
12 ⁵⁰	120	1500 ⁰⁰
Sub Total:		

Backfilling & Compaction (Imported Backfill)

This task includes all equipment, labor, and material costs related to sourcing, importing, placing, and compaction of pea gravel bedding material and surface grading gravel road material. (50 cubic yards of pea gravel & 70 cubic yards road gravel). 2 and 4 inch PVC piping will be placed in trench prior to backfilling

Material	Unit Cost	Units	Total Cost
Pea gravel	35	50	1750
Road Gravel	15	70	1050
Sub Total:			

Total Cost:	18050 ⁰⁰
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Assumptions

- 1) For bidding purposes, assume removal of a minimum banked soil volume of 2800 CY and weight conversion factor of 1.3 tons per banked CY
- 2) Invoicing must be based on actual banked CY removed and replaced and categorized to match this bid worksheet
- 3) Surveying of the trenching and scale tickets from pit will be used for reconciliation
- 4) WCEC will supervise and direct contractor in trenching location and oversight of backfill and compaction
- 5) WCEC will develop and implement a site specific health & safety plan and conduct daily health & safety meetings which must be attended by all site personnel
- 6) WCEC will coordinate all site access and utility locates

Corrective Action Plan 34062 & 34071

Farmers Union Oil Company

Circle, MT

Hills Earth Works

Excavation Contractor Bid Worksheet (Page 1 of 2)

Farmers Union Oil Company, Circle, MT

Facility ID# 29-06376: Release# 3689, Work Plan# 34062

Contractor Company Name: Hill's Earthworks Contractor Representative Signature: 

TASK	Unit Cost	Units	Total Cost
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Mobilization/ Demobilization of Equipment

This task includes the movement of all equipment and personnel to and from the site.

		Flat fee	
3,500	1		
		Sub Total:	3,500.00

Soil Excavation, Segregation, Loading

This task includes all equipment and labor to excavate, segregate impacted and unimpacted soils, load impacted soils into trucks for hauling, and stockpile unimpacted soils for use as backfill. WCEC personnel will direct the excavation and segregation activities. It is estimated that 150 cubic yards of overburden will be segregated and stockpiled adjacent to excavation. Price must be a firm fixed rate per banked cubic yard. It is anticipated that a total volume of 2800 CY will be excavated. Adjustments from this volume will be based on this per CY price.

		Banked CY	
13.00	2800		
		Sub Total:	36,400.00

Soil Hauling To Landfill

This task includes all equipment and labor costs for hauling impacted soils to the Oaks Disposal facility in Lindsay, MT. Price must be a firm fixed rate per banked cubic yard with an anticipated volume of 2800 CY.

		Banked CY	
21.00	2800		
		Sub Total:	58,800.00

Backfilling & Compaction (Imported Backfill)

This task includes all equipment, labor, and material costs related to sourcing, importing, placing, and compaction of suitable pit run, or processed backfill materials. Placement of stockpiled materials. Backfilling and compaction is to be completed using maximum lifts of 2 feet. An additional 50 cubic yards of road gravel for the surface of the excavation will be required. Price must be a firm fixed rate per banked cubic yard with an anticipated volume of 2850 CY.

		Banked CY	
46.00	2850		
		Sub Total:	131,100.00

Assumptions

- 1) For bidding purposes, assume removal of a banked soil volume of 2800 CY and **weight conversion factor of 1.3 tons** per banked CY
- 2) Invoicing must be based on actual banked CY removed and replaced and categorized to match this bid worksheet
- 3) Surveying of the excavation and/or tonnage delivered to the Oaks Disposal Facility will be used for volume reconciliation
- 4) WCEC will supervise and direct contractor in segregation of impacted and unimpacted soils
- 5) WCEC will determine the final extent of the excavation
- 6) WCEC will conduct all necessary ambient air monitoring during excavation and backfilling activities
- 7) WCEC will develop and implement a site specific health & safety plan and conduct daily health & safety meetings which must be attended by all site personnel
- 8) WCEC will coordinate all site access and utility locates

Excavation Contractor Bid Worksheet (page 2 of 2)

Farmers Union Oil Company, Circle, MT

Facility ID# 29-06376: Release# 3689, Work Plan# 34062

Concrete Removal & Disposal

This task includes all equipment and labor to remove 1000 square feet of concrete from the area depicted on the attached maps and dispose of this material. This included hauling the material off site.

	Square feet	
5.00	1000	
	Sub Total:	5,000.00

Concrete Replacement After Excavation

This task included placement of 12 inches of Class 5 gravel road base and pouring a 6 inch thick slab with 1/2 inch rebar on an 18 inch grid. A valley curb will need to be completed to match the exiting curb for proper drainage.

	Square feet	
15.00	1000	
	Sub Total:	15,000.00

Excavation Equipment Sampling Support

This item includes excavator & operator time to aid WCEC in the collection of soil samples from the sidewall of the excavation. WCEC anticipates this to take up to 1 h. per day (total time of 8 hrs)

	Hr.	
190.00	8	
	Sub Total:	1,520.00

Total Cost: 251,320.00

Anticipated haul capacity per day 360 ton / 280 CY

Assumptions

- 1) For bidding purposes, assume removal of a minimum banked soil volume of 2800 CY and weight conversion factor of 1.3 tons per banked CY
- 2) Invoicing must be based on actual banked CY removed and replaced and categorized to match this bid worksheet
- 3) Surveying of the excavation and/or tonnage delivered to the Oaks Disposal Facility will be used for volume reconciliation
- 4) WCEC will supervise and direct contractor in segregation of impacted and unimpacted soils
- 5) WCEC will determine the final extent of the excavation
- 6) WCEC will conduct all necessary ambient air monitoring during excavation and backfilling activities
- 7) WCEC will develop and implement a site specific health & safety plan and conduct daily health & safety meetings which must be attended by all site personnel
- 8) WCEC will coordinate all site access and utility locates

Corrective Action Plan 34062 & 34071

Farmers Union Oil Company

Circle, MT

Specialty System Intergrators Inc. – SVE/AS System Vendor Estimate

Friday, May 29, 2020

July 13th, 2020 Revision

SSI Quote #020019

*Mr. Nate Olson***West Central Environmental Consultants, Inc**

1030 South Ave. W, Missoula, MT 59801

P: 406.549.8487 | C: 406.370.0458 | F: 406.549.8490 | Email: nolson@wcec.com

Site: AS/SVE SKIDPAK; WCEC JOB # 10045

Dear Nate;

Specialty Systems Integrators (SSI) appreciates the opportunity to submit this proposal to WCEC for your consideration. We have prepared this proposal per the attached Process & Instrumentation Diagram (P&ID).

The SVE system will be housed within a weather-proof metal enclosure (~6' long x 8' wide x 6' high). The system will be fully integrated and shop tested prior shipping to site. The SVE system will include the following:

1 **SVE System**

(1) Regenerative Vacuum Blower Package

-  Performance 175 ACFM @ 40" H₂O vacuum @ 60Hz
-  Direct drive with 3.5kW, 3ph, TEFC, 230/460 VAC high-efficiency motor (Driven by VFD to convert single phase power feed to three-phase and to allow for variable speed operation controlled remotely via telemetry)
-  Vacuum Relief Valve
-  Inline Particulate Filter
-  Inlet and discharge ¼" Brass quarter turn sample valves
-  (6) Additional air filter elements to operate the system for 2 years

(1) TotalSep™ Vapor/Liquid Separator Tank

-  55 gallon air/water separator tank
-  Primed and painted
-  High/High Level switch
-  Liquid level site tube
-  Drain port

Friday, May 29, 2020

July 13th, 2020 Revision

SSI Quote #020019

(1) Lot of the following instrumentation and filtration equipment

-  (3) Vacuum Gauges
-  (2) Temperature gauges (Inlet and discharge of the blower)
-  (1) 2" Pitot tube air flow meter with Magnehelic gauge for measuring dilution air flow rate.
-  (1) 4" Pitot tube with Magnehelic gauge/transmitter for fair flow rate on blower's inlet and discharge Lines
-  (1) Vacuum Transmitter mounted at the blower's inlet

(1) 2-Point Manifold (Schedule 40 PVC Construction)

-  (1) 4-inch Main Header (PVC)
-  (2) 4" Gate Valves
-  (2) Vacuum Gauges
-  (2) 4" Pitot tubes with indicating gauge mounted on pipe for measuring air flow rate from each SVE well
-  (2) ¼" Brass quarter turn sample valves with barbed end

2 Air Sparge System**(2) Reciprocating oil-less piston compressor**

-  Performance (Each) 10 SCFM @ 20 psig (Max pressure at 100 psig)
-  Direct drive with 2HP, 1ph, TEFC, 230 VAC
-  Inlet Filter / Silencer
-  Pressure Relief Valve

(1) Lot of the following instrumentation and filtration equipment

-  (1) Pressure gauge
-  (1) Pressure Transmitter
-  (1) Flow Transmitter

Friday, May 29, 2020

July 13th, 2020 Revision

SSI Quote #020019

(1) 2-Point Manifold (Galvanized Construction)

-  (1) 1-inch Main Header (Galvanized)
-  (2) 1" Gate Valves
-  (2) Pressure Gauges
-  (2) Rotometer flow meters
-  (2) Check Valves

3 System Controller with Telemetry**PLC-BASED CONTROL PANEL:**

-  UL certified to the UL698A standard
-  NEMA 4 lockable panel enclosure
-  Panel passive vents
-  Surge and lightning protection for control system
-  Main power block
-  Branch circuit protection with circuit breakers for powered devices and control system power
-  24 VDC power supply
-  Siemens PLC control system
-  10-Inch color touch screen operator interface
-  Industrial grade DIN rail mounted 5-port Ethernet switch
-  Outside cover to contain the following:
 - HOA switches (displayed on touchscreen)
 - Red alarm indicator light
-  Touchscreen interface will have user display/touch screen with:
 - Color P&ID display System control with on-screen Hand-Off-Auto switches and Run indicators for system components
 - Display readings from transmitters present in system
 - Safety control over all motors with timed delay when in Hand position
 - Alarm indicators and history with reset function
 - USB port for data-logging download
 - Hour and cycle meters for the following:
-  Emergency stop button mounted inside enclosure

Friday, May 29, 2020

July 13th, 2020 Revision

SSI Quote #020019

The proposed control panel will include the following control circuits:

- ④ SVE Blower (VFD Controlled)
- ④ Air Sparge Blower

Intrinsically Safe Inputs

- ④ VLS High level switch

Analog Inputs

- ④ SVE Inlet Vacuum transmitter
- ④ SVE Inlet Flow (Reads in SCFM on the HMI)
- ④ Air Sparge Pressure Transmitter
- ④ Air Sparge Flow Transmitter

REMOTE CONTROL AND TELEMETRY HARDWARE:

Wireless remote system access for PLC based control systems. This feature includes the following:

- ④ DIN rail mounted Ethernet switch (Connected to land line DSL Service)
- ④ Remote duplicate view of the local touchscreen interface with full system control of all motors and other auxiliary outputs
- ④ Accessible from any PC, Mac, smartphone tablet with Internet access
- ④ Remote shutdown, restart and alarm reset
- ④ Viewing of alarms
- ④ Data-logging capabilities with remote downloads in csv format (Excel legible)
- ④ Daily system status notification via email and/or text
- ④ Alarm & warning notifications via email and text
- ④ No outside server to host system data. All data is stored on touchscreen interface and PLC
- ④ No proprietary programming software is used.
- ④ Annual service fee applies for the use of wireless remote access. This service must be purchased separately from the equipment purchase. Best if the service is purchased at the country of operation. International plans are available upon **3**

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4 Remediation System Enclosure (SkidPak)

Enclosed **Fully Insulated** SkidPak (approx. 6' x 8') and to include the following:

Enclosure will have a separation wall with vapor barrier to separate SVE system from the --

- Air Sparge System.
- Steel Skid
- Galvanized Exterior Skin
- Doors for Equipment access

The Enclosure will be divided into two (2) separate areas. The SVE area will be wired as Class I div 2 per NEC code and will include XP heat cable for the VLS Tank.

The second area will house the Air Sparge equipment. The AS area will be wired as non-classified and will include a light fixture and thermostatically controlled exhaust fan.

Mechanical work to include:

Mounting of the equipment inside the Enclosure

2-Point SVE manifold

2-Point AS manifold

All manifold connections to be made through the wall

Furnish and install all interior piping and associated valves per P&ID – PVC & Galvanized

Electrical work to include:

-  The Control panel will be mounted on the exterior of the Enclosure
-  Wiring of all equipment in SVE area as **Class 1 Div II Group D**
-  Wiring of all equipment in Air Sparge area as **Non-Classified**
-  Wiring of all switches as either intrinsically safe or explosion proof

All electrical wiring will be wired per NEC code as Class 1, Div II.
!!!! Electrical service meter and mast is not provided as part of this proposal !!!!

Site Power = 230VAC-3-Wire, 1ph, 60hz, 100 amp

Pricing:

Item	Description	Unit	Quantity	Unit Price (\$)	Total Price (\$)
1.	Provide AS/SVE System per above description	Lump Sum	3	\$40,200.00	\$120,600.00
2.	Freight to site	Lump Sum	1	\$3,500.00	\$3,500.00
3.	System Startup Assistance	Lump Sum	1	\$3,250.00	\$3,250.00

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[Specialty Systems Integrators, Inc.](#) appreciates your interest in our products and we thank you for your time and consideration. If you have any questions or require any additional information concerning this quotation, please do not hesitate to contact us at (763) 450-2610.

Sincerely,



SAMIR BOUZRARARA | PRINCIPAL | SPECIALTY SYSTEMS INTEGRATORS | Cell: 612.850.6750 | Direct: 763.450.2610 | Fax: 763.450.2601 | Web: www.2ssi.com

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TERMS & CONDITIONS

Delivery: Parts orders are from stock or 2-3 weeks typical. Equipment is 4-6 weeks typical. Systems are 8-16 weeks typical. Actual delivery schedule determined at time of order placement subject to current workload, vendor schedules etc. If project expediting is necessary please indicate desired delivery and Specialty Systems Integrators, Inc. will do everything possible to expedite.

Payment Terms:

Projects or Systems: 50% down with PO. 30% Before Shipping. Balance due Net 30 from completion of work.

Pricing: Pricing is valid for 45 days from proposal date. If expired, please contact Specialty Systems Integrators, Inc. for an updated proposal.

Submittals: Submittals (if required) are provided as rapidly as possible. Submittals are provided in the standard Specialty Systems Integrators, Inc. format, in digital Adobe pdf file format. The account must be current for submittals to be developed and provided.

Interpretations: Our offering is strictly limited to that which is described in the proposal above. No other equipment or services are included or implied unless in writing in the proposal. Contact Specialty Systems Integrators, Inc. if there are any inaccuracies or omissions in the proposal.

Taxes, Fees and Permits: Specialty Systems Integrators, Inc. is only required to collect sales tax in the state of MN (if applicable). If you are subject to sales or other taxes in other states, you must report them and pay them to the appropriate authorities. No fees, government or otherwise are collected by Specialty Systems Integrators, Inc. Permit fees etc. are collected only if they are described in the proposal.

Documentation: As-built drawings and IOM manuals will be provided with the system.

Startup Assistance: Startup assistance **can be provided** for a field engineer to field assist in various startup activities. The field engineer will certify the installation is proper, test installed electrical components, check out mechanical installations, calibrate instruments, startup the system and train the operators as needed. Startup assistance cost if not detailed in above proposal is priced as follows: \$1500 for first day of travel. \$950/day on-site thereafter. Costs include all travel and per-diem. Costs are for Con-US. For international startups please contact Specialty Systems Integrators, Inc. for current pricing.

Warranty: Specialty Systems Integrators, Inc. warrants its products to be free from defects in materials and workmanship for 12 months from shipment. Specialty Systems Integrators, Inc. relies on "major components" which are provided by third parties. As a result, the manufacturers' warranty will apply to those specific components and the Specialty Systems Integrators, Inc. warranty shall not apply. Any item, along with the terms of its manufacturer's warranty, including the effective and expiration date of said warranty, which is not specifically delineated in the foregoing provisions, shall be covered by Specialty Systems Integrators Inc. warranty. Specialty Systems Integrators Inc. specifically warrants that these manufacturer warranties are transferable and assignable to Purchaser. Specialty Systems Integrators, Inc. warranty shall cover shipping of returned and replacement components

Customer Acceptance – Purchase Order

By signing the acceptance below, you agree that this is a binding purchase order from your company. You also agree to abide by the proposal payment terms.

ACCEPTANCE:

Accepted by: _____ Company: _____

Printed Name & Title _____

Purchase Order # _____