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Example Workplan

Project Title: Category A, Scenario A – Remedial Investigation Sampling Plan

1. Project Summary:

This Work Plan was prepared to describe the sampling plan which is part of conducting a Remedial Investigation (RI) at a former Agricultural facility. The RI serves as the mechanism for collecting data to characterize site conditions, determine the nature of the waste, assess risk to human health and the environment, and conduct treatability testing to evaluate the potential performance and cost of the treatment technologies that are being considered. In addition, a feasibility study (FS) will be conducted in conjunction with the RI and is the mechanism for the development, screening, and detailed evaluation of alternative remedial actions. This Sampling Plan addresses the site characterization portion of work needed to complete the RI. Two components are included in the Sampling Plan which include a Quality Assurance Project Plan and a field sampling plan. For purposes of this Sampling Plan the work will be conducted under the MPCA's Site Assessment Program *Quality Assurance Project Plan* dated September 2014 and is incorporated by reference. Therefore, the content of this Sampling Plan focuses on the field sampling work.

This Work Plan is organized based on the Minnesota Pollution Control Agency's (MPCA's) *Example Work Plan* template. The content of this Work Plan includes the following:

Statement of Problems: This section describes the environmental concerns that need to be assessed to further evaluate the risks associated with known and unknown contaminants at the site.

Opportunities: This section describes the relevant information about the site that relate to completion of the Remedial Investigation.

Existing Conditions: This section briefly summarizes the known site conditions.

Goals: This section states the purpose for completing the Remedial Investigation.

Objectives, Tasks and Subtasks: These sections contain the specific work activities organized into three groups: agricultural chemical assessment, non-petroleum chemical assessment and petroleum chemical assessment. Each group includes a Task that summarizes the high-risk areas and a Task that describes the specific sampling methods. NOTE, the sampling methods such as direct-push probe work will overlap between the different chemical groups (Ag-Chem, non-petroleum and petroleum), but each group may have specific sampling intervals, media and chemical analysis. Refer to the table in Section 3 for the sampling work that is organized by risk area and associated sample points (i.e., direct-push probe, monitoring well, potable well, etc.).

2. Statement of Problems, Opportunities, and Existing Conditions

Terracon has prepared this Sampling Plan in response to the need to conduct a Remedial Investigation at the former Ag-Chem site. The Sampling Plan will address the following tasks:

- Known Ag-Chemical impacts to soil and groundwater and assessing additional Ag-Chemicals that may not have been previously assessed.
- Known trichloroethylene (TCE) impacts to soil, groundwater and soil-gas.
- Assess for petroleum impacts associated with two underground storage tanks (USTs) and one above storage tank (AST).
- Prepare a Remedial Investigation Report.

Statement of Problems

A preliminary investigation has identified some contaminants in soil, groundwater and soil-gas associated with the historical operations conducted at the site. The identified contamination poses some risk to receptors, but additional assessment is needed to fully assess the risks. The initial environmental assessment identified the contaminants summarized on the table below.

Chemical	Identified Soil Impacts	Identified Groundwater Impacts	Identified Soil-Gas Impacts
Trichloroethylene (TCE)	X	X	X
Nitrogen	X	X	
Dicamba	X	X	
Metolachlor	X	X	
Metribuzin	X	X	
Pendimethalin	X	X	
Triclopyr	X	X	

A viable responsible party is not available to address and mitigate the risks and the current property owner, who apparently was acting as a voluntary party, is no longer cooperating in regards to additional assessment and remediation. Therefore, the MPCA site assessment program is providing technical and administrative oversight which includes working with a Multi-Site Contractor to conduct assessment and remediation activities.

Based on previous assessment there exists risks to receptors. There is a dissolved phase TCE groundwater plume that has impacted three private potable wells at concentrations above the Minnesota Department of Health's (MDH) Health Risk Limit (HRL) of 0.4 micrograms per liter (ug/L). The on-site water-fill supply well is also impacted with TCE, nitrate, metolachlor and dicamba. In addition, a TCE soil-gas cloud exists on-site and extends off-site which exceeds the MPCA's Interim Expedited Intrusion Screening Value (ISV) of 6.3 micrograms per cubic meter (ug/M^3) for a residence that reportedly is occupied by a pregnant woman. The on-site maintenance garage also has high TCE soil-gas concentrations, but it isn't apparent if sub-slab samples from directly beneath the slab were collected. The available information also indicates that shallow soil is likely impacted and poses a risk. Given the close proximity of the stream to the site there is a high potential that some contaminants may be discharging to the stream thus posing a risk.

Opportunities

The site Ag-Chemical operations ceased in 1991 and the Ag-Chemical building was raised with the exception of the concrete slab, thus, allowing physical and administrative access for conducting assessment and remedial actions.

The MPCA has acquired an access agreement.

Remnants of the Ag-Chemical operations including a well, scale, and concrete slab are present allowing for more accurately locating potential release areas.

A significant amount of assessment was already conducted at the maintenance garage which shows a release of TCE occurred at the building and is the source of a dissolved phase TCE groundwater plume which has already been shown to have impacted potable wells and a TCE soil-gas cloud that has impacted one off site building and poses a high risk for vapor intrusion to other off-site occupied buildings.

Existing Conditions

The property is a former AG-Chemical facility that operated from 1960 to 1991.

The site topography is mostly flat, however the elevation slopes downward toward a small stream flowing through the northern portion of the property. This stream flows into the town which adjoins the west side of the property.

The properties adjoining the west side of the property are older portions of the town and are on private drinking water wells (blocks 3, 5, and 7). Newer portions of the town (farther west) are on community water from the local municipality (blocks 1, 2, 4, and 6).

A former dry fertilizer building and associated scale was the primary site building. The fertilizer building burned down in 1999 due to an act of vandalism, firefighting foam was applied, and building materials were removed shortly thereafter. However, a cracked concrete slab remains at the site. The scale remains located outside the west end of the building and is surrounded on all sides by gravel. Note the following additional information pertaining to the fertilizer building and associated activities:

- The fertilizer building had four access doors: the east and west ends of the building had large overhead doors; a small overhead door was located in the middle of the building on the north side; and a small service door was located on the south side.
- A pesticide mixer/blender was located inside the former fertilizer building on the west end.
- A water-fill area was located outside the former fertilizer building at the west end, and the shallow water supply well is still located in the water-fill area and is functional. In 1997, a sample collected from the well by the MDA contained concentrations of nitrate (116 milligrams/liter), metolachlor (424 micrograms/liter), and dicamba (283 micrograms/liter).
- Agricultural chemical equipment storage/parking areas were located on the north and south sides of the former dry fertilizer building.

A second building, which was a service garage historically used for vehicle and equipment maintenance, remains on-site and is located to the east of the former fertilizer building. The concrete floor in this building is intact, and the building remains in good condition for future use. Inspection documents note the vehicle/maintenance garage was used to wash and maintain equipment. A trench floor drain is present in the western portion of the building and this is connected to an approximately 500-gallon UST of unknown age. There are no records of the tank having ever been removed or cleaned out, and it assumed the tank leaked. Building records note that there were three additions to the building over the years, however these records, do not denote utility locations. Interview records note the garage was extensively used as a degreasing area for the entirety of operations. A former employee also stated that used parts degreaser was regularly poured onto the ground near the stream. Records note the presence of a 500-gallon fuel oil AST used for heating oil to heat the garage

There is a 1,000-gallon gasoline UST that was used to fill large trucks. Both tanks remain on-site and were installed in the 1960's. Stained soils were apparent beneath the AST.

Discolored soils were reported to the north of the fertilizer building and garage during the last facility inspection. These records suggest a discharge had occurred. Follow-up work was never conducted. Due diligence efforts conducted during property transfer indicated these discolored soils were still present.

The property owner conducted a limited investigation consisting of several push probes throughout the facility and adjacent property. This investigation identified chlorinated ethenes (most notably TCE) and agricultural chemicals (nitrogen, dicamba, metolachlor, metribuzin, pendimethalin, and triclopyr) in soils and groundwater above agency-regulated cleanup goals.

Geology was noted to generally consist of coarse grained sands with thin lenses of silt and clay. The investigation encountered shallow groundwater approximately 6-10 feet below ground surface (bgs), with an assumed flow direction heading into town. The investigation did not evaluate the stream.

A single round of vapor points were also advanced off-site as part of the property owner's investigation, with some of the detections exceeding the 33X ISV for TCE. MPCA is aware there is a pregnant person at the property with the exceedance of 33X ISV for TCE. A passive soil-gas sample collected in the vehicle/equipment maintenance garage was several orders of magnitude above screening criteria; however, additional characterization nor remediation occurred in the building by the property owner.

Secondary investigation conducted by an MPCA contractor was performed at the maintenance garage with the intent of evaluating if it was a contributor to downgradient TCE groundwater impacts; this investigation did not evaluate petroleum impacts. Several borings and passive vapor samples were advanced and identified significant TCE impacts to soil and groundwater indicating this area is the source of the dissolved phase TCE plume.

3. Goals, Objectives, Tasks, and Subtasks

Goals: The goal of the Master Contract is to investigate, identify, and remediate releases of contaminants that pose a threat to the state's environment, and the public's health and safety. The project goals of this Sampling Plan are to complete the site characterization of a RI in accordance with the following State programs.

- MDA Incident Response Unit's Guidance Documents - Multiple MDA Ag-Chemical guidance documents exist but the following documents apply for this Remedial Investigation:
  - o Remedial Investigation Work Plan (Guidance Document 9).
  - o Agricultural Chemical Incident Remedial Investigation Report and Corrective Action Plan (Guidance Document 10).
  - o Soil Sampling Guidance (Guidance Document 11).
  - o Groundwater Sampling Guidance (Guidance Document 12).
  - o Soil Clean-up Goals (Guidance Document 19).
  - o Groundwater Clean-up Goals (Guidance Document 28).
  - o Laboratory and Landspreader (Guidance Documents 21 through 29).

- MPCA Non-Petroleum Guidance documents: Multiple Superfund, VIC and RBCA guidance documents exist but the following documents apply for this Remedial Investigation:
  - o Risk-Based Site Evaluation Manual.
  - o Vapor Intrusion Guiding Principles.
  - o Best Management Practices for Vapor Investigation and Building Mitigation Decisions (c-rem3-06e) and Appendices.
  - o Intrusion Screening Values and Vapor Intrusion (c-rem3-14).
  - o Interim ISVs Short Guidance (c-rem3-12).
  - o Vapor Intrusion Map Templates (c-s4-10).
  - o Diagnostic testing, installation and confirmation sampling for active vapor mitigation systems in single-family residential buildings and Attachments.

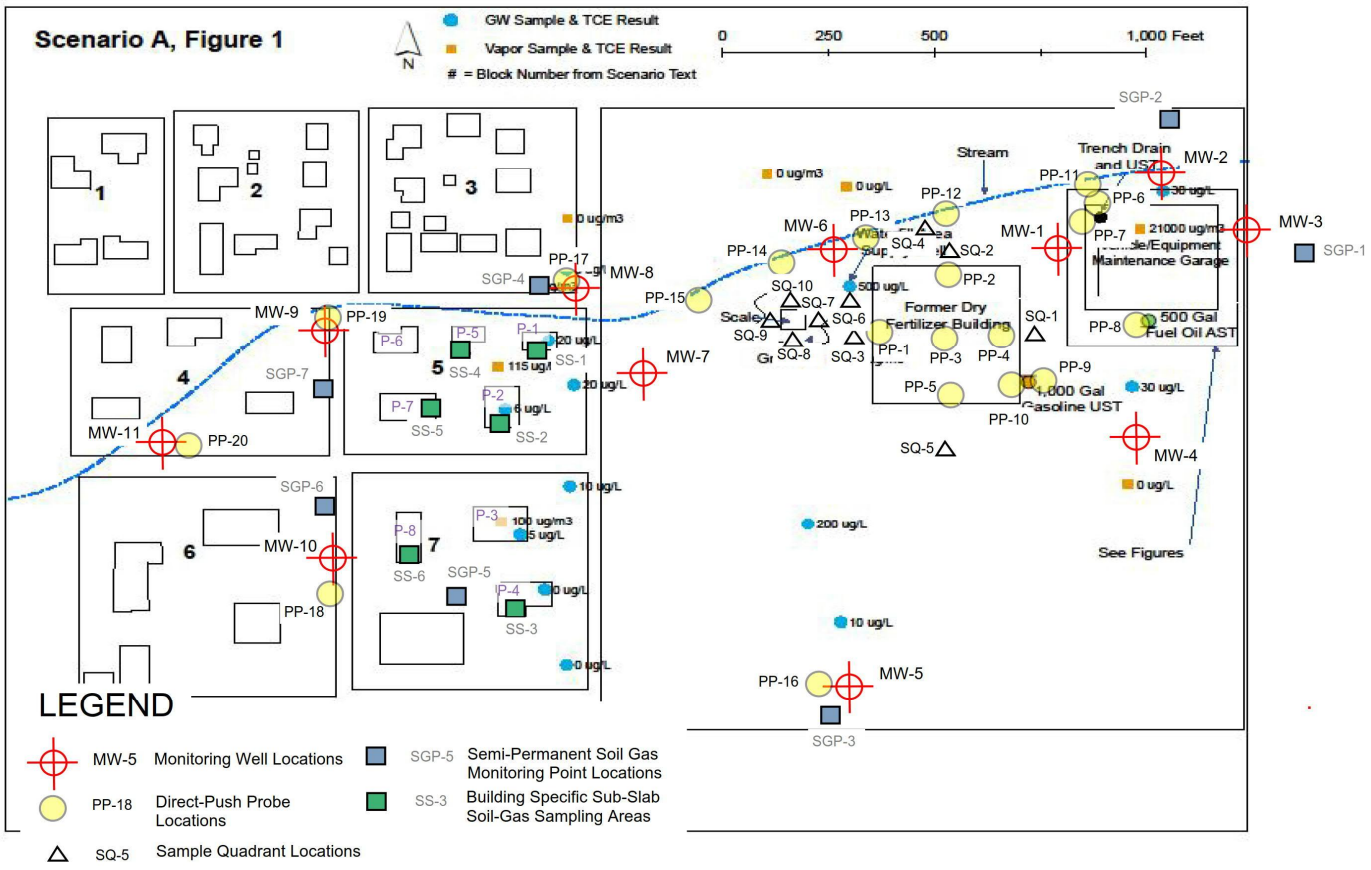
- MPCA Petroleum Guidance documents: Multiple Petroleum guidance documents exist but the following documents apply for this Remedial Investigation:
  - o Underground Storage Tank and Petroleum Remediation Quality Assurance Program Plan.
  - o 1-01 Petroleum Remediation Program General Policy (c-prp-01).
  - o 1-02 MPCA Information Request General Policy.
  - o 1-03 Spatial data collection at petroleum remediation sites (c-prp-03).
  - o 2-01 Reporting of Petroleum Releases.
  - o 2-05 Release Information Worksheet.
  - o 4-01 Soil and Groundwater Assessments Performed during Site Investigations (c-prp4-01).
  - o 4-02 Risk Evaluation and site Management Decision at Petroleum Release Sites (c-prp4-02).
  - o 4-04 Soil Sample Collection and Analysis Procedures (c-prp4-05).

This Sampling Plan is based on completing the site characterization portion of the Remedial Investigation which will include the following:

- Project Planning

- Field Investigation
- Sample Analysis/Validation
- Data Evaluation
- Risk Assessment
- RI Report

The following figure depicts the planned sample locations that are included in this Sampling Plan.



Based on the information provided in the Scenario A section of the Request for Proposal, the following table summarizes high risk areas that have been identified. The table provides a summary of the areas and the proposed investigative tasks. Push probes, sampling quadrants, monitoring wells, and on-site wells may be jointly sampled for various media and contaminants and used for the different Objectives described below for the Ag-chemical, non-petroleum and petroleum issues. The text in sections Objective 2, 3 and 4 provides a detailed description of the information provided in the table.

Risk Areas	Sample Location	Sampling Intervals	Chemicals of Concern		
			Ag-Chem	Non-Petroleum	Petroleum
Former Dry Fertilizer Building and Load Areas (current concrete slab). Fertilizer impregnation with pesticides based on the presence of the former pesticide mixer\blender.	Sampling Quadrants – SQ-1 and SQ-2 In front of the overhead access doors along the east and north sides of the building.	S: Collect composite soil samples at 0.5-foot, and 2.5 feet and discrete soil samples at 5 and 7 feet. Initially analyze the 2.5-foot composite sample. Archive the rest for possible analysis based on review of the initial data.	Nitrate-Nitrite Nitrogen (Nitrate) and Total Kjeldahl Nitrogen (TKN). May add MDA List 1 pesticide screen and other MDA pesticide screens depending on where the load-out tower or auger is located and the actual pesticides used for impregnation.	Screen soil samples with a photo ionization detector (PID), if organic vapors are detected then collect a volatile organic compound (VOC) sample for EPA Method 8260.	If petroleum staining or odors are observed then collect samples for: GRO (WI Mod. GRO) DRO (WI Mod. DRO).
	Sampling Quadrant – SQ-3 In front of the access door on the west side of building and adjacent to the former pesticide blender located inside the building.	S: Same as Sampling Quadrant sampling protocol above.	Nitrate, TKN, MDA List 1 pesticide screen and possibly MDA List 2 pesticide screen.	Screen soil samples with a PID, if organic vapors are detected then collect a VOC sample for EPA Method 8260.	If petroleum staining or odors are observed then collect samples for: GRO (WI Mod. GRO) DRO (WI Mod. DRO).
	Push Probe PP-1 This boring will be advanced through the concrete slab adjacent to the former pesticide blender.	S: Discrete samples at 0.5 feet and at 2 foot intervals to the water table. Initially analyze the 0.5-foot and the 2-foot sample from beneath the floor. Archive the rest.	Nitrate, TKN, MDA List 1 pesticide screen and possibly MDA List 2 pesticide screen.	S: VOCs (EPA 8260)* S/W: PFOAs/PFOCs	If petroleum staining or odors are observed then collect samples for: GRO (WI Mod. GRO) DRO (WI Mod. DRO).
		W: 6-16 feet Collect a groundwater sample.	Nitrate, TKN, MDA List 1 pesticide screen and possibly MDA List 2 pesticide screen.	W: VOCs (EPA 8260).	If petroleum staining or odors are observed then collect samples for: GRO (WI Mod. GRO) DRO (WI Mod. DRO).

Risk Areas	Sample Location	Sampling Intervals	Chemicals of Concern		
			Ag-Chem	Non-Petroleum	Petroleum
	Push Probes PP-2 to PP-5 These borings will be advanced through the floor preferably at areas with cracks or joints.	S: Same as Push Probe soil sampling protocol described above.	Initially analyze for Nitrate and TKN. Archive samples for possible additional nitrogen and pesticide analysis.	S: VOCs (EPA 8260).* S/W: PFOAs/PFOCs	If petroleum staining or odors are observed then collect samples for: GRO (WI Mod. GRO) DRO (WI Mod. DRO).
Maintenance Building with Trench Drain and 500 Gallon UST -Solvent use -Equipment washing and maintenance -Firefighting foam	Push Probes PP-6 and PP-7 (outside adjacent to UST).	0-50 feet S: 0-50 feet* W: 6-16 feet W: 25-30 feet W: 45-50 feet	See below.	S/W: VOCs (EPA 8260) S/W: RCRA Metals (EPA 6010/6020) S/W: PCBs (EPA 8082) S/W: PAHs (EPA 8270) W: PFOAs/PFOCs	S: GRO/BTEX (WI Mod. GRO) S: DRO (WI Mod. DRO) W: GRO/VOCs/DRO.
	Push Probes PP-6 and PP-7 (outside adjacent to UST). May need a boring through the floor adjacent to the trench if the base of the trench is not water-tight.	S: Collect soil sample from surface to water table at 2-foot intervals. Initially analyze the 5-foot sample (estimated depth below the base of the tank). W: 6-16 feet	Analyze soil and groundwater samples for Nitrate, TKN, MDA List 1 and MDA List 2 pesticide screens.	See above.	See above.
	4 Monitoring Well Clusters MW-1A/B to MW-4A/B.	0-40 feet S: 0-40 feet* A: W: 6-16 feet B: W: 30-35 feet	See below.	VOCs (EPA 8260) -Quarterly Sampling Schedule	Include GRO and/or DRO based on direct-push probe assessment results.
	4 Monitoring Well Clusters MW-1A/B to MW-4A/B	A: W: 6-16 feet B: W: 30-35 feet	Nitrate, TKN, MDA List 1 and MDA List 2 pesticide screens.	See above.	See above.
	Trench Drain and 500 gallon UST	Sediment or liquid in the UST if accessible.	Nitrate, TKN, MDA List 1 and MDA List 2 pesticide screens.	VOCs (EPA 8260) TCLP VOCs RCRA Metals (EPA 6010/6020) PCBs (EPA 8082) PAHs (EPA 8270)	GRO (WI Mod. GRO) DRO (WI Mod. DRO).
500 Gallon fuel oil AST	Push Probe PP-8	0-16 feet S: 0-16 feet* W: 6-16 feet	See below.		VOCs (EPA 8260) DRO (WI Mod. DRO) PAHs (EPA 8270).
	Push Probe PP-8 May analyze soil samples based on the location of the probe to the access doors into the garage.	S: Same as previously described Push Probe sampling procedures.	Nitrate, TKN, MDA List 1 and MDA List 2 pesticide screens		

Risk Areas	Sample Location	Sampling Intervals	Chemicals of Concern		
			Ag-Chem	Non-Petroleum	Petroleum
1,000 Gallon Gasoline UST	Push Probes PP-9 and PP-10	0-16 feet S: 0-16 feet* W: 6-16 feet	See below.		VOCs (EPA 8260) GRO (WI Mod. GRO).
	May analyze soil samples based on location of the probes to fertilizer operations.	S: Same as previously described Push Probe sampling procedures.	Nitrate and TKN. Possibly pesticides depending on operations.		
Equipment Parking Areas -On the north and south sides of the former dry fertilizer building.	Sampling Quadrants – SQ-4 and SQ-5 May need more sampling quadrants based on the size of the equipment parking areas.	S: Same as previous Sampling Quadrant sampling protocol.	Nitrate, TKN, MDA List 1 and MDA List 2 pesticide screens.	Screen soil samples with a PID, if organic vapors are detected then collect a VOC sample for EPA Method 8260.	If petroleum staining or odors are observed then collect samples for: GRO (WI Mod. GRO) DRO (WI Mod. DRO).
Water Fill Area -On-site well reportedly impacted with Ag-Chem and likely impacted with VOCs. Filling operations likely resulting in releases to the ground.	Water sample from the existing well discharge.	W: 25-30 feet estimated screen depth at existing well.	Nitrate, TKN, MDA List 1 and MDA List 2 pesticides.	VOCs (EPA 8260).	
	Sampling Quadrant – SQ-6 Collect soil samples at the water fill location. May need more than one sampling quadrant depending on the size of the water fill area.	S: Same as previous Sampling Quadrant sampling protocol.	Nitrate, TKN, MDA List 1 and MDA List 2 pesticides.	Screen soil samples with a PID, if organic vapors are detected then collect a VOC sample for EPA Method 8260.	If petroleum staining or odors are observed then collect samples for: GRO (WI Mod. GRO) DRO (WI Mod. DRO).
	Sampling Quadrant – SQ-6	W: Advance one of the probes at sampling quadrant to below the water table and collect a groundwater sample (6-16 feet).	Nitrate, TKN, MDA List 1 and MDA List 2 pesticides.	Screen soil samples with a PID, if organic vapors are detected then collect a VOC sample for EPA Method 8260.	If petroleum staining or odors are observed then collect samples for: GRO (WI Mod. GRO) DRO (WI Mod. DRO).
Scale Area -Gravel on four sides. Possible discharge of rainwater pumped from scale to the ground surface	Sampling Quadrants – SQ-7 thru SQ-10	Same as previous Sampling Quadrant sampling protocol.	Nitrate, TKN, MDA List 1 and MDA List 2 pesticides.	Screen soil samples with a PID, if organic vapors are detected then collect a VOC sample for EPA Method 8260.	If petroleum staining or odors are observed then collect samples for: GRO (WI Mod. GRO) DRO (WI Mod. DRO).

Risk Areas	Sample Location	Sampling Intervals	Chemicals of Concern		
			Ag-Chem	Non-Petroleum	Petroleum
	Water or sediment sample from inside the scale if present.		Nitrate, TKN, MDA List 1 and MDA List 2 pesticides.	VOCs (EPA 8260).	If petroleum staining or odors are observed then collect samples for: GRO (WI Mod. GRO) DRO (WI Mod. DRO).
Stream Discharges -Spent solvent dumped near stream, impacted groundwater discharging to stream, impacted surface runoff discharging to stream.	5 Push Probes PP-11 to PP-15	0-50 feet S: 0-15 feet * W: 6-16 feet W: 25-30 feet W: 45-50 feet	See below.	VOCs (EPA 8260).	If petroleum staining or odors are observed then collect samples for: GRO (WI Mod. GRO) DRO (WI Mod. DRO).
	Push Probes PP-11, PP-12, PP-15 and MW-6A/B	W: Probes 6-16 feet Monitoring well A: 6-16 feet B: 30-35 feet	Nitrate, TKN, MDA List 1 and List 2 pesticide screens.	See above.	See above.
	Push Probes PP-12, PP-13, PP-14 and PP-15	S: Collect soil samples at 0.5 foot, 2 feet, 4 feet and at 2 foot intervals to the water table. Initially analyze the 0.5 foot and 2 foot samples. Archive the rest.	Nitrate, TKN, MDA List 1 and List 2 pesticide screens.	See above.	See above.
	Stream or sediment sampling – wait on review of the initial soil and groundwater data from the sampling points between the stream and the operational areas.				
Potable Wells located in and near the plume -Chlorinated solvent and Ag-Chem groundwater impacts	Potable Well P-1	Tap	Contingent on data from MW-7A/B.	TCE impacted >0.4 ug/L	
	Potable Well P-2	Tap	Contingent on data from MW-7A/B.	TCE impacted >0.4 ug/L	
	Potable Well P-3	Tap	Contingent on data from MW-7A/B.	TCE impacted >0.4 ug/L	
	Potable Well P-4	Tap	Contingent on data from MW-7A/B.	TCE = 0 ug/L RESAMPLE for VOCs (EPA 8260)	
	Potable Well P-5	Tap	Contingent on data from MW-7A/B.	VOCs (EPA 8260)	
	Potable Well P-6	Tap	Contingent on data from MW-7A/B.	VOCs (EPA 8260)	

Risk Areas	Sample Location	Sampling Intervals	Chemicals of Concern		
			Ag-Chem	Non-Petroleum	Petroleum
	Potable Well P-7	Tap	Contingent on data from MW-7A/B.	VOCs (EPA 8260)	
	Potable Well P-8	Tap	Contingent on data from MW-7A/B.	VOCs (EPA 8260)	
Occupied buildings located in the chemical vapor area of concern. -Chlorinated solvent impacts to occupied buildings	Semi-Permanent Soil Gas Monitoring Points SGP-1 to SGP-7 to define the extent of the soil-gas area of concern	8-feet bgs or shallower depending on depth to groundwater below lowest level of building		VOCs (EPA TO-15) -One sample for the heating season -One sample for non-heating season	
	Sub-Slab Soil Gas Points at each of the following buildings: -Building 1 (SS-1) -Building 2 (SS-2) -Building 3 (SS-3) -Building 4 (SS-4) -Building 5 (SS-5) -Building 6 (SS-6)	Directly below bottom of concrete slab		VOCs (EPA TO-15) -One sample for the heating season -One sample for non-heating season	
Dissolved phase plume	5 Push Probes PP-16 to PP-20	0-50 feet S: 0-50 feet * W: 6-16 feet W: 25-30 feet W: 45-50 feet		VOCs (EPA 8260)	
	6 Monitoring Wells MW-7A/B to MW-11A/B	A: W: 6-16 feet B: W: 30-35 feet	See below.	VOCs (EPA 8260) -Quarterly Sampling Schedule	
	Monitoring Wells MW-5A/B to MW-8A/B	A: W: 6-16 feet B: W: 30-35 feet	Nitrate, TKN, MDA List 1 and List 2 pesticide screens.	See above.	
Duplicates, Equipment Blanks, Matrix Spike / Matrix Spike Duplicates, Trip Blanks			Per QAPP and MDA req.	Per QAPP and MDA req.	Per QAPP and MDA req.

*Soil samples for lab analysis based on the highest organic vapor concentration, lithological changes, odor, staining, high permeability units, or the water table surface.
May need to analyze the soil and groundwater samples for additional pesticides and/or metals based on a review of the historical fertilizer and pesticide use at the facility.
S: - indicates a soil sample, W: - indicates a water sample.

OBJECTIVE 1: Planning and Coordination.

Task A: Health and Safety Plan

Terracon has a 100% commitment to the safety of all its' employees. As such, and in accordance with our Incident and Injury Free® safety goals, Terracon will prepare a health and safety plan for the field services described in this Sampling Plan and in accordance with the Occupational Safety and Health Administration's (OSHA's) Hazardous Waste Operations and Emergency Response (HAZWOPER) covered under OSHA standard 29 of the Code of Federal Regulation (CFR) Part 1910.120. Prior to commencement of on-site activities, Terracon will hold a brief health and safety meeting to review health and safety needs for this specific project. At this time, we anticipate performing fieldwork in a USEPA Level D work uniform consisting of hard hats, safety glasses, protective gloves, and steel toed boots. It may become necessary to upgrade this level of protection, at additional cost, during sampling activities in the event that we encounter chemical constituents in soil, groundwater and soil-gas that present an increased risk for personal exposure.

Task B: Access Activities

Terracon will assist with access arrangements such as contacting the current property owners in advance of on-site work activities to be conducted on the respective properties.

Task C: Review and Data Reduction of Available Assessment Data

Terracon will request a file review of the available MDA incident response files, inspection files and any other available historical information that the MDA has to determine the historical site operations and issues related to the site. We will also attempt to interview local officials, the property owner and former operator and\or other past employees that may have information regarding the historical operations that would assist in our investigation and remedial actions.

Task D: Site Reconnaissance and Receptor Survey

Terracon will complete a site walk-through with the property owner representative and the MDA/MPCA. This will include a reconnaissance of the open areas on the property along with the readily accessible and safe interior areas in buildings and structures. The intent is to evaluate locations for possible intrusive sampling. The site reconnaissance will include a visual review of adjacent properties from the site boundaries and from public roadways. This will also include looking for areas with staining or stressed vegetation, a review of the locations of the adjacent properties that may have private wells, the location of the municipal well(s), water bodies and other geographic features.

Terracon will complete receptor surveys as specified by the MPCA and a contamination impact survey as specified by MDA to evaluate potential risks to the public and the environment. There are known private wells within ¼ mile in an apparent downgradient direction with respect to groundwater flow from the site. The requirements of the MPCA and MDA surveys are similar and are discussed below.

Subtask 1: Water Well Receptor Survey

Terracon with perform a desktop receptor survey within a ¼ mile of the perimeter of the property to identify basements, sumps, surface water, sink holes, caves, springs, seeps, and other karst features, and possible land uses that may be a contaminant source. Additionally, the desktop receptor survey will be expanded to include water wells to a distance of 1 mile around the site (per MDA Guidance Document 9) and 1¼ mile to the west, which is reportedly hydraulically downgradient of the site,

because there are known private wells and potential for a municipal well within this expanded search distance. Terracon will contact the local city utility department to confirm the water supply status at the site and the properties within the search radius, use the MDH State Well Index to obtain geologic logs and well construction reports, and review aerial photographs for karst features and\or significant features. Various MPCA and MDH webpages will be accessed to obtain information regarding public water supply wells to determine if the site lies within a protected groundwater area. The accumulated potential groundwater and surface water receptor information will be summarized on maps and tables.

Subtask 2: Vapor Receptor Survey

Terracon will perform a desktop vapor receptor survey within 500-feet of the perimeter of the property to attempt to identify possible receptors of petroleum or other vapors. Terracon will contact utilities and city utility departments to obtain information with regards to the location, depth, and construction of subsurface utilities in the area. The vapor receptor information will be summarized on a map and tables included in our report.

If not already available, then Vapor Intrusion Building Surveys will be conducted and an MPCA Vapor Intrusion Building Survey Form will be filled out for each building located in the area of concern.

Subtask 3: Surface Water Receptor Survey

A surface water receptor survey will be completed to identify the location of wetlands and surface water within 500-feet of the perimeter of the property. The surface water receptor survey will include the following:

1) Identification of all surface waters and preparation of a scaled map showing the location of the identified surface waters. Surface water information will be obtained from a variety of sources, including USGS topographical maps, National Wetland Maps and the on-site drive by survey.

2) Identification of nearby potential surface water receptors and any potential pathways (i.e., ditches, drain tiles, storm sewers, etc.) during the on-site drive by survey.

Subtask 4: Contaminant Impact Survey

Terracon will complete a Contaminant Impact Survey per MDA Guidance Document 9. This includes an evaluation of the four following exposure pathways: human health, surface water, groundwater and other potential receptors. This includes many of the tasks outlined above in Subtask 1, 2 and 3. The site reconnaissance and the receptor survey/contaminant impact survey will be completed jointly since there is overlap between the requirements. The findings of the contaminated impact survey will be documented in the text, tables and figures in the RI report.

Task E: Coordinate Subcontracting Activities and Schedules

Subtask 1: Drilling Subcontractor

Terracon will perform subcontractor coordination and/or bidding activities as required consistent with the requirements in the MPCA *Contractor and Subcontracting Purchasing Manual* and applicable MDA requirements. Terracon will prepare drilling specifications for the drilling activities. The specifications will be submitted to state drilling contractors for a price quote. The specifications will include a scope of work that includes the requirements for: health and safety; utility locating using Gopher State One-Call and private utility locating; advancing push-probes to collect soil gas, soil, and groundwater; monitoring well installation; site cleanup; project schedule and project documentation. The specifications will also include site specific information such as a site map, previous boring logs, well records, and utility information. If a firm with a state contract cannot perform the needed service or are unable to meet the project schedule, Terracon will solicit bids from firms qualified to perform the needed service consistent with the requirements in the MPCA *Contractor and Subcontracting Purchasing Manual* and the applicable MDA requirements.

Terracon will use a Minnesota licensed driller to advance push probes and to install monitoring wells. The soil samples will be collected from a combination of push probes and sampling quadrants using a macro-core sampler equipped with acetate liners. The following methods will be used to collect the respective data:

- Unified Soil Classification System (ASTM-D2487).
- Field Logging (ASTMD5434).
- Moisture Content (ASTM D2216/D4543).
- Density (ASTM D4292/D2937)
- Soil Organic Vapor (MPCA Guidance)

The groundwater samples from the push probes will be collected using either the screen point sampler or from a temporary monitoring well. The permanent monitoring wells will consist of 2-inch diameter PVC well screen and riser pipe. Since there is shallow groundwater impacts and deeper groundwater impacts we propose to install a well cluster at each monitoring well location that will consist of a water table well (approximately 6 to 16 feet screened interval) and a deeper screened well (30 to 35 feet screened interval). We will install a protective casing with an overlapping locking cap at each monitoring well. The monitoring wells will be installed pursuant to the requirements of the MDH.

The top of the casing and the ground surface elevation will be surveyed to a known benchmark to establish a reference elevation for evaluating groundwater elevations and flow direction. The monitoring wells will be developed by surging and purging groundwater until the water is relatively sediment free. Water levels will be recorded using an electronic water level indicator to the 0.01 foot. Groundwater sampling will be completed using a combination of disposable bailers and low flow pumps. The depth to groundwater and the stabilization parameter data will be collected during sampling and recorded on the sampling sheet for each well.

Downhole tools will be cleaned using high-pressure hot water wash prior to mobilization to the site. Decontamination activities between direct-push probes and samples will consist of washing downhole equipment with a solution of Alconox and water, and rinsing with tap water. Drill cuttings, cleaning fluids and development water will be containerized for off-site disposal. The analytical results from the soil samples will be used to characterize the soil cuttings for disposal. Soil that does not contain concentrations of VOCs greater than MPCA Tier 1 Soil Leaching Values (SLVs) or MDH HRLs may be thin spread on-site. The MDA typically allows for thin-spreading of soil that contains low concentrations of fertilizer and pesticides. It may be necessary to containerize soil and\or groundwater that contains higher concentrations of the chemical of concern for off-site disposal.

MDA requires the reusable downhole equipment, such as a water level indicator, to be washed with an Alconox and water mixture, followed by a methanol or acetone wipe, and a water rinse. The methanol and acetone wipe may adversely affect the laboratory analysis for VOCs. We propose to work with MDA to revise this cleaning procedure.

Subtask 2: Laboratory Subcontractor

Terracon will coordinate with a state laboratory contractor that is pre-approved by MDA and has the capabilities to meet the project Data Quality Objectives and the requirements of the MPCA's Site Assessment Program *Quality Assurance Project Plan*. If a laboratory on the state laboratory contract is

available and can meet the requirements for this project, then a State Contract Order Form will be issued for the laboratory services outlined in this Sampling Plan. If a state contract laboratory is unavailable or cannot meet the requirements of the project, then Terracon will solicit bids from firms qualified to perform the needed service consistent with the requirements in the MPCA *Contractor and Subcontracting Purchasing Manual*.

OBJECTIVE 1: TIMELINE

The timeline to complete the activities in Objective 1 will be between two and four weeks.

OBJECTIVE 1: DELIVERABLE

The information obtained during the file review, site visit, and receptor survey will be documented and summarized in text, tables and figures that will be submitted with the full RI report.

OBJECTIVE 2: Conduct Additional Assessment of Ag-Chemicals.

Task A: Assessment Activities and Associated Chemical Analysis

The following provides specific scope items pertaining to the high-risk areas identified in the preceding table. The chemicals of concern include nitrogen fertilizers and pesticides based on the provided information. Thus, the proposed analyses will include nitrate-nitrite nitrogen (nitrate), TKN the MDA List 1 pesticide screen and the MDA List 2 pesticide screen. It may be necessary to augment the proposed analyses with additional pesticides (MDA List 3 or site specific pesticides) and\or metals based on a review of the historical operations. We will use a MDA approved laboratory and the approved methods for analysis of the samples per MDA Guidance Document 23.

The soil samples will be collected as discrete samples from the push probes and as composite samples from the sampling quadrants. The sampling quadrants typically consist of borings advanced at the corners of a rectangle or an equilateral triangle. The soil samples collected from a depth of 0.5-foot and 2.5 feet from each boring are mixed to form a 0.5-foot composite sample and a 2.5-foot composite sample at each sampling quadrant. One of the borings is advanced deeper with a discrete soil sample collected at 5 feet and 8 feet. The soil sampling procedures will be performed pursuant to MDA Guidance Document 11.

The groundwater samples will be collected from either the screen point sampler or a temporary monitoring well installed at the probe locations, from the monitoring wells or from the existing water fill well or potable wells. The sampling from the probes will be completed using either a disposable bailer or low flow pumping procedures. Stabilization parameters along with the depth to groundwater measurements will be recorded on the sampling information sheets for each sample location as applicable. The groundwater sampling procedures will be pursuant to MDA Guidance Document 12.

Subtask 1: Former Dry Fertilizer Building

The RFP states there was a dry fertilizer warehouse which burned down and all that is remaining is the cracked concrete slab. There is a large access door on the east and west sides and a small overhead door on the north side. There is a service door on the south side. A pesticide mixer\blender was previously located along the west side of the building.

The areas of concern are at the loading areas outside of the overhead access doors and beneath the floor of the former fertilizer building. It is our experience that the fertilizers in particular migrate through cracks and joints in the floor to the underlying subsurface soil. This may also include pesticides in the

vicinity of the mixer\blender. Thus, soil and groundwater sampling is needed to evaluate the possible presence and extent of fertilizer and pesticide impacts.

Based on the site description we propose the following:

- Sampling Quadrants SQ-1 through SQ-3 will be established in the gravel in front of the access and load doors located on the east, north and west sides of the building. We do not propose to establish a sampling quadrant in front of the service door based on the available information. That may change based on actual historical site operations. Soil samples will be collected from the sampling quadrants pursuant to the sampling procedures in MDA Guidance Document 11. In general, the sampling quadrant will consist of a 15-foot equilateral triangle with a boring advanced at the three points of the triangle. The discrete soil sample collected from the three borings at a depth of 0.5 feet and 2.5 feet will be composited to form a 0.5-foot and a 2.5-foot composite sample from each sampling quadrant. One of the borings will be advanced to a depth of 8 feet or to the water table, whichever is shallower. A discrete soil sample will be collected from the deeper boring at a depth of 5 feet and 8 feet.

  The -2.5-foot composite sample will initially be analyzed for nitrate and TKN. Since sampling quadrant SQ-3 is located outside, adjacent to the former pesticide mixer\blender the 2.5-foot composite sample from SQ-3 will also be analyzed for the MDA List 1 and MDA List 2 pesticide screen. It may be necessary to expand the pesticide analyses depending on the actual pesticides used for fertilizer impregnation (possibly MDA List 3 pesticide screen or others).

- Push probe PP-1 will be advanced through a crack or joint in the floor of the former building in the vicinity of the former pesticide mixer\blender. The boring will be advanced to an estimated depth of 16 feet to facilitate the collection of soil and groundwater samples. Soil samples will be collected immediately beneath the floor (0.5-foot) and at 2-feet, 4 feet, etc. to the water table for possible laboratory analysis. The 0.5 foot and the 2-foot soil sample and the groundwater sample from PP-1 will be analyzed for nitrate, TKN, the MDA List 1 and List 2 pesticide screens. The sample from SQ-3 will also be analyzed for the MDA List 1 and MDA List 2 pesticide screen. It may be necessary to expand the pesticide analyses depending on the actual pesticides used for fertilizer impregnation (possibly MDA List 3 pesticide screen or others). The remaining soil samples will be archived in a freezer for possible analysis based on a review of the initial data.

- Push probes PP-2 through PP-5 will also be advanced through a crack or joint in the floor of the former building to a depth of 12 feet or the water table, whichever is shallower. The soil sampling depths and protocols are the same as for PP-1. These samples will be analyzed for nitrate and TKN. These samples will not be analyzed for pesticides initially because they are at locations remote from the pesticide mixer\blender. This may change based on a review of the initial data from PP-1.

- Push probes PP-9 and PP-10 will be advanced adjacent to the 1,000 gallon gasoline UST located outside of the fertilizer building. Depending on the location of these probes in relation to the fertilizer operational areas, soil samples collected from these probes may be analyzed for nitrate and TKN and possibly pesticides.

Subtask 2: Maintenance Garage with Trench Drain and UST

There is a second building which was historically used for vehicle maintenance and equipment washing. There remains a floor trench drain that discharges to a 500 gallon UST. There are no records of the UST having ever been removed or cleaned. It is assumed the tank has leaked.

The washing of agricultural chemical sprayers, spreaders or other equipment likely resulted in the discharge of fertilizer and pesticides to the trench drain and the UST. There is no information regarding the construction of the trench drain so we assume it has poured concrete walls and base.

Based on the site description we propose the following:

- We propose to clean any sediment from the base of the trench drain to facilitate a visual inspection of the integrity of the trench drain. The sediment will be containerized for offsite disposal. If the concrete is intact, additional sampling may not be necessary. However, if the concrete does not appear to be intact a boring will be advanced either through the base of the trench drain or immediately adjacent to the drain to facilitate the collection of soil samples for laboratory analysis. This would require coring through the concrete to facilitate the collection of the soil samples using either a hand auger or an equivalent sampling device. The soil sample collected from a depth below the base of the trench drain will initially be analyzed for nitrate, TKN, the MDA List 1 and the MDA List 2 pesticide screen. The remaining soil samples will be archived in a freezer for possible analysis based on a review of the initial data.
- Since the status of the contents of the UST are unknown, we propose to collect a liquid and\or sediment sample from the interior of the tank for laboratory analysis. The sample(s) will be analyzed for nitrate, TKN, the MDA List 1 and MDA List 2 pesticide screens. It is assumed the contents will also be analyzed for additional analytes based on the vehicle maintenance activities performed at the site.
- Since it is assumed the UST leaked, we propose to advance push probes PP-6 and PP-7 along the exterior of the building to facilitate the collection of soil samples for laboratory analysis. Soil samples will be collected at approximate 2-foot intervals from the ground surface to the water table for possible laboratory analysis. The soil sample collected from the depth just below the base of the tank will initially be analyzed for nitrate, TKN, the MDA List 1 and List 2 pesticide screens. The remaining soil samples will be archived in a freezer for possible analysis based on a review of the initial data.
- A groundwater sample will be collected from PP-6 and PP-7 for laboratory analysis. The groundwater samples will be analyzed for nitrate, TKN, the MDA List 1 and List 2 pesticide screens.
- Push probe PP-8 will be advanced adjacent to the 500 gallon fuel oil AST. Depending on the location of this probe in relation to the access door into the garage, soil samples collected from this probe may be analyzed for fertilizer and pesticides.
- A groundwater sample will be collected from monitoring well cluster MW-1A/B, MW-2A/B and MW-3A/B for laboratory analysis. The samples will be analyzed for nitrate, TKN, the MDA List 1 and List 2 pesticide screens.

Subtask 3: Equipment Parking Areas

Equipment was parked over the gravel surface to the north and south of the former dry fertilizer building. The size of the equipment parking areas are unknown so we only proposed one sampling quadrant at each of the two areas. Additional sampling quadrants may be necessary based on the actual size of the equipment parking areas.

Based on the site description we propose the following:

- Sampling quadrants SQ-4 and SQ-5 will be established at the northern and southern equipment parking areas. The 2.5-foot soil sample from each sampling quadrant will be analyzed for nitrate,

TKN, the MDA List 1 and List 2 pesticide screens. The remaining soil samples will be archived in a freezer for possible analysis based on a review of the initial data.

Subtask 4: Water Fill Area

The water fill area is located to the west of the former dry fertilizer building. The water supply well is still present and functional. A water sample collected in 1997 from the well by MDA contained nitrate, metolachlor and dicamba. The concentrations detected in 1997 exceed the current HRLs established by the MDH.

Based on the site description we propose the following:

- Sampling quadrant SQ-6 will be established at the former water fill area. The 2.5-foot soil sample from the sampling quadrant will be analyzed for nitrate, TKN, the MDA List 1 and List 2 pesticide screens. The remaining soil samples will be archived in a freezer for possible analysis based on a review of the initial data. It may be necessary to establish additional sampling quadrants based on the size of the water fill area.
- One of the borings at sampling quadrant SQ-6 will be advanced to below the water table to collect a groundwater sample for laboratory analysis. The groundwater sample will be analyzed for nitrate, TKN, the MDA List 1 and the MDA List 2 pesticide screens.
- A water sample will be collected from the well for laboratory analysis. Since the well presumably has not been pumped in several years the well will be pumped for at least 15 to 20 minutes to obtain a representative sample from the aquifer. Based on the high concentrations detected in 1997, the water will be contained in a tank for disposal based on a review of the analytical data. The water sample collected from the well will be analyzed for nitrate, TKN, the MDA List 1 and the MDA List 2 pesticide screens.
- An evaluation of the well should be completed to determine if it can remain as a sampling point or whether it needs to be abandoned because it may represent a vertical contamination pathway. This well may also be used to pump groundwater as part of a groundwater corrective action.

Subtask 5: Scale Area

The scale is located west of the former dry fertilizer warehouse. There is no construction information provided so we assume the scale has a below ground vault with poured concrete walls and floor. The issue with these subgrade scales is the discharge of product onto the scale while weighing the spreaders and sprayers that contain fertilizer and pesticide mixtures. Rainwater collects in the vault which becomes impacted by the fertilizer and pesticides. The water either infiltrates through cracks in the floor or they pump the water onto the adjacent gravel using a sump pump. Either way the soil and\or groundwater beneath or around the scale can be contaminated.

Based on the site description we propose the following:

- Sampling quadrants SQ-7 through SQ-10 will be established around the perimeter of the scale. The 2.5-foot soil sample and the soil sample collected at a depth below the base on the scale from each sampling quadrant will be analyzed for nitrate, TKN, the MDA List 1 and List 2 pesticide screens. The remaining soil samples will be archived in a freezer for possible analysis based on a review of the initial data.
- A water or a sediment sample will be collected from within the scale vault, if present. The water or sediment sample will be analyzed for the same analytes as the soil samples. If the floor is cracked

it may be necessary to eventually collect a soil and groundwater sample from beneath the floor of the scale.

Subtask 6: Stream Discharge

During the last facility inspection, discolored soils were noted to the north of the dry fertilizer building and garage. The inspection records suggest a discharge had occurred. Due diligence work completed during a property transfer indicated the discolored soil was still present. The discolored soil could be related to the discharge of agricultural chemicals and\or solvents or petroleum. Since push probes will be advanced along the south side of the stream as part of the solvent assessment, we propose to collect samples from the push probes for laboratory analysis of fertilizer and pesticides. In addition, the northern equipment parking area is located between the dry fertilizer building and the stream. Data from sampling quadrant SQ-4, established at the northern equipment parking area, may also assist in evaluating the source of the discolored soil.

Based on the site description we propose the following:

- We propose to collect soil samples from push probes PP-12 through PP-15 at depths of 0.5 foot, 2 feet, 4 feet and 6 feet. The 0.5-foot and the 2-foot soil samples from each of the four probes will initially be analyzed for nitrate, TKN, the MDA List 1 and MDA List 2 pesticide screens. The remaining samples will be archived in a freezer for possible analysis based on a review of the initial data.
- A groundwater sample will be collected from push probes PP-11, PP-12 and PP-15 and monitoring well cluster MW-6A\B. The groundwater samples will be analyzed for nitrate, TKN, the MDA List 1 and the MDA List 2 pesticide screens.
- Since the agricultural chemical operations have been discontinued there shouldn't be current overland discharge to the stream from storm water runoff. However, there still could be discharge of impacted groundwater and possibly from historical impacted soil. We propose to wait for review of the initial soil and groundwater data from the samples in this area to decide if stream water and\or sediment sampling is needed.
- There is no data to indicate there are soil and\or groundwater impacts from agricultural chemicals on the north side of the stream. Thus, we propose to review the initial data to determine if assessment is needed along the north side of the stream in the vicinity of the operational areas.

Subtask 7: Groundwater Plume

There are known groundwater impacts related to agricultural chemicals associated with the well located at the water fill station. The available information also states that the property owner completed an assessment which identified nitrate, dicamba, metolachlor, metribuzin, pendimethalin and triclopyr in groundwater; however, there is no specific information pertaining to where on the site or off-site data was collected. Thus, we have proposed the collection and analysis of groundwater samples from the water fill station well, from select probes advanced at specific source areas and from select monitoring wells to be installed on the site. There was no specific data to indicate the potable wells located downgradient to the west of the site have been impacted by agricultural chemicals. Thus, we proposed the installation of a well cluster, MW-7A/B between the operational areas on the site and the off-site potable wells. We propose to analyze groundwater samples from the proposed monitoring wells, probes and well before we propose to sample and analyze the off-site potable wells.

For the purpose of this investigation we have proposed to collect two rounds of water levels and

groundwater samples from the monitoring wells and the on-site well and one round of groundwater samples from the push probes for laboratory analysis. Additional data collection will be necessary and will be proposed upon review of the initial analytical, geologic and hydrologic information.

Based on the site description we propose the following:

- We previously proposed in the above sections to analyze groundwater samples collected from MW-1A/B to MW-3A/B, MW-6A/B, push probes PP-1, PP-6, PP-7, PP-11, PP-12, PP-15, SQ-6 and from the well at the water fill station. Refer to the applicable section above for the specific sampling procedures and laboratory analyses.
- A groundwater sample will be collected from monitoring wells MW-4A/B, MW-5A/B, MW-7A/B and MW-8A/B for laboratory analysis. Monitoring well MW-4A/B is located in a presumed side gradient location to the south and southeast of maintenance garage and the dry fertilizer building, MW-5A/B is located further side gradient along the southern property bound and MW-7A/B and MW-8A/B are located downgradient between the operational areas of the site and the potable wells at the residences in town. The groundwater samples from these monitoring wells will be analyzed for nitrate, TKN, the MDA List 1 and the MDA List 2 pesticide screens.
- Based on a review of the data from the proposed sample locations, it may be necessary to quickly mobilize to the site to sample the potable wells located downgradient of the site. This decision will be made upon consultation with MDA and MPCA staff.
- The groundwater elevation data will be used to prepare contour maps for the shallow and deeper aquifer. Geologic cross sections will also be prepared.
- As required by Guidance Document 12, hydraulic conductivity testing will be performed on three water table monitoring wells and three deeper monitoring wells assuming the sediment in the screened intervals are homogeneous. Additional conductivity testing may be needed if there is significant variability in the sediments.

Task B: Field and Laboratory Data Validation and Evaluation

Data review and verification activities performed by Terracon will focus on verifying the completeness and accuracy of field sampling methods, sample handling, and laboratory results. The Terracon Project Manager will be responsible to conduct a full-package review of the field processes and data produced for the site and reports from the laboratories. The laboratories will deliver to the Terracon Project Manager data quality QA packages for their analytical services that will be entered into the project record. The Terracon QA Manager is responsible for reviewing and confirming that field and laboratory data meets the data quality objectives.

Data verification of field methods and measurements will include the project manager reviewing daily activity forms, forms generated as part of sampling activities, COCs and field equipment calibration logs. The project manager will sign and date the field daily form after completing a review the applicable documentation. The review will specifically evaluate the implementation of the following relative to the QAPP as they apply to this Site.

- Overall precision, accuracy, representativeness, completeness, and comparability of the field method and measurements with the applicable QAPP.
- Conformance to design parameters of the Sampling Plan with the assessment activities completed at the Site.
- Sample collection procedures and methods as described in Sampling Plan will be compared to those documented in the field notes, logs and sampling forms.

- Sample handling protocols and chain of custody's (COCs) will be reviewed. Holding and transport times must be met for the sample to be considered valid.
- Calibration of instruments at bench mobilization and in the field from instrument records and field logbooks specific to planned assessment activities.

Task C: Risk Evaluation

Once the receptor survey has been conducted and the data validated for the samples collected as part of this RI, the risk to receptors will be evaluated. The Applicable or Relevant and Appropriate Requirements (ARARs) by which the risk will be based include the following:

- MPCA SRVs
- MPCA SLVs
- MDH HRLs
- MPCA ISVs / 33x ISVs / 33x EISVs
- MPCA Surface Water Screening Numbers
- MDA Soil and Groundwater Cleanup Goals (Guidance Documents 19 and 28)

OBJECTIVE 2: TIMELINE

The timeline to complete the work activities described in Objective 2 will be approximately one week of field work for sample collection, two weeks for laboratory testing and three to four weeks for RI report preparation pending receipt of the final analytical results.

OBJECTIVE 2: DELIVERABLE

It is assumed a comprehensive report will be prepared that addresses all of the contaminant impacts identified at the site. Typically, for the agricultural chemical sites we submit the initial soil and groundwater data tables to MDA for review with recommendations for analysis of archived soil samples. This interim submittal will also include the boring and monitoring well logs, figures with the sample locations and the applicable groundwater elevation table and contour maps. This submittal may also include recommendations for sampling at additional off-site wells and\or additional subsurface assessment tasks and monitoring tasks.

Ultimately, for agricultural chemical projects we prepare a Remedial Investigation Report and Corrective Action Plan pursuant to Guidance Document 10. This report will include all of the data and findings related to the investigation including the site background information, contaminant impact survey, boring and well logs, geologic cross sections, hydraulic conductivity data, the groundwater elevation table with monitoring well construction elevation, soil and groundwater analytical data tables, laboratory reports with the QA\QC checklist.

This report will also include a proposed corrective action plan which will address soil and groundwater remedial actions. Based on the complexity of this site it is likely that additional assessment may be needed prior to preparation of the corrective action plan.

OBJECTIVE 3: **Conduct Additional Assessment for Non-petroleum chemicals.**

Task A: Assessment Activities and Associated Chemical Analysis

The following summarizes the assessment activities at each potential release area and the planned sampling for the respective area in respect to non-petroleum and non-ag chemicals. NOTE, the

sampling activities described below will overlap with the activities described above in Objective 2. Refer to the table provided above for the detailed sampling for each direct-push probe, monitoring wells and soil-gas.

Subtask 1: Former Dry Fertilizer Building

The available information indicates the dry fertilizer building burned down and that firefighting foam was used. Firefighting foam has been known to contain perfluorochemicals (PFCs) including perfluorooctane sulfate (PFOS) and perfluorooctanic acid (PFOA) which are regulated. Therefore, soil and groundwater samples collected in conjunction with the Ag-Chemical assessment work will also be collected and analyzed for PFOS and PFOA. The following sample locations will be used to collect these samples:

§ Direct-Push Probes PP-1 through PP-5 located in the former Dry Fertilizer building pad area.

Subtask 2: Maintenance Garage with Trench Drain and UST

The available information indicates the maintenance garage has a trench drain and an UST. Based on historical uses of equipment maintenance garages the following potential chemicals of concern may have been used: petroleum products, solvents, metals, ag-chemicals (discussed above) and antifreeze chemicals. Note, solvents were reportedly dumped to the north of the building near the stream and previous assessment data has identified TCE in soil, groundwater and soil gas in the maintenance garage area. The source of the TCE impacts is likely due to spills and leaks at the maintenance garage including the potential for leaks from the UST.

Since the previous assessment shows that the TCE source is at and under the maintenance garage, the next step would be to install monitoring wells to further assess the TCE plume to determine if the plume is stable and if it is discharging to the stream. In addition, the maintenance garage UST should be assessed which is discussed below. Contaminants of concern that were not previously tested will be sampled and tested in conjunction with the installation of monitoring wells in the maintenance garage source area.

¡ The contents of the UST are being sampled as part of the Ag-Chemical assessment in Objective 2. Based on the potential risk of an on-going non-petroleum release from the UST, the contents of the UST will also be analyzed for additional parameters besides the Ag-Chemical parameters. The sample will include the following laboratory testing:

- VOCs (EPA 8260)
- TCLP VOCs
- GRO (WI Mod. GRO)
- DRO (WI Mod. DRO)
- RCRA Metals (EPA 6010/6020)
- PCBs (EPA 8082)
- PAHs (EPA 8270)

The results of the UST sample will be used to have the residual contents of the UST removed and disposed to avoid any on-going releases from the UST. The laboratory analytical results may also be used to guide the testing for soil and groundwater samples that are planned to be collected as part of this Sampling Plan.

- Based on the existing data, Terracon proposes installing monitoring wells for the area at and near the maintenance garage. Soil borings will be advanced to collect soil samples to further define the extent and magnitude of soil impacts for the identified TCE impacts and to assess other potential chemical releases. Based on the previous assessment, the highest soil and groundwater TCE concentrations were noted in the area below the building addition 1 which indicates a release likely occurred at or near that area. However, the highest soil-gas TCE concentrations were noted in the area below building addition 3.

  Terracon proposes installing eight monitoring wells (MW-1A/B to MW-4A/B) for the identified maintenance garage TCE release as follows:

- A two-well cluster (MW-1A - shallow well and MW-1B - deep well) will be installed in the area directly west and outside the building (source area).
- A two-well cluster (MW-2A/B) will be installed north-northwest near the stream in the apparent side-gradient direction.
- A two-well cluster (MW-3A/B) will be installed eastward in the apparent up-gradient direction.
- A two-well cluster (MW-4A/B) will be installed south-southwest in the apparent side-gradient direction.

  Refer to Objective 1, Task E, Subtask 1 for additional details regarding the drilling methods and procedures. Up to eight soil borings will be advanced to maximum depths of 20-feet bgs for the shallow wells and 45-feet bgs for the deep wells. The soil borings will be advanced using a hollow stem auger drilling technique. If excessive heaving occurs within the saturated zone then a mud rotary drilling technique may be used, if necessary. Split spoon sampling will be conducted continuously for the deep soil boring using ASTM D1586 (split barrel). The soil samples will be collected for logging the soil types, observations of saturated soil conditions, and screening with a PID equipped with an 11.7 eV lamp. Terracon will visually observe the soil samples in the field to classify the soils in general accordance with ASTM D2487. During advancement of the soil borings, soil samples will be collected at multiple intervals. Up to three soil samples will be collected from the deep borings for laboratory analytical testing. The soil samples will be laboratory analyzed for the MDH list of VOCs and moisture content. After the soil borings have been advanced to the final depth the soil borings will be converted to permanent monitoring wells. Refer to the MPCA Site Assessment Program QAPP for the number of quality assurance samples (i.e., trip blanks, sample duplicates, equipment blanks, Matrix Spike / Matrix Spike Duplicates (MS/MSD)) to be collected.

  The monitoring wells will be constructed with two-inch diameter poly vinyl chloride (PVC) or stainless steel screens with two-inch diameter PVC or steel riser pipe. The anticipated depth of the screens is 5-15-feet bgs for the shallow wells and 30-40-feet bgs for the deep wells. A 10-slot screen will be used for each well unless the soil conditions encountered are different from the anticipated soil conditions based on previous assessment work conducted in the vicinity of the planned well locations. The length of the well screens is anticipated to be ten-feet for the shallow wells and five-feet for both the deep wells. The monitoring wells will have a gravel pack extending from one-foot below the bottom of the screen to one-foot above the top of the screen. A bentonite seal will be placed above the gravel pack to the ground surface. The monitoring wells will be completed as above-grade completions in accordance with MDH Well Code. The monitoring wells will be developed to remove drilling fluids and other sediment within and around the well screen until the purge water becomes clear or when the water no longer improves in clarity. The development water will be containerized and disposed off-site according to proper waste disposal protocols.

Grain Size Analysis

Up to two soil samples may be collected from the well screen depths for gradation analysis consistent with ASTM Method D422. The results of the gradation analysis will be used to further characterize the soil conditions for current and future monitoring and remedial actions.

Groundwater Monitoring

Groundwater monitoring is planned to be conducted on a quarterly basis. In addition to the ag-chemical parameters being analyzed from the MW's the groundwater samples will be analyzed for the following non-petroleum parameters:

- VOCs by EPA 8260.
- Temperature, pH, conductivity, oxygen reduction potential (ORP) and dissolved oxygen (DO).
- Additional parameters will be added, if other chemicals are identified during the UST sampling.

Duplicate samples, matrix spikes, matrix spike duplicates, equipment blanks and trip blanks will be collected and analyzed in accordance with the MPCA's Site Assessment Program QAPP. Groundwater samples will be submitted to a State Contract laboratory for the laboratory testing. Laboratory analytical data will be checked for quality assurance and quality control.

During each monitoring event, the monitoring wells will be inspected for physical condition and damage. The MPCA will be notified if a well is observed to be in poor condition or damaged that requires repair.

Groundwater samples will be collected using low flow pumping well-volume purging methods and a flow cell for the monitoring wells in accordance with the MPCA's Site Assessment Program QAPP-SOPs.

The volume of water in each well will be calculated using the groundwater elevation data. The wells will be purged using a submersible sampling pump. The sample water will be passed through a flow cell to monitor field water quality parameters. The sampling pump will be decontaminated between monitoring wells by washing and purging with first Alconox and potable water, followed by distilled water. Purging will be continued until the well is stabilized as indicated by three consecutive measurements of the field water quality criteria listed below that is collected approximately every well volume using a flow cell or similar apparatus or for a maximum of five well volumes. The stabilization data will be recorded on groundwater sampling sheets that will be included in a final report.

Field Quality Criteria:

- pH +/- 0.1 units.
- Temperature +/- 0.1 degrees Celsius.
- Specific Conductivity (temperature corrected) +/- 5%.
- Dissolved oxygen +/- 0.5 mg/L.
- Redox potential +/- 20 mV

Purge water will be containerized into 55 gallon drums and temporarily stored on-site for later disposal off-site.

In addition to the maintenance garage area, the down-gradient TCE plume needs monitoring wells for monitoring the stability of the plume. Refer to Subtask 2 below.

Subtask 3: TCE Plume

Previous assessment has identified a dissolved phase TCE plume that extends from the site maintenance garage area to the west and off the site. The TCE plume extends to at least 30-feet bgs in the down-gradient plume according to potable well data. The extent of the TCE plume has not been fully defined and the extent of potential impacted potable wells still needs to be completed. The TCE plume also poses a high risk of discharging to the stream that crosses the site and flows west-southwest.

A combination of direct-push probes and installation of monitoring wells is needed to further assess the down-gradient TCE plume. Ten direct push-probes (PP-11 to PP-20) are proposed to further assess the dissolved phase TCE plume at locations that will attempt to define the vertical and lateral limits of TCE impacted groundwater. The following list summarizes the rational for the direct-push probe locations:

- Five of the direct-push probes (PP-11 to PP-15) are located along the south side of the stream to assess the risk for chemicals that may be discharging to the stream. The results of these probes will be used to locate and design monitoring wells MW-6A/B.
- One direct-push probe (PP-16) will be located to the south to attempt to define the southern side-gradient edge of the TCE plume. The results of this probe will be used to locate and design monitoring wells MW-5A/B.
- One direct-push probe (PP-17) will be located north of the stream at the edge of the town to assess potential migration of the TCE plume to the west-northwest. The results of this probe will be used to locate and design monitoring wells MW-8A/B.
- Three of the direct-push probes (PP-18 to PP-20) will be located to attempt to define the leading edges of the TCE plume which will also be used to locate and design monitoring wells (MW-9A/B to MW-11A/B)

Direct-push probes will be advanced at locations approved by the MPCA to collect soil and groundwater samples. Soil and groundwater probes will be advanced using a truck mounted push probe vehicle. Continuous soil samples will be collected from the soil probes using a macro core or dual-tube sampling technique. A discrete sampler may be required at deep depths. Based upon field conditions the sampling intervals may be adjusted at the discretion of our field scientist. Terracon will screen soil samples recovered from the soil probes in the field at 2-foot intervals and changes in lithology for the presence of organic vapors using a PID equipped with an 11.7 eV lamp. Up to two soil samples will be collected from each probe for laboratory analytical testing. Terracon will use staining, olfactory indicators and PID readings to determine the samples to submit for analysis. Soil samples will be collected for classification and laboratory analysis as outlined below. Soil samples will be analyzed for the presence of VOCs. One equipment blank and a trip blank will also be analyzed for VOCs.

In addition, groundwater samples will be collected from the probes. It is anticipated that each of the push probes will be used as temporary monitoring wells for collecting groundwater samples. The water samples will be collected from the push probes using a stainless steel screen point sampler or disposable PVC screen. Water samples will be collected through dedicated disposable tubing using a check valve or disposable bailer. If enough water is recoverable, the first liter collected will be purged. The groundwater will be transferred directly from the sampling apparatus to the appropriate laboratory containers. The groundwater samples will be analyzed for VOCs. One duplicate sample, one equipment blank and a trip blank will also be analyzed for VOCs.

Grain Size Analysis

Up to four soil samples will be collected from select depths during the push probe work for gradation analysis consistent with ASTM Method D7928-17. The results of the gradation analysis will be used to further characterize the soil conditions for current and future monitoring and remedial actions.

Surveying and GPS

Upon completing the probe work, the ground surface elevations of the probe locations will be surveyed. The elevations will be surveyed to the closest existing monitoring well top of riser. In addition, a global positioning system (GPS) will be used to document the UTM coordinates of the push probes.

Based on the receptor survey described above, potable wells located near and within the TCE plume will be sampled to determine if the wells have been impacted with TCE. Based on the buildings shown on the map and their proximity to the TCE plume, Terracon has estimated four potable wells will need to be sampled. For reference, the potable wells are identified as P-#. Four potable wells were previously sampled and are identified as P-1 through P-4. Potable wells P-1, P-2 and P-3 were noted as having TCE concentrations above 0.4 ug/L and require treatment. The TCE concentration for potable well P-4 did not exceed 0.4 ug/L, so this well is planned to be placed on a routine sampling schedule to monitor for changes in TCE concentrations. Four additional potable wells (P-6 through P-8) will be sampled and if TCE concentrations are below 0.4 ug/L then these wells will be placed on a routine sampling schedule to monitor for changes in TCE concentrations. Potable well status is summarized below:

- Potable Wells P-1, P-2 and P-3: need treatment and treatment monitoring.
- Potable Well P-4: placed on a yearly sampling schedule.
- Potable Wells P-5 through P-8: sample one time to determine if treatment is needed and then placed on yearly sampling schedule.

The existing water-fill well was reportedly still operational. As such, the well should be locked to prevent the well from being used. Although this well may be used as a groundwater sampling point, there is a risk that this well could be exacerbating the problem associated with the chemicals that have been released by providing a preferential pathway to the groundwater and allowing contaminants to freely migrate to deeper depths. As mentioned in Objective 2 the well should be assessed to determine if it can be used as a monitoring well or, possibly, a remedial well. If the well presents a risk for vertical cross-contamination then it should be sealed.

Subtask 4: TCE Vapor Area of Concern

Previous assessment has identified TCE impacted soil-gas that extends from the site maintenance garage area to the west and off the site. The TCE soil-gas cloud extends beneath several off-site buildings and exceeds the MPCA criteria for the need to mitigate in the on-site maintenance garage and one occupied off-site building. The extent of the soil-gas area of concern has not been fully defined and additional buildings need sub-slab sampling.

At the initiation of this Remedial Investigation, GIS maps will be prepared that corresponds with the following MPCA GIS map templates: 1) Vapor Intrusion Potential Sources and Receptors, 2) Proposed Soil Gas Investigation, and 3) Vapor Intrusion Area of Concern. In addition, information gathered from the site reconnaissance and receptor survey discussed above, the occupied buildings that were previously sampled can be evaluated for determining if mitigation is needed. The following GIS maps can then be developed and revised as new information becomes available: 4) Vapor Mitigation Decisions, and 5) Vapor Mitigation Area.

Soil gas monitoring points are needed to confirm the extent of the TCE soil-gas cloud. Two rounds of soil-gas samples (one heating season and one non-heating season) are needed for locations outside the mitigation area. Sub-slab soil gas samples are needed for six occupied buildings located in the area of concern. Unless a sample is found to exceed the 33x ISV or the EISV then two rounds of soil gas samples will be collected.

Based on the previous assessment information, the TCE soil-gas cloud may extend further down-gradient to occupied buildings that have not been sampled. Therefore, sampling of occupied buildings that are located in and near the TCE vapor area of concern will be conducted. There are seven buildings located in the area of vapor concern of which one building has already been sampled and found to have TCE at 100 ug/M^3. This building was reported to be occupied by a pregnant woman so the 33x EISV applies which is 210 ug/M^3 so this building does not require expedited mitigation, but did exceed the 33x ISV of 70 ug/M^3 so mitigation is required. The remaining six buildings require sub-slab sampling to assess the risk and determine if mitigation is needed.

Sub-Slab Sampling

The number of sub-slab samples will be based on the size of each building and using the MPCA's guidance document *Recommended Number of Samples per Building Foundation Size* (c-rem3-06h). In addition, a vapor intrusion survey will be conducted for each building using the MPCA's *Vapor Intrusion Building Survey Form* (c-rem3-01a).

Terracon proposes to install sub-slab monitoring points using a Vapor Pin™ sampling technique. A Vapor Pin™ consists of a hollow brass or stainless steel tube with a barb fitting wrapped by a silicon sleeve. The Vapor Pin™ will be thoroughly cleaned before installation to remove residues and contaminants left over from the fabrication processes. A 1½-inch diameter carbide masonry bit will be used to drill an oversized hole at least 1¾-inch below the surface to allow for the installation of a flush mount cover. The Vapor Pin™ will be installed in a hole drilled through the concrete floor slab using a 5/8-inch diameter carbide masonry bit and a rotary hammer drill. The hole will be advanced completely through the concrete floor slab. The hole will be cleaned with a ¾-inch diameter bottle brush and the debris will be removed with a wet/dry vacuum cleaner. The Vapor Pin™ will be installed in the hole using the installation/extraction tool and a dead blow hammer. The seal between the Vapor Pin™ and the surrounding concrete will be checked using a water dam filled with water. A cap will be installed on the barb fitting of the Vapor Pin™ to prevent the migration of soil-gas into or out of the sub-slab monitoring point. The Vapor Pin™ will be completed as a flush mount with a plastic protective cover placed over the completed point.

Terracon will attempt to identify sampling locations with bare concrete floor areas within the building that do not have flooring materials (i.e., carpet, tile, sealant, etc.). If bare concrete floor areas cannot be identified, the sub-slab monitoring points will be installed in select locations after consultation with the MPCA and the current property owners. The flooring materials will be removed intact to the maximum extent possible to allow for the installation of the sub-slab monitoring points and adhesives or sealants will be removed from the vicinity of the sub-slab monitoring point to limit potential contamination of the point. Following installation of the sub-slab monitoring points, the flooring materials will be placed back over the points in such a way to allow access for soil-gas sampling activities (i.e., adhesives or sealants will not be replaced).

After allowing time for subsurface conditions to equilibrate following installation activities, Terracon will collect soil-gas samples from the sub-slab monitoring points. Prior to collection of the sub-slab soil-gas samples, the soil-gas sampling trains will be assembled and tested for leaks using a vacuum shut-in testing method. After completion of leak testing activities, the sub-slab soil-gas

samples will be collected from the sub-slab monitoring point by removing the cover of the flush mounted insert, removing the cap from the Vapor Pin™, and connecting the sampling train to the barbed fitting. The soil-gas sample will be collected by attaching the top end of the sampling train to an individually laboratory certified Summa® canister equipped with a 200-cubic centimeter per minute flow regulator and vacuum gauge with an in-line paper filter/moisture trap. Approximately two volumes of the tubing and sample point air will be extracted using a graduated syringe or hand pump. The valve on the Summa® canister will then be opened and the sub-slab soil-gas sample allowed to flow into the Summa® canister. The vacuum gauge on the Summa® canister will be monitored and closed when the vacuum is between 3- and 5-inches of Mercury. After the sample has been collected, the organic vapor, oxygen, carbon dioxide, and lower explosive limit concentrations will be measured using PID equipped with a 10.6 eV lamp and a multi-gas meter. Following collection of the organic vapor concentrations, the cap will be placed back onto the barbed fitting and the protective cover will be placed back onto the Vapor Pin™.

A Terracon Sub-Slab Soil-Gas Sampling Form indicating project information, equipment identifiers, sample location, sample time, etc. will be completed for each indoor air quality and sub-slab soil-gas sample collected. The vacuum in the Summa® canister before and after sampling will also be recorded on the information form. A Chain-of-Custody will be filled out indicating the unique sample identifiers, sampling time, equipment identifiers, before and after vacuum readings, and organic vapor readings.

The sub-slab soil-gas samples will be submitted to a State Contract laboratory to be analyzed for the MPCA list of VOCs using EPA Method TO-15 in general accordance with MPCA Guidance Documents *Risk-Based Guidance for Vapor Intrusion Pathway and Vapor Intrusion Technical Support Document*.

Semi-Permanent Soil-Gas Monitoring Point Sampling

Terracon proposes to install semi-permanent soil-gas monitoring points that consist of six-inch stainless steel mesh screens and Teflon tubing. The monitoring points will be installed using a direct-push drill rig. The monitoring points will be installed at approximately two feet above the observed highest groundwater depth in the vicinity of each monitoring point. Therefore, the monitoring points are anticipated to be less than eight feet bgs. Each monitoring point will be installed with a sand pack that extends six-inches above and below the screen and a hydrated bentonite seal to the ground surface. An at-grade cover will be installed to contain the top end of the Teflon tubing. The following

- One soil-gas point (SGP-1) will be located east of the Maintenance Garage to define the extent of the soil-gas cloud in the up-gradient direction.
- One soil-gas point (SGP-2) will be located north of the Maintenance Garage to define the extent of the soil-gas cloud in the northern, side-gradient direction.
- One soil-gas point (SGP-3) will be located at the southern site property boundary to define the extent of the soil-gas cloud in the southern, side-gradient direction.
- One soil-gas point (SGP-4) will be located northwest of the site and immediately before the town buildings to assess the presence of soil-gas impacts that may pose a risk to the buildings in that area.
- Three soil-gas points (SGP-5, SGP-6 and SGP-7) will be located at the inferred extent of the soil-gas cloud in the down-gradient direction to assess risk and to attempt to define the extent of the soil-gas cloud.

Prior to collection of the soil-gas sample, the soil-gas sampling train will be assembled and tested for leaks using a vacuum shut-in testing method. After completion of leak testing activities, the soil-gas sample will be collected from the semi-permanent monitoring point tubing connected to the sampling train to a Summa® canister equipped with a 200-cubic centimeter per minute flow regulator and vacuum gauge with an in-line paper filter/moisture trap. Approximately two volumes of the tubing air will be extracted using a graduated syringe or peristaltic pump. The valve on the Summa® canister will then be opened and the soil-gas sample allowed to flow into the canister. The vacuum gauge on the Summa® canister will be monitored and closed when the vacuum is between 3- and 5-inches of Mercury. After the sample has been collected, the organic vapor, oxygen, carbon dioxide, and lower explosive limit concentrations will be measured using a PID equipped with a 10.6 eV lamp and a multi-gas meter.

A Terracon Field Data Form: Post-Run Tubing Method indicating project information, equipment identifiers, sample location, sample time, etc. will be completed for each soil-gas sample collected. The vacuum in the Summa® canister before and after sampling will also be recorded on the information form. A Chain-of-Custody will be filled out indicating the unique sample identifiers, sampling time, equipment identifiers, before and after vacuum readings, and field vapor readings.

The sub-slab soil-gas samples will be submitted to a State Contract laboratory to be analyzed for the MPCA list of VOCs using EPA Method TO-15 in general accordance with MPCA Guidance Documents *Risk-Based Guidance for Vapor Intrusion Pathway and Vapor Intrusion Technical Support Document*.

Task B: Field and Laboratory Data Validation and Evaluation
Refer to Objective 2, Task B.

Task C: Risk Evaluation
Refer to Objective 2, Task B

OBJECTIVE 3: TIMELINE

The timeline to complete the work activities described in Objective 3 will be approximately two weeks of field work for sample collection, two weeks for laboratory testing and three to four weeks for RI report preparation pending receipt of the final analytical results.

OBJECTIVE 3: DELIVERABLE

As mentioned above under Objective 2 Deliverable, a comprehensive RI report will be prepared that includes all of the work described in this Sampling Plan. In addition to what is mentioned above, the following information will also be included in the RI report.

Property Summary Reports and GIS Maps.

OBJECTIVE 4: **Conduct Additional Assessment for Petroleum chemicals.**

Task A: Assessment Activities and Associated Chemical Analysis

The following summarizes the assessment activities at each potential release area and the planned sampling for the respective area.

Subtask 1: Maintenance Garage UST

The available information indicates the maintenance garage has a trench drain and UST. Based on historical uses of equipment maintenance garages the following potential chemical of concern may have been used: petroleum products, solvents, metals, ag-chemicals (discussed above) and antifreeze chemicals. Note, solvents were reportedly dumped to the north of the building near the stream and previous assessment data has identified TCE in soil, groundwater and soil gas in the maintenance garage area. The source of the TCE impacts is likely due to spills and leaks at the maintenance garage including the potential for leaks from the UST.

Based on the existing data, Terracon proposes advancing direct-push probes for each UST area and the AST area. The direct-push probes will be advanced to collect soil and groundwater samples to determine the magnitude of soil and groundwater impacts at each tank location. Two probes will be located near the maintenance garage UST, two probes will be located near the 1,000 gallon UST and one probe will be located in the stained area near the AST.

Subtask 2: Maintenance Garage 500-gallon Fuel Oil AST

Previous assessment has identified stained soil located near the 500-gallon fuel oil AST. The Sampling Plan for Objective 2 includes one direct-push probe (PP-8) to be advanced in the stained area to collect soil and groundwater samples for analysis for Ag-chemicals. Samples will also be collected from this push probe for analysis of petroleum contaminants. Soil samples collected from this probe will be screened with a PID for organic vapors and checked using the MPCA Sheen Test. Based on the field screening results, two soil samples will be selected for laboratory analytical testing for VOCs and DRO. A soil sample will be collected from the zero to two foot depth and at a deeper depth. The direct-push probe will also be used as a temporary monitoring well for collecting a groundwater sample for VOCs and DRO. The results of the field screening may necessitate the need to advance additional shallow (i.e., two foot) direct-push probes to determine the extent of shallow soil impacts that will require excavation cleanup.

Subtask 3: 1,000-gallon Gasoline UST

Previous assessment has identified the presence of a 1,000-gallon gasoline UST located at the southeast corner of the former Ag-Chemical building. The Sampling Plan for Objective 2 includes two direct-push probe to be advanced near the 1,000 gallon Gasoline UST (PP-9 and PP-10) to collect soil and groundwater samples for analysis for ag-chemicals. Samples will also be collected from this push probes for analysis of petroleum contaminants. Soil samples collected from these probes will be screened with a PID for organic vapors and checked using the MPCA Sheen Test. Based on the field screening results, two soil samples will be selected for laboratory analytical testing for VOCs and GRO. A soil sample will be collected from the zero to two foot depth and at a deeper depth. The direct-push probes will also be used as a temporary monitoring well for collecting a groundwater sample for VOCs and GRO. The results of the field screening may necessitate the need to advance additional shallow (i.e., two foot) direct-push probes to determine the extent of shallow soil impacts that will require excavation cleanup.

Task B: Field and Laboratory Data Validation and Evaluation

Refer to Objective 2, Task B.

Task C: Risk Evaluation

Refer to Objective 2, Task B

OBJECTIVE 4: TIMELINE

The timeline to complete the work activities described in Objective 4 will be approximately two days of field work for sample collection, two weeks for laboratory testing and three to four weeks for RI report preparation pending receipt of the final analytical results.

OBJECTIVE 4: DELIVERABLE

As mentioned above under Objective 2 Deliverable, a comprehensive RI report will be prepared that includes all of the work described in this Sampling Plan. Results of petroleum investigation work described in this Sampling Plan will be incorporated into the RI report. Based on stained soil noted at the 500-gallon AST, there will likely be some surface soil excavation needed, at a minimum. A Conceptual Corrective Action Design will be prepared for the stained soil and is described in the Remedial Design / Remedial Action Work Plan.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

Attachment B
*Example Scenario Project

Project title: Category A, Scenario A, Remedial Investigation Sampling Plan

	1. Personnel					2. Subcontracting	3. Equipment		4. Other Expenses			Totals (Extended)
Project Budget	Project Manager	Scientist 2	Scientist 1	Field Technician	GIS/CADD Specialist							
Objective 1: Planning and Coordination												
Task A: Health and Safety Plan	0.5	2.0										2.5
Task B: Access Activities	3.5											3.5
Task C: Available Information Review		4.0										4.0
Task D: Site Reconnaissance and Receptor Surveys (travel=2 hrs rt)	4.5	14.0										18.5
Task E: Coordinate Subcontracting Activities and Schedules	2.0	8.0										10.0
Total for Objective 1 Hrs	**10.5**	**28.0**	**0.0**	**0.0**	**0.0**							**38.5**
Objective 2, 3 and 4												
Task: Ten Sample Quadrants for Ag-Chem Assessment	8.0		16.0									
Task: Twenty Push Probes for Soil and Groundwater Sampling	10.0	2.0	50.0									62.0
Task: Install eleven two-well monitoring well clusters (22 MWs)	16.0	2.0	60.0									78.0
Task: Quarterly monitoring well sampling (4 sample events)	8.0			160.0								168.0
Task: Potable Well Sampling (1 sample event)	2.0			6.0								8.0
Task: Sub-Slab Soil Gas Point Installation and Sampling	10.0	2.0	20.0	20.0								52.0
Task: Semi-Permanent Soil Gas Monitoring Point Installation and Sampling	6.0	2.0	16.0	8.0								32.0
Task: RI Report	6.0	50.0	30.0		26.0							112.0
Total for Objective 2,3,4 Hrs	**66.0**	**58.0**	**192.0**	**194.0**	**26.0**							**536.0**
Total Project Hours	**76.5**	**86.0**	**192.0**	**194.0**	**26.0**							**574.5**

This spreadsheet only incudes staff hours to complete the RI work. Costs for subcontractors, equipment, and other expenses are not included in this estimate as per the RFP.

Terracon

Attachment A

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Example Workplan

Project Title: Category A, Scenario A – Remedial Design / Remedial Action Plan

1. Project Summary:

This Work Plan was prepared to describe the Remedial Design / Remedial Action activities for the former Agricultural facility. The Work Plan is organized based on the Minnesota Pollution Control Agency's (MPCA's) *Example Work Plan* template. The content of this Work Plan includes the following:

Statement of Problems: this section describes the identified risks that need to be remediated to mitigate the risks associated with known contaminants at the site.

Opportunities: this section describes the relevant information about the site that relates to completion of the Remedial Actions.

Existing Conditions: this section briefly summarizes the known site conditions.

Goals: this section states the purpose for completing the Remedial Actions.

Objectives, Tasks and Subtasks: these sections contain the specific work activities organized into five groups:

- installation of granular activated carbon (GAC) systems:
- installation of sub-slab depressurization systems (SSDS);
- pilot testing remedial option(s) for the trichloroethylene (TCE); source area;
- corrective actions for petroleum; and
- corrective actions for Ag-chemicals.

Each group includes a Task that summarizes the remedial action.

2. Statement of Problems, Opportunities, and Existing Conditions

Terracon has prepared this Remedial Design / Remedial Action Plan in response to the need to mitigate identified risks at the former Ag-Chemical site. The Plan will address the following tasks:

- TCE groundwater impacts to potable wells.
- TCE soil-gas impacts to occupied buildings.
- Remedial Option Evaluation and Pilot Testing for the TCE source area.
- Petroleum impacts to shallow surface soil. Note, the property owner should be notified to have the two underground storage tanks removed or, if MPCA approves, abandoned in-place.
- Ag-chemical impacts to soil and groundwater.

Statement of Problems

Existing chemical impacts have been identified that pose a risk to receptors and require remedial actions to mitigate the risks.

Three private potable wells have been identified with TCE impacts above the Minnesota Department of Health's (MDH's) Health Risk Limit (HRL) of 0.4 ug/L. Therefore, an interim remedial action is needed to mitigate the risk posed by these impacted water supply wells.

One occupied building was identified with TCE in a sub-slab soil gas sample at a concentration of 100 micrograms per cubic meter (ug/M^3). A pregnant woman was reported to be residing at this building so the MPCA's 33x Expedited Instruction Screening Value (EISV) of 210 ug/M^3 applies. Since the sub-slab soil sample has a TCE concentration that did not exceed the EISV and expedited mitigation is not needed. However, the MPCA's 33x ISV of 70 ug/M^3 was exceeded so mitigation is needed.

The source of the dissolved phase TCE groundwater plume and the TCE soil-gas cloud is a release that occurred at the maintenance garage. In addition, it is highly likely that the TCE plume is discharging to the adjacent stream. Therefore, source area remedial action may be needed to mitigate these risks.

Petroleum impacted surface soil is apparent based on the staining noted at the 500 gallon above ground storage tank (AST). The impacted shallow surface soil between zero and two feet below ground surface (bgs) that exceeds respective MPCA Soil Reference Values (SRVs) and elevated organic vapor concentrations or petroleum sheen tests, is required to be remediated.

Opportunities

The site is currently planned to be redeveloped as a Golf Course so future risks or new receptors are not anticipated to be a factor for accomplishing the remedial action goals.

The MPCA has acquired an access agreement.

Existing Conditions

The property is a former AG-Chemical facility that operated from 1960 to 1991. The site is planned to be redeveloped into a golf course.

The site consists of a maintenance garage and a concrete slab that is a remnant of the Ag-Chemical dry fertilizer warehouse. In addition, a scale, well, two underground storage tank (USTs) and one AST are currently on-site.

3. Goals, Objectives, Tasks, and Subtasks

Goals: The goal of the Master Contract is to investigate, identify, and remediate releases of contaminants that pose a threat to the state's environment, and the public's health and safety. Therefore, the project goals of this Remedial Design / Remedial Action Plan are to remediate releases that pose a risk to receptors.

Objective 1: Mitigate the TCE impacted Potable Wells.

Task A: Install GAC Treatment Systems

Three potable wells have been identified with TCE impacts that exceed the MDH HRL. Therefore, whole house GAC treatment systems are proposed to be installed to remove TCE from the water that is pumped from each of these wells. GAC treatment is known to be an effective and efficient method for treating potable well water and are readily available from local vendors. These systems are relatively simple and do not require a significant effort to design/engineer. The primary design elements for these systems involves the carbon usage rates which is based on the TCE concentrations of the raw water and the volume of water to be treated over time. Other elements that should be considered include the geochemistry of the raw water since various dissolved phase constituents may pose some problems with the treatment efficiency and maintenance of the system. For example, biofouling could occur if high dissolved phase iron is present. If the site is located in an area that has known geochemicals present in the groundwater, then additional sampling will be conducted to determine each potable well's geochemical conditions.

Subtask 1: Prepare Plans and Specifications for GAC Contractor

The State of Minnesota currently has a contract with contractors that install whole house GAC systems. Terracon's role would be to develop a scope of work for the GAC contractor. Therefore, Terracon will prepare a scope of work that outlines the necessary information needed by the GAC contractor. Items to be included in the scope of work include: existing water treatment systems such as water softener's, layout of water system entering the building, location of GAC treatment system, property address and contact information, size of GAC treatment system and the number of GAC treatment units, sample taps, flow meter, and ancillary tasks.

Terracon will review the proposals/cost estimates submitted by the GAC vendors to determine if the vendors addressed the items in the specifications and to confirm the costs are within budget. Terracon will submit a recommendation to the MPCA project leader indicating which vendor should be awarded the work.

Subtask 2: Coordinate with GAC Contractor and Property Owner

Terracon will contact the contractor and the property owner to come up with a schedule for the installation of the GAC system.

Terracon will conduct a site visit once the system is installed to confirm that the GAC system(s) were installed according to the specifications.

Task B: Operation and Monitoring

Once the GAC treatment system(s) are installed and operational, Terracon will conduct treatment performance monitoring and sampling to determine that the systems are treating the water and to determine when the granular activated carbon no longer effectively removes the TCE and carbon replacement is needed.

OBJECTIVE 1 TIMELINE

The timeline to complete Objective 1 including the design work to the final installation of the GAC treatment system(s) is two to four weeks. Monitoring the treatment performance of the systems will take several years until the TCE concentrations in the well water have decreased to the MDH HRLs.

OBJECTIVE 1 DELIVERABLE

A brief remedial action implementation report will be prepared that documents the GAC system(s) installed for the impacted potable wells.

Objective 2: Mitigate the Vapor Intrusion Risk to One Occupied Building.

Task A: Install Sub-Slab Depressurization Systems

One off-site occupied building has been identified with TCE soil-gas impacts that exceed the MPCA's 33x ISV. In addition, the on-site maintenance garage likely requires mitigation if this building is occupied (which at this time is assumed to not be occupied). Therefore, a sub-slab depressurization system is proposed to be installed to mitigate the vapor intrusion risk for the off-site building. The SSDS will be installed in accordance with the MPCA's guidance document *Diagnostic testing, installation and confirmation sampling for active vapor mitigation systems in single-family residential buildings*. The design of a SSDS is of moderate complexity, but not so complex that a traditional engineered system with a full set of design plans is needed. The elements for the proper design of an SSDS include several factors such as the following: current building condition, slab integrity, presence of crawlspaces, depth to groundwater, soil conditions, explosive vapors, building sumps, and safety.

Subtask 1: Prepare Plans and Specifications for SSDS Contractor

The State of Minnesota currently has a contract with contractors that install SSDSs and the State issues a purchase order directly to an SSDS contractor to perform the work. Terracon's role would be to develop a scope of work for the SSDS contractor. Therefore, Terracon will assist the MPCA with filling out the following forms:

Request for Quote Form.

Attachment A: Special Instruction and Technical Specifications.

Attachment B: Additional Information / Specifications.

Information gathered during the RI sampling phase and the vapor intrusion building survey work is used to develop a scope for the SSDS contractor.

Subtask 2: Coordinate with SSDS Contractor and Property Owner

After the MPCA has awarded the SSDS work to a contractor, Terracon will contact the contractor and the property owner to come up with a schedule for the installation of the SSDS.

Subtask 3: Oversee SSDS Installation

Terracon will provide a full-time on-site Engineer that is experienced with SSDS installation work and familiar with the MPCA guidance related to SSDSs to oversee the SSDS installation. As the work proceeds various field testing results will be documented using the MPCA's Pre-Mitigation Diagnostic Checklist, Active Mitigation System Installation Checklist and Post-Mitigation Diagnostic Checklist.

Subtask 4: Conduct Post-Mitigation Follow-Up Sampling

Post-Mitigation Follow-Up sampling will be conducted a minimum of one week after the completion and start-up of the mitigation system and no later than 30 days following start-up. If the samples are collected during the non-heating season, then additional sampling will be conducted during the next heating season.

One indoor air sample and one outdoor air sample will be collected per 1,000 square feet of the

building and for each section of the building that is separated by footings or foundations. The air samples will be collected using laboratory provided, individually "certified" Summa® canisters equipped with 24-hour flow controllers and vacuum gauges.

After the 24-hour air samples have been collected Terracon will then collect soil gas samples from the fixed sub-slab monitoring points previously installed in the building. The soil gas samples will be collected from the sub-slab soil gas monitoring points using Summa® canisters equipped with a 200-cubic centimeter per minute flow regulators and a vacuum gauge with an in-line paper filter/moisture traps. A pump will be used to perform a vacuum shut in test and then purge a minimum of two volumes of soil gas from sub-slab soil gas sampling point and sampling train. The vacuum gauge will be monitored to check progress of canister filling. The Summa® canister valve will then be closed. After the soil gas sample is collected a photoionization detector (PID) and multi-gas detector will be connected to the tubing to measure the organic vapor, oxygen, lower explosive limit, carbon monoxide, and hydrogen sulfide. A Terracon Soil Gas / Indoor Air Sampling Information Form indicating project information, equipment identifiers, sample location, sample time, etc. will be completed for each soil gas sample. The vacuum in the Summa® canister before and after sampling will be recorded on the information form. A Chain-of-Custody will also be filled out indicating the sample identified, sampling time, equipment identifiers, before and after vacuum and soil organic vapor reading. The Summa® canisters will be submitted to a State Contract Laboratory to be analyzed for the MPCA list of volatile organic compounds (VOCs) using EPA Method TO-15 in general accordance with MPCA Guidance Documents *Risk-Based Guidance for Vapor Intrusion Pathway and Vapor Intrusion Technical Support Document and Best Management Practices for Vapor Investigation and Building Mitigation Decisions (c-rem3-06e)*.

OBJECTIVE 2 TIMELINE

The timeline to complete Objective 2 including the design work to the final installation of the SSDS(s) is four to eight weeks.

OBJECTIVE 2 DELIVERABLE

Project Summary Report

Updated GIS Maps

Attachment A: Pre-Mitigation Diagnostic Checklist

Attachment B: Active Mitigation System Installation Checklist

Attachment C: Post-Mitigation Diagnostic Checklist

Attachment D: Post-Mitigation Confirmation Sampling Checklist

Objective 3: Conduct Pilot Testing for the Maintenance Garage TCE Source Area.

The site conceptual model indicates that the source of the dissolved phase TCE plume is a release of TCE that occurred at the Maintenance Garage. Several soil samples were collected for TCE analysis of which the highest TCE concentration reported was 120 milligrams per kilogram (mg/kg). This soil sample was collected from sample location 15 at approximately eight feet bgs that consisted of a silty soil. Several groundwater samples were collected for TCE analysis of which the highest TCE concentration reported was 500 micrograms per liter (ug/L). The TCE impacts extend to depths of at least 28-feet bgs. The soils predominantly consist of sand with some lenses of silt and clay. NOTE, there may also be soil and groundwater impacted with fertilizer/pesticide chemicals,

petroleum chemicals, and other chemicals not previously assessed in the area of the Maintenance Garage. The presence of these chemicals will complicate the evaluation and selection of a Remedial Action. Furthermore, there are known fertilizer/pesticide chemical impacts to soil and groundwater at the site but the sample locations of those samples were not reported. It is necessary to know the full extent of all the known and unknown chemical impacts so that treatability studies and pilot testing may be designed.

The following Task A includes some additional site characterization items that would be beneficial for the Focused Feasibility Study work to be conducted in conjunction with the Sampling Plan work described in a separate Work Plan.

Task A: Pilot Test

Terracon proposes doing the following tests to provide sufficient information so that a FFS can be completed. The tests described below would be conducted in conjunction with the Remedial Investigation work.

Subtask 1: Horizontal Hydraulic Conductivity

Terracon proposes to conduct pneumatic slug testing at each direct-push probe location.

Subtask 2: Vertical Hydraulic Conductivity

Terracon proposes to collect Shelby Tube samples from depths that represent low permeable soils during the installation of monitoring wells. The Shelby Tube samples will be used to conduct permeability tests to determine the vertical hydraulic conductivity.

Subtask 3: Grain-Size Analysis

Terracon proposes to collect soil samples from direct-push probes and monitoring well borings that are conducted in the area of the maintenance garage for grain-size analysis.

Subtask 4: Geochemical Analyses

Terracon proposes to collect groundwater samples from direct-push probes and monitoring wells that are conducted in the area of the maintenance garage for the following field and laboratory parameters.

- pH, Conductivity, Oxidation/Reduction Potential, Dissolved Oxygen and Temperature.
- Total dissolved Iron.
- Total dissolved Manganese.
- Total Sulfate.
- Total Dissolved Solids.

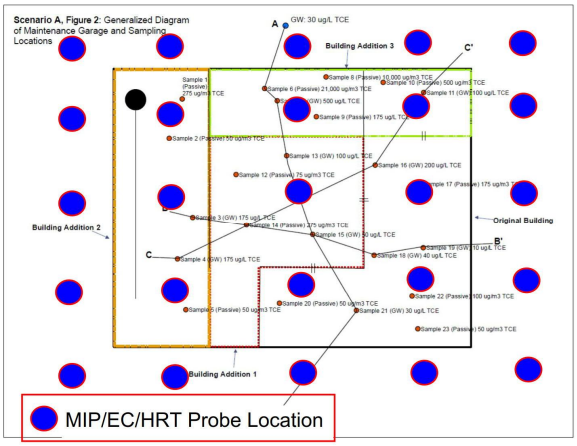
Terracon proposes to collect soil samples from direct-push probes and monitoring wells that are conducted in the area of the maintenance garage for the following laboratory parameters.

- Total Organic Carbon.

Subtask 5: Membrane Interface Probe with Electrical Conductivity and Hydraulic Profiling Tool

Terracon proposes to advance Membrane Interface Probes with Electrical Conductivity and Hydraulic Profiling Tool (MIP/EC/HRT) to delineate the TCE source area and gather more information pertaining to the soil and groundwater conditions.

Terracon will prepare specifications and solicit bids for advancing a series of MIP/EC/HRT probes. The MIP/EC/HRT probes will be specified to include the following sensors: PID, halogen specific detector (XSD) and flame ionization detector (FID). The specifications will be submitted to a State Drilling Contractor to obtain a cost estimate prior to issuing a State Contractor Order Form for the work. If a State Drilling Contractor is not available or cannot do the work, bids will be solicited consistent with the requirements in the *MPCA Contractor and Subcontractor Purchasing Manual*. Public utilities will be cleared prior to the initiation of field activities using Gopher-State-One-Call.



Terracon will subcontract a licensed well driller to advance up to 25 MIP/EC/HRT probes to maximum depths of 40-feet bgs or refusal to assess the horizontal and vertical extent of TCE source mass. The MIP/EC/HRT probes will be located on a grid layout as shown below. The actual sampling locations will be adjusted based upon the location of utilities, accessibility, and previous assessment results.

OBJECTIVE 3 TIMELINE

The timeline to complete the work described above in Objective 3 is two to three weeks which would overlap with the Sampling Plan work.

OBJECTIVE 3 DELIVERABLE

Terracon will prepare a report documenting the additional assessment activities including the results of field and laboratory analytical testing. The report will include a summary of field screening observations, soil analytical results and groundwater analytical results. A figure depicting the locations of the samples will be included with the report. Geologic cross-section figures will also be updated to include the additional assessment results. In addition, three dimensional layouts will be provided for the MIP/EC/HRT probe data including XSD contours, electrical conductivity contours and groundwater elevations at the source area.

Objective 4: Remediate Shallow Soil Impacted with Petroleum.

Task A: Conceptual Corrective Action Design

Terracon will prepare a Conceptual Corrective Action Design (CCAD) for the excavation of shallow petroleum impacted surface soil in the area of the 500-gallon AST. The CCAD should suffice for MPCA approval since this is a simple corrective action.

Task B: Excavation Oversight and Sampling

During implementation of the shallow surface soil excavation, soil sampling will be conducted using the petroleum sheen test. Samples will be collected at the edges of the approved excavation extent using the sheen test to determine if additional excavation is necessary. Post-excavation soil sampling is not required to document contamination remaining in place after a surface soil excavation. Sampling of the removed soil, however, may be required prior to soil treatment or disposal approval. The excavated area will then be backfilled with clean fill to restore the site to its original surface grade.

OBJECTIVE 4 TIMELINE

The timeline to complete the work described above in Objective 4 is four to six weeks with the majority of the time spent on coordination the work. The amount of time to complete the excavation cleanup is one to two days.

OBJECTIVE 4 DELIVERABLE

The excavation cleanup for the shallow surface soil impacts will be documented using the MPCA's *Corrective Action Excavation Report Worksheet* (3-02a).

Objective 5: Ag-Chemical Remediation

Based on the limited information regarding the site conditions, the Remedial Investigation needs to be completed to fully identify the impacted areas prior to evaluating and conducting Remedial Actions for the source areas and overall site. In addition, there likely are areas with co-mingled contaminants including ag-chemicals, solvents and petroleum in both soil and groundwater. There also hasn't been sampling at the potable wells for ag-chemicals so it is unknown if the groundwater at the potable wells has been impacted. Thus, the corrective actions will focus on what is known with some discussion on possible additional corrective actions if additional impacts are identified in the Remedial Investigation.

As discussed in the Remedial Investigation work plan section for Scenario A, the findings of the remedial investigation and the proposed corrective action plan are presented in the Remedial Action Report and Corrective Action Plan per Minnesota Department of Agriculture (MDA) Guidance Document 10. The corrective action plan (CAP) addresses the proposed soil and groundwater corrective actions for MDA review and approval. Upon approved by MDA, the corrective actions are implemented and once completed they are documented in the Corrective Action Report (CAR) per MDA Guidance Document 15.

Once the CAP has been approved, Terracon will prepare remediation specifications which are used to solicit bids from remediation contractors.

The corrective actions described below are consistent with the requirements of MDA and are based on the known conditions at this site.

Task A: Soil Remediation

It is assumed there are nitrogen and pesticide concentrations in soil that exceed the MDA soil cleanup goals. Since the soils are sandy, groundwater is shallow and there are potable wells in the area, we propose to use the high risk to groundwater soil cleanup goals for pesticides per MDA Guidance Document 19. These are more conservative soil cleanup goals which are more protective of groundwater.

The nitrate and TKN cleanup goals presented in Guidance Document 19 do not differentiate the nitrogen cleanup goals based on risk to groundwater. Thus, we propose to use the low end of the nitrate concentration range (150 milligrams per kilogram) and the generic TKN concentration presented in Guidance Document 19. If may be necessary to propose a more conservative nitrate and TKN cleanup goal if it is determined during the additional remedial investigation that the potable well samples have a nitrate concentration at or above the MDH HRL.

The following subtasks discuss the scope of services to be included in the soil corrective actions.

Subtask 1: Soil Excavation

Soil will be excavated laterally and vertically until the nitrogen and pesticide concentrations are below

the soil cleanup goals. If the remedial investigation was comprehensive enough to define the lateral and vertical extent of the impacts, the excavation will proceed to the identified clean excavation boundaries with no additional sampling and analysis. If there are data gaps, sidewall and base samples will be collected for laboratory analysis of nitrate, TKN and\or the applicable pesticides (MDA List 1, 2 or 3 as needed based on the previous assessment data). The excavation sidewall and base samples may be analyzed by an MDA approved fixed base laboratory or by a mobile laboratory mobilized to the site. If the excavation is in an area with co-mingled petroleum and solvent contaminants, the extent of the excavation may also be determined based on the concentrations of these other contaminants.

If there are soil impacts beneath the concrete slab at the former dry fertilizer building, the concrete slab will be removed to facilitate access to the underlying soil. If it is determined the concrete is not impacted, it can be disposed of at a demolition landfill or crushed for re-use. If the concrete is impregnated with fertilizer and\or pesticides, it will need to be sent to a permitted solid waste landfill for disposal. In any case, MDA approval is needed for disposal of the concrete.

The excavation(s) will be backfilled with clean material Since this site will be redeveloped as a golf course it is anticipated there will be significant changes to the surface grade so the site restoration will be backfilled to the pre-existing surface grade.

Subtask 2: Soil Stockpiling and Sampling

The excavated soil will be segregated in separate stockpiles based on the contaminants identified during the assessment, i.e., nitrogen only will be segregated from pesticide only or co-mingled contaminants. The reason for the segregation of the stockpiles is to not further co-mingle soil because the disposal for each waste stream may be different. The soil stockpiles will be covered with plastic sheeting.

Composite stockpile samples will be collected from each stockpile for laboratory analysis. The number of samples will vary based on the volume of soil and the analytes may also vary based on the contaminants identified during the remedial investigation. Typically, the composite stockpile samples are analyzed for nitrate, TKN and the MDA List 1 and List 2 pesticide screens. It may also be necessary to analyze the soil samples for other analytes if there is the potential for co-mingled contaminants. The stockpile sampling procedures will be consistent with the requirements in MDA Guidance Document 11.

Subtask 3: Soil Disposal

The stockpile sampling data is used to determine the appropriate disposal option for the soil. Typically, the soil would be landspread on an agricultural field based on agronomic rates. We use the analytical data to determine what crop is most appropriate for the impacted soil. We use the concentrations, the volume of soil and the identified crop to determine the acres required to landspread the soil. This information is presented in a landspreading application which is sent to MDA and the local township and county officials for approval. The landspreading application also identifies the company that will complete the landspreading of the soil. If the soil contains pesticides, the landspreader must have a restrictive use pesticide applicators license. Upon receipt of approval the soil is landspread on the approved field at the specified time frame i.e., fall or spring.

If the soil contains incompatible pesticides, is co-mingled with other contaminants or if fields are not available, the soil can be disposed of at a licensed landfill with MDA approval. There are other possible options such as landfarming, but landspreading or landfill disposal are the most common soil disposal options.

It does not appear the excavated soil can be spread over the proposed golf course since it contains

grass herbicides which would kill the grass on the fairways and greens. In addition, it is possible there may be co-mingled contaminants that would not be appropriate for reuse on the golf course.

Task B: Maintenance Garage Trench Drain and UST

The trench drain and the UST need to be abandoned. Thus, the sediments and\or liquids will be removed and containerized for disposal. The trench drain and the UST will be cleaned and the cleaning materials and sludge will also be removed and containerized. Since the trench drain and UST are located inside the building, it is assumed they will be abandoned in-place by filling them with an inert material. The opening in the floor over the trench drain and the UST will be sealed with concrete to match the surrounding floor. The material removed from the drain and UST will be characterized for off-site disposal based on the identified contaminants.

Task C: Groundwater Remediation

MDA typically does not require groundwater remediation unless there are impacts to potable wells, significant discharge to a stream or water body or other sensitive environments in the area. There is known groundwater impacts at the well at the water fill station, although there is no information indicating discharge to the stream or impacts to the potable wells located to the west. This may change based on the additional assessment data obtained during the remedial investigation.

The typical approach is to complete source removal and then implement groundwater monitoring to assess changes in groundwater quality over time.

Since there is an existing well located in proximity or downgradient of the historical operational areas, use of the well for groundwater extraction is an option. The issue is always disposal of the water and in this case with sandy soil the well may generate a significant volume of water. Typically, a groundwater pumping test would be completed to determine the radius of influence, the anticipated volume of water and the water disposal options. Since this is no longer an operational facility for ag-chemical operations, seasonal use of the water as make-up water for fertilizer and pesticide mixtures is not an option. However, once the golf course is built, it may be possible to use the water seasonally as irrigation water on the golf course. The water would need to be treated using granular activated carbon (GAC) to remove the pesticides so they don't kill the grass. The nitrate will not be removed by the GAC unit but the nitrogen can be used a fertilizer on the golf course. This would require a calculation of the loading rates so the nitrogen is not over applied. Lastly, discharge to the sanitary sewer may be an option depending on the availability of a public waste water treatment plant. This may also require pre-treatment with a GAC unit to remove the pesticides.

Task D: Potable Wells

It appears some of the potable wells are already impacted by TCE. It is assumed GAC units will be installed on the in-home plumbing to remove the solvents. The GAC units would also remove the pesticides if present. These GAC units typically do not remove nitrate if present. Additional options such as signage and\or reverse osmosis may be required to address nitrate impacts if identified.

A long-term option is to evaluate the connection of the homes with potable wells to the public water supply system that is located just to the west.

Task E: Groundwater Monitoring

A long-term groundwater monitoring program will be implemented at the monitoring well nests to evaluate

groundwater quality post soil remediation. The wells to be included in the monitoring program, the analytes and the frequency of testing will be determined upon completion of the remedial investigation and the soil remedial actions.

OBJECTIVE 5: TIMELINE

The remedial actions will be completed upon review and approval of the CAP or remedial design by MDA and MPCA. It is assumed the remedial actions will be completed concurrently with remedial actions for the solvents, petroleum and ag-chemicals. Potable well sampling may be needed on a monthly basis initially and long-term groundwater monitoring at the monitoring wells would likely be completed quarterly.

OBJECTIVE 5: DELIVERABLE

For Ag-Chemical sites we typically prepare CAR which documents the soil corrective actions per MDA Guidance document 15. For longer-term sites with groundwater remediation and\or groundwater monitoring we will typically submit a quarterly report and an annual report that documents the ongoing groundwater remediation and monitoring. These reports will present the data along with an interpretation of the data with recommendations for changes as needed. At this site it is assumed we would prepare a comprehensive report that documents the ag-chemical, solvent and petroleum remediation and monitoring.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

Attachment B
*Example Scenario Project

Project title: Category A, Scenario A, Remedial Design / Remedial Actions

	1. Personnel							2. Subcontracting	3. Equipment		4. Other Expenses			Totals (Extended)
Project Budget	Project Manager	Engineer III	Engineer I or II	Scientist 2	Scientist 1	Field Technician	GIS/CADD Specialist							
Objective 1: Install GAC Treatment Systems for 3 Wells														
Task: Design, Bidding, and Coordination	7.5		8.0											15.5
Task: Operation and Monitoring (1 year)						4.0								4.0
Task: Deliverable - brief remedial action implementation report	1.0		3.0				2.0							6.0
Total for Objective 1 Hrs	**8.5**	**0.0**	**11.0**	**0.0**	**0.0**	**4.0**	**2.0**							**25.5**
Objective 2: Install One Sub-Slab Depressurization System														
Task: Design, Bidding, and Coordination	2.0	1.0	10.0				2.0							15.0
Task: Installation Oversight	3.5	1.5	24.0											29.0
Task: Post Mitigation Follow-Up Sampling	0.5				4.0									4.5
Task: Deliverable - Brief remedial action implementation report with updated GIS maps and Mitigaiton Worksheets	4.0	1.0	10.0	4.0			2.0							21.0
Total for Objective 2 Hrs	**10.0**	**3.5**	**44.0**	**4.0**	**4.0**	**0.0**	**4.0**							**69.5**
Objective 3: Conduct Pilot Testing for the Maintance Garage TCE Source Area														
Task: Hydraulic Conductivity Testing	1.5			2.0	10.0									13.5
Task: MIP/EC/HRT Oversight	2.5			4.0	38.0									44.5
Task: Deliverable - RI Addendum	2.0			16.0			2.0							20.0
Total for Objective 3 Hrs	**6.0**	**0.0**	**0.0**	**22.0**	**48.0**	**0.0**	**2.0**							**78.0**
Objective 4: Ag-Chemical Remediation														
Task A: Soil Remediation	4.0			4.0	40.0									48.0
Task B: Maintenance Garage Trench Drain and UST	2.0			2.0	8.0									12.0
Task C: Groundwater Remediation	10.0	5.0	10.0		16.0	8.0								49.0
Task D: Potable Wells	2.0			2.0		4.0								8.0
Task E: Groundwater Monitoring	2.0			4.0		8.0								
Deliverable: Corrective Action Report (CAR)	4.0		4.0	20.0			10.0							38.0
Total for Objective 4 Hrs	**24.0**	**5.0**	**14.0**	**32.0**	**64.0**	**20.0**	**10.0**							**169.0**
Total Project Hours	**48.5**	**8.5**	**69.0**	**58.0**	**116.0**	**24.0**	**18.0**							**342.0**

This spreadsheet only incudes staff hours to implement the proposed RD/RA work. Costs for subcontractors, equipment, and other expenses are not included in this estimate as per the RFP.

MINNESOTA POLLUTION CONTROL AGENCY
520 Lafayette Road North
St. Paul, MN 55155-4194

ATTACHMENT C

Professional and Technical Services Remediation Master Contract

State of Minnesota

SWIFT Master Contract No.:
T-Number:
Agency Interest No.:
Activity ID No.:

This Master Contract is between the State of Minnesota, acting through its Commissioner of the **Minnesota Pollution Control Agency** ("MPCA" or "State") 520 Lafayette Road North, St. Paul, MN 55155 and **Contractor Name** ("Contractor"), address, city, state zip .

Recitals

1. Under Minn. Stats. § § 15.061 and 116.03 Subd. 2, the State is empowered to engage such assistance as deemed necessary.
2. The State is in need of multiple contracts to perform **<Category A > <Category B> <Category C >** program activities.
3. The Contractor represents that it is duly qualified and agrees to perform all services described in this Master Contract ("Master Contract" or "Contract") to the satisfaction of the State.

Master Contract

1. TERM OF MASTER CONTRACT

***1.1. Effective date*: July 1, 2018**, or the date the State obtains all required signatures under Minn. Stat. § 16C.05, Subd. 2, whichever is later. **The Contractor must not accept work under this Master Contract until this Master Contract is fully executed and the Contractor has been notified by the State's Authorized Representative that it may begin accepting Work Orders.**

***1.2. Work Order Contracts*.** The term of the work under Work Order contracts issued under this Master Contract may not extend beyond the expiration date of this Master Contract.

***1.3 Expiration date*: June 30, 2023**, with no contract extensions, or until all obligations have been satisfactorily fulfilled, whichever occurs first.

***1.4 Survival of terms*:** The following clauses survive the expiration or cancellation of this Master Contract and all Work Orders: Indemnification; State Audits; Government Data Practices and Intellectual Property; Publicity and Endorsement; Governing law, Jurisdiction, and Venue; and Data Disclosure.

2. SCOPE OF WORK

The Contractor, who is not a State employee, will upon request from the State, prepare workplans for work outlined in **<Category A > <Category B> <Category C >** outlined in this Master Contract and the Request for Proposal (RFP) which is incorporated herein by reference, and perform the duties authorized in a Work Order and any related Change Order, Work Order Amendment, or Stop Work Order issued by the State, as described in this Master Contract and the RFP. No work shall be performed by the Contractor under this Master Contract without State authorization. In the event of a conflict between the provisions of this Master Contract and the provisions of the RFP, the provisions of this Master Contract shall prevail.

The Contractor shall begin work only upon receipt of a fully executed Work Order that authorizes the Contractor to begin work under this Master Contract. Any and all effort, expenses, or actions taken before the Work Order is fully

executed is not authorized under Minnesota Statutes and is under taken at the sole responsibility and expense of the Contractor.

The Contractor understands this Master Contract is not a guarantee of work under a Work Order contract. The State has determined it may need the services under this Master Contract, but does not commit to spending any money with the Contractor.

<Category A Scope of Services>
<Category B Scope of Services>
<Category C Scope of Services>

3. TIME

The Contractor must comply with all the time requirements described in Work Orders. In the performance of Work Orders, time is of the essence.

4. CONSIDERATION AND PAYMENT

4.1 Consideration. The State will pay for all services satisfactorily performed by the Contractor for all Work Order Contracts issued under this Master Contract. The total compensation of all Work Orders may not exceed $**120,000,000.00 (One Hundred Twenty Million Dollars)** for five (5) years between all Master Contracts.

a. ***Travel expenses.*** Reimbursement for travel and subsistence expenses actually and necessarily incurred by the Contractor as a result of any Work Order will be reimbursed, for travel and subsistence expenses in the same manner and in no greater amount than provided in the current "Commissioner's Plan" promulgated by the Commissioner of Minnesota Management and Budget which is incorporated into this Master Contract by reference which can be viewed at**:** **http://www.mmd.admin.state.mn.us/commissionersplan.htm.**
The Contractor will not be reimbursed for travel and subsistence expenses incurred outside Minnesota unless it has received the State's prior written approval for out-of-state travel. Minnesota will be considered the home State for determining whether travel is out of state. When coming from out-of-state the Contractor's hourly rate for staff will not apply until the Contractor's staff has arrived at the project location.

To qualify for the breakfast and dinner costs, the Contractor must leave the point of mobilization before 6:00 a.m. and arrive back at the point of mobilization after 7:00 p.m., respectively. Lunch reimbursements may be claimed if the Contractor is in travel status more than 35 miles away from his/her normal office or is away from home overnight.

Receipts for meals and lodging must be attached to the Contractor's invoices. Meal receipts are required to be submitted with invoices, and retained in accordance with Clause 33. Meal and lodging costs and any expenses must be summarized in an Expense Worksheet and submitted with invoices.

4.2 Payment

a. ***Terms of Payment.*** The Contractor shall be paid for actual services performed for the State in accordance with Work Orders from the State and in accordance with the Classifications and Rates established in Clause 10, of this Master Contract. The Contractor will be paid in accordance with the Workplan and Budgets for each Work Order.

b. **Invoices.** The Contractor shall submit invoices to the State monthly for work completed during the prior month, unless no costs, or minimal costs are incurred during the billing period. The invoices shall be submitted in the format acceptable to the State. Invoices and attachments should be consistent with the Work Order Budget. Documentation must be itemized and legible. It is the Contractor's sole responsibility to make sure invoices are submitted as required.
Invoices shall include:

a. Contractor name

b. SWIFT Master Contract ID No.
c. Work Order Number
d. Purchase Order Number
e. Invoice number
f. Invoice date
g. State Project Manager
h. Invoicing period (actual working period)
i. Itemized list of all work performed and Brief Update of Tasks Completed
j. Itemized list of all labor, supplies and equipment
k. Subcontractor invoices
l. Mileage expenses
m. Itemized expenses with receipts, for meals, lodging, and parking expenses per person per day (State to provide form)
n. Staff travel logs and/or timesheets (if requested or applicable)
o. Documentation of times and dates must be disclosed on the expense worksheet and attached to invoice
p. Retainage calculation
q. Budget Summary Report (form provided by State) summarizing State approved budget amounts by task and total billed to date for the categories of Contractor and subcontractors labor, expenses, and equipment.
r. Expenses as approved on workplan
s. Brief update of tasks completed for subject invoice

MPCA Work Order invoices will be submitted to mpca.ap@state.mn.us.

If there is a problem with submitting an invoice electronically please contact the MPCA Accounts Payable Unit at 651-757-2491.

Minnesota Department of Agriculture (MDA) Work Order invoices should be submitted by email (preferred) to: MDA.Accounts-Payable@state.mn.us or by US Mail to Finance and Budget Division, Accounts Payable, 625 Robert Street North, Saint Paul, MN 55155.

The State's Authorized Representative shall have the authority to approve invoices, and no payments shall be made without the approval of the State's Authorized Representative. Payment shall be made within thirty (30) days of submission of the Contractor's invoices for services performed. The State shall pay interest at the rate of one and one half percent (1.5%) per month to the Contractor for undisputed billings when the State has not paid the billing within thirty (30) days following receipt of the invoice, in accordance with Minn. Stat. § 16A.124. When discrepancies occur regarding portions of an invoiced amount, the State shall pay the undisputed amount in accordance with this part. The disputed items shall be paid within thirty (30) days of when the discrepancies are resolved.

c. ***Retainage.*** Under Minnesota Statutes §16C.08, subdivision 2 (10), no more than 90 percent of the amount due under any Work Order may be paid until the final product of the Work Order contract has been reviewed by the State's agency head. The balance due will be paid when the State's agency head determines that the Contractor has satisfactorily fulfilled all the terms of the Work Order.

5. CONDITIONS OF PAYMENT

All services provided by the Contractor under a Work Order must be performed to the State's satisfaction, as determined at the sole discretion of the State's Authorized Representative and in accordance with all applicable federal, state, and local laws, ordinances, rules, and regulations including business registration requirements of the Office of the Secretary of State. The Contractor will not receive payment for work found by the State to be unsatisfactory or performed in violation of federal, state, or local law.

6. CONTRACT SERVICE PRICES

When the MPCA Contractor hires a State Contractor, the MPCA Contractor is required to pay the State Contractor within 30 days after receipt of the invoice for undisputed billings from the State Contractor. The MPCA Contractor is responsible to assure the State Contractor's invoice and services were in compliance with the MPCA Work Order, State Contract scope of services and fee schedules.. The MPCA Contractor shall also assure the services were provided. The MPCA Contractor has the option to submit invoices twice a month to expedite payment of State Contractor/Subcontractor invoices.

The Contractor may provide oversight and invoice approval of State Construction Contracts over $50,000 and ensure invoices are in compliance with the scope of work that was performed. However, the Contractor shall not pay the State Construction Contractor directly. The State Construction Contractor shall submit invoices to the State for payment and the State will make payments directly to the State Construction Contractor.

The end of the State fiscal year is June 30. All invoices are due by August 15 of each year for work done prior to July 1 of that year. Charges incurred in two fiscal years (before and after July 1) shall not be on the same invoice. The State closes its fiscal year accounts at the end of August.

Courier services shall be reimbursable when requested by the MPCA. Copies of plans and specifications for bid packages for major construction projects shall be reimbursable when approved in the Work Order. The State shall not pay for markup on Contractor or Subcontractor invoices.

7. PAYMENT TO SUBCONTRACTORS

As required by Minn. Stat. § 16A.1245, the prime Contractor must pay all subcontractors, less any retainage, within ten (10) calendar days of the prime Contractor's receipt of payment from the State for undisputed services provided by the subcontractor(s) and must pay interest at the rate of one and one-half percent per month or any part of a month to the subcontractor(s) on any undisputed amount not paid on time to the subcontractor(s).

8. SUPPLIES AND EQUIPMENT PRICING

Supplies and Expenses: The State considers the following items to be examples of supplies, disposables, and/or equipment that are already part of a Responder's overhead that will not be reimbursed separately. This is not an all-inclusive list.

a. Vehicle or Vehicle daily rates
b. Tool Boxes
c. Hand tools and small electric tools
d. Tri-pod
e. Grease
f. Mobile phone or related fees
g. Answering machine/voice mail systems or access
h. Computer/tablets/field notebooks/printer and ink cartridges
i. Hand-held global positioning system locator
j. Digital/film camera, photo processing and film
k. Bucket
l. Tape measures
m. Gloves
n. Level D personal protective equipment (including but not limited to coveralls, steel-toed boots/shoes, safety glasses or chemical splash goggles, face shield, ear protection, hard hat, gloves)
o. First aid kit
p. Eye wash

q. Trash bags
r. Duct tape
s. Rainwear suits and raingear
t. Distilled water
u. Ice/coolers
v. Bungee cords
w. Alconox
x. Ziplocs or similar plastic bags
y. Electrical cords
z. Stamps or postage
aa. Boot covers
bb. Locks
cc. Tubing
dd. Nails/screws/bolts/fasteners
ee. Items less than $30

Equipment: All anticipated equipment to be used on all projects under this Master Contract is listed on the equipment list. Any equipment not listed, if approved by the MPCA Project/Contract Manager, shall be purchased as required in the MPCA Contractor/Subcontractor Purchasing Manual: https://www.pca.state.mn.us/about-mpca/contractor-and-subcontracting-guidance.

The MPCA will allow the Contractor to use MPCA equipment, if available, with MPCA contract manager approval and proper training as deemed appropriate by the contract manager. The MPCA will not reimburse contractors for this training. The Contractor assumes all risks of loss or damage to the equipment during periods of transportation, installation, and during the entire time the equipment is in possession of the Contractor.

Items shown below shall be billed at the daily or hourly rate shown without further proof of cost.

EQUIPMENT RATES
Effective July 1, 2018 – through June 30, 2023

Equipment	Cost (per day)
Turbidity Meter	$52.00
Oxidation-reduction potential (ORP) Meter	$39.00
Hydrolab Quanta	$80.00
Dissolved Oxygen Meter	$46.00
Temperature, pH, conductivity, ORP meter	$68.00
Temperature, pH, conductivity	$35.00
YSI Multi Meter w/ Flow Cell	$117.00
Flow Cell	$77.00
Water Quality Meter (6 parameters)	$102.00
2" Pump	$189.00
Bladder pump	$118.00
Submersible Pump	$52.00

Peristaltic Pump	$43.00
Diaphram Pump	$53.00
Mechanical Pump Puller	$44.00
Water Level Indicator	$27.00
Hydrocarbon/Water Interface Probe	$55.00
Pump/Slug Testing Equipment	$110.00
Manual direct-push probe equip.	$165.00
X-ray Fluorescent (XRF) for Soil and Lead Paint	$468.00
Nuclear Density Gauge	$69.00
Multi Gas Meter (02/CO/LEL/Methane)	$123.00
O2/Combustible Gas Detector	$110.00
LEL/O2/CO2 Gas Meter	$66.00
LEL/O2Gas Meter	$55.00
Explosimeter	$52.00
Photoionization Detector (PID) 10.6	$99.00
Photoionization Detector (PID) 11.7	$138.00
Flame Ionization Detector (OVA)	$135.00
Velometer / Anemometer	$34.00
Micro Manometer	$64.00
Sound Level Meter	$53.00
Dust Meter	$70.00
Air Compressor	$54.00
Metal/Cable Detector	$47.00
Generator	$65.00
Sump Pump	$33.00
Pressure Washer	$69.00
Magnetometer	$151.00
Coreing Machine with Drill Bits	$110.00
Surveying Equipment - Rotary Laser	$104.00
GPS (Submeter)	$122.00
Laser Level/Lenker Rod	$127.00
Ground Penetrating Radar (GPR)	$426.00
EM-31 Ground Conductivity Meter	$440.00
EM-61 Ground Conductivity Meter	$688.00
55 gal Drums	$70.00
Sub-Slab Soil Gas Sampling Point Insert	$88.00
Screen for Soil Gas Monitoring Points	$51.00
Vapor Pin Installation Kit (per point)	$60.00

Lumex Mercury Monitoring	$187.00
Mercury Analyzer	$179.00

Note: all calibration gasses are included in the price of the meters.
Vibracoring cannot be conducted under this contract.

9. CONTRACTOR STAFFING AND PERSONNEL CLASSIFICATIONS

Classifications are grouped in levels. Each level has an hourly rate. To qualify for a classification, you must have the education, experience and a majority of the qualifications as listed in the RFP, which is incorporated herein by reference. Classifications and hourly rates are as follows below:

Category A: Petroleum, Superfund, Ag, and Closed Landfill Program Environmental Services

The following personnel classifications will be utilized in Category A. Additional personnel classifications other than those listed below will not be accepted.

Ecological Risk Assessor 2
Ecological Risk Assessor 3
Engineer 1
Engineer 2
Engineer 3
Engineer 4
Field Technician
GIS/CADD Specialist
Human Health Risk Assessor 2
Human Health Risk Assessor 3
On-Site Inspector
Project Manager
Quality Assurance/Quality Control Officer
Scientist 1
Scientist 2

Category B. Petroleum Only Environmental Services

The following personnel classifications will be utilized in Category B. Additional personnel classifications other than those listed below will not be accepted.

Engineer 1
Engineer 2
Engineer 3
Field Technician
GIS/CADD Specialist
Project Manager
Scientist 1
Scientist 2

Category C: Closed Landfill Program

The following personnel classifications will be utilized in Category C. Additional personnel classifications other than those listed below will not be accepted.

Engineer 1
Engineer 2
Engineer 3
Engineer 4
Field Technician
GIS/CADD Specialist
On-Site Inspector
Project Manager
Quality Assurance/Quality Control Officer
Scientist 1
Scientist 2

10. CLASSIFICATIONS AND RATES

Classifications are grouped in levels. Each level has an hourly rate. To qualify for a classification, you must have the education, experience and a majority of the qualifications as listed in the RFP, which is incorporated herein by reference. Classifications and hourly rates are as follows below in Rate Schedule 1 and 2:

Rate Schedule 1
Effective July 1, 2018 – June 30, 2020

Level One	Classifications	Hourly Rate
	Engineer 1	$78.09
	Field Technician	$78.09
	GIS/CADD Specialist	$78.09
	Scientist 1	$78.09
Level Two	**Classifications**	**Hourly Rate**
	Ecological Risk Assessor 2	$97.48
	Engineer 2	$97.48
	Human Health Risk Assessor 2	$97.48
	Quality Assurance/Quality Control Officer	$97.48
	Scientist 2	$97.48
Level Three	**Classifications**	**Hourly Rate**
	Ecological Risk Assessor 3	
	Engineer 3	$137.52
	Human Health Risk Assessor 3	$137.52
	On-Site Inspector	$137.52
	Project Manager	$137.52
Level Four	**Classifications**	**Hourly Rate**
	Engineer 4	$205.97

Rate Schedule 2
Effective July 1, 2020 – June 30, 2023

Level One	Classifications	Hourly Rate
	GIS/CADD Specialist	$79.65
	Engineer 1	$79.65
	Field Technician	$79.65
	Scientist 1	$79.65
Level Two	**Classifications**	**Hourly Rate**
	Ecological Risk Assessor 2	$99.43
	Engineer 2	$99.43
	Human Health Risk Assessor 2	$99.43
	Quality Assurance/Quality Control Officer	$99.43
	Scientist 2	$99.43
Level Three	**Classifications**	**Hourly Rate**
	Ecological Risk Assessor 3	$140.27
	Engineer 3	$140.27
	Human Health Risk Assessor 3	$140.27
	On-Site Inspector	$140.27
	Project Manager	$140.27
Level Four	**Classifications**	**Hourly Rate**
	Engineer 4	$210.09

The Contactor will provide resumes to the State Contract Manager for review and approval before new staff can be added or begin work on a Work Order. New staff must meet the requirements in the RFP, which is incorporated herein by reference, of the personnel classification requested.

The Contractor will maintain and update a list of staff in matrix format that shows the personnel classifications and, staff name. The State may request and the Contractor shall comply with any request that a member of the Contractor's staff be removed from working on State projects for unsafe practices, violations of Contract procedures, or other problems. The State will pay the appropriate salary costs for the task being done.

11. BACKGROUND CHECKS. After Contract award and prior to the start of Contract work, the Contractor shall conduct background checks on all current and future employees that will perform the services required in the Contract. The background checks will be conducted through the State of Minnesota Bureau of Criminal Apprehension (BCA) and the Contractor shall also conduct its own check of any job applicant's work background. The State also reserves the right to request employee background checks be performed by the Contractor through the Federal Bureau of Investigation. All costs associated with any background checks conducted by the Contractor shall be the responsibility of Contractor.

The Contractor must review the results of these background checks, and the background checks must show any felony and gross misdemeanor convictions and any misdemeanors for which jail time may be imposed that disqualify the Contractor's employee from performing work on State property or in sensitive work areas.

If the completed background check on an individual employee shows an offense on their record, the Contractor must seek written approval from the State's Authorized Representative prior to allowing that individual to work under this Contract. The State reserves the right to decline any Contractor's employee with an offense on their record.

Before a Contractor's employee is allowed onsite to work, Contractor must certify to the State that it has a printed copy of the required background check on file and will keep it and other information on file and available for a minimum of six years for audit by the State. If requested, the results of the background checks shall be provided to the State.

12. REPORTING REQUIREMENTS

Progress Reports: The Contractor shall submit progress reports monthly or on an as needed basis determined by the State's Project Manager for the appropriate Work Order for each assigned project. This requirement shall be part of the workplan.

Usage Reports: The Contractor is required to submit Usage Reports. Usage Reports are a non-billable task required under the Master Contract. Usage Reports are due every year, no later than November 1, for the previous twelve month period of July 1 through June 30. Usage Reports are to be sent in writing or electronically to the MPCA's Contract Manager.

The Usage Report must include the following information:

a. Contractor's Name
b. Customer Name (MPCA, MDA)
c. Project Name
d. Work Order Number (if applicable) and SWIFT Purchase Order Number
e. Total Dollars by Work Order by Project for All Expenditures
f. Total Dollars Received by the MPCA Multi Site Contractor
g. Subcontractor's Name, Dollars Received, and Type of Service (by Work Order and per project)
h. Total Dollars Received During the Reporting Period by all Subcontractors
i. State Contractor's Name, Dollars Received, and Type of Service (by Work Order and per project)
j. For the report ending June 30, the total amount received for the entire fiscal year (July 1 – June 30) and yearly totals for each Work Order and each Subcontractor per Work Order
k. For the Environmental Products and Services portion of the Report, list products the Contractor is using or steps it is taking that are environmentally responsible (i.e. identify if the Contractor uses an E-85 vehicle and E-85 gas, or products made of recycled material)

The MPCA will provide a form to submit the above information as required.

Equipment Report: The Contractor shall submit Equipment Reports for State-owned equipment. Equipment Reports are a non-billable task required under the Master Contract. Reports are due every six months. Reports are due on March 1 for the previous six month period of July 1 through December 31 and on November 1 for the previous six month period of January 1 through June 30. Reports shall be sent electronically to the MPCA Contract Manager.

The Equipment Report shall include the following information:
a. Contractor Name
b. Item Description and Quantity
c. Purchase Date and Price
d. Make, Model, and Serial Identification Number of the Item
e. State Asset Number (items over $5,000)
f. Storage Location
g. Work Order or Purchase Order Number
h. Site Name

When State-owned equipment is lost or stolen, the Contractor must report the loss or theft to the MPCA Contract Manager within 24 hours.

13. SUBCONTRACTING

MPCA Contractors may subcontract tasks within the scope of this Master Contract and construction tasks assigned to it under this Master Contract as specified in the MPCA Contractor and Subcontracting Purchasing Manual which is incorporated by reference. The MPCA Contractor shall follow the MPCA Contractor/Subcontractor Purchasing Manual to subcontract services. The MPCA reserves the right to reject or accept Subcontractors as defined in the current MPCA Contractor/Subcontractor Purchasing Manual available at the MPCA website: https://www.pca.state.mn.us/about-mpca/contractor-and-subcontracting-guidance. The State reserves the right to update said instructions at any point. Once the State has posted revised instructions, the Contractor is required to implement all changes based on the revision date of the MPCA Contractor and Subcontracting Purchasing Manual

All construction activities must be subcontracted. The Contractor must not subcontract over $50,000. MDA is not authorized to use the MPCA Contractor and Subcontracting Purchasing Manual.

If MPCA Contractors decides to fulfill its obligations and duties under this Master Contract through a Subcontractor, to be paid for by funds received under this Contract, the Contractor shall not execute a contract with the Subcontractor or otherwise enter into a binding agreement until it has first received written approval from the State's Authorized Representative. All subcontracts shall reference this Master Contract and require the Subcontractor to comply with all of the terms and conditions of this Master Contract. The Contractor shall be responsible for the satisfactory and timely completion of all work required under any subcontract and the Contractor shall be responsible for payment of all subcontracts.

Professional / Technical Services: **Professional / Technical services cannot be subcontracted under this Master Contract.**

14. PREVAILING WAGE

The Contactor shall follow the MPCA Contractor and Subcontracting Purchasing Manual in regards to subcontracting construction activities. Any work on real property which uses the skill sets of any trades covered by Labor Code and Class under prevailing wages is construction and requires prevailing wages must be attached to the bid solicitation. For more information see http://www.doli.State.mn.us/LS/PrevWage.asp for the list of affected trades.

15. CONTRACTOR / SUBCONTRACTOR RESPONSIBILITIES

The Contractor is responsible for all work assigned to the Contractor under this Master Contract whether the work is actually performed by the Contractor or a Subcontractor. The State considers the Contractor to be the sole point of contact with regard to matters governed by this Contract, including payment of any and all charges resulting from this Master Contract. The Contractor is responsible for ensuring that the Subcontractor complies with all provisions of this Master Contract. The Contractor shall not utilize the services of any firms that have been debarred or suspended under Federal Regulation, 40 CFR Part 32. The MPCA will reject or accept Subcontractors as provided in the MPCA Contractor and Subcontracting Purchasing Manual: https://www.pca.state.mn.us/about-mpca/contractor-and-subcontracting-guidance

The use of temporary staff services must be authorized by the State's Contract Manager prior to use.

In the event the Contractor fails to make timely payments to a Subcontractor, the State may, at its sole option and discretion, pay a Subcontractor any amounts due from the Contractor for work performed under the Master Contract and deduct said payment from any remaining amounts due the Contractor. Before any such payment is made to a Subcontractor, the State shall provide the Contractor written notice that payment will be made directly to a Subcontractor. If there are no remaining outstanding payments to the Contractor, the State shall not have obligation to pay or be responsible for the payment of money to a Subcontractor except as may otherwise be required by law.

The MPCA Contractor is the oversight Contractor and will provide direction to the State Contractor and Subcontractor. The MPCA Contractor is responsible for informing the MPCA Contract Manager or State's Project Manager in regards to non-performance by a State Contractor.

16. WORKPLANS:

The workplan shall set forth the tasks the Contractor proposes to perform, a time schedule, and workplan budget. Upon request by the State Project Manager, the Contractor is required to submit Workplans for Work Orders. The Workplan shall be submitted to the requesting State Project Manager for review and approval within the time period prescribed by the State.

The State and the Contractor may negotiate changes to the Workplan prior to issuing the Work Order. The Workplan, once approved by the State, becomes an integral part of the resulting Work Order.

Billable hours and expenses must not exceed the State's approved Workplan amounts. The total labor amount of staff classifications shall not exceed the approved labor amount on the Workplan per task. Only the preapproved staff classifications shall be used and the task must be completed by the appropriate level of staff classification.

Additional personnel classifications will not be permitted.

Classifications may be substituted within a level upon approval by the MPCA Project Manager. If a substitute is outside of the level, the change must be approved prior to any work being done by that classification through either a change order or amendment. Additional personnel classifications shall not be utilized.

Any hours charged to a classification not approved under this Master Contract, or on the budget submitted with the Workplan, will not be considered for payment.

The State may solicit Workplans from multiple Contractors and shall base Contractor selection on the factors set forth in Section 15, Work Orders.

The State shall not pay for the preparation of Workplans or any other work conducted by the Contractor prior to issuance of a Work Order, including time for reviewing files and meeting with State staff. However, when substantial file review is required and/or an extensive Workplan is required, the State may agree to pay for the Workplan preparation.

17. WORK ORDERS

A Work Order is a contract document that is signed by the State's Authorized Representative, the Contractor's Authorized Representative, and if applicable the Department of Administration, requiring the Contractor to perform tasks pursuant to this Master Contract. Each Work Order shall become an integral and enforceable part of the Master Contract once executed by the State. The Workplan, Budget and Timeline must be attached to the Work Order.

Work Orders may be amended by a Change Order or a Work Order Amendment as described in this Master Contract.

Work Orders shall be issued under this Master Contract at the State's discretion. Whether or not a Work Order is issued shall be based on: the Contractor's performance on previous Work Orders; potential or actual conflicts of interest; availability of staff; the need for specialized skill or experience; or other factors as determined by the State's Authorized Representative.

The Contractor shall not begin work under this Master Contract until the Contractor has received an executed Work Order from the State's Authorized Representative.

A Work Order may be issued under this Master Contract with the State's prior approval utilizing funds other than the funds available from the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Minnesota Environmental Response Liability Act (MERLA), and the Minnesota Petroleum Tank Release Cleanup Account (Petrofund). The State's Authorized Representative has sole discretion regarding when this option is available.

The State fiscal year ends June 30 of each year. All Work Orders written within a fiscal year must end June 30 of that year. Should work need to continue beyond June 30, a new Work Order beginning July 1 will be required.

18. CHANGE ORDERS:

If the State's Project Manager or the Contractor's Authorized Representative identifies a change needed in the workplan and/or budget, either party may initiate a Change Order using the Change Order Form provided by the MPCA. Change Orders may not alter the overall scope of the Project, increase or decrease the overall amount of the Work Order, or cause an extension of the term of the Work Order. Major changes require an Amendment rather than a Change Order.

The Change Order Form must be approved and signed by the State's Project Manager and the Contractor's Authorized Representative in advance of doing the work. Documented changes will then become an integral and enforceable part of the Work Order. The MPCA has the sole discretion on the determination of whether a requested change is a Change Order or an Amendment. The state reserves the right to refuse any Change Order requests.

19. WORK ORDER AMENDMENTS

Except for changes made by Change Orders described in Clause 18, Change Orders, of this Master Contract, all other changes to the Workplan established in a Work Order shall be made by a Work Order Amendment, signed by the State's Authorized Representative, the Contractor's Authorized Representative, and the Department of Administration Authorized Representative.

A Work Order Amendment may be initiated by the State or by the Contractor. Under no circumstances shall the Contractor proceed with work beyond the work authorized by a Work Order unless a Change Order or a Work Order Amendment has been approved by the State. Each Work Order Amendment shall become an integral and enforceable part of the Master Contract once executed by the State. Changes in Work Order end dates must be processed through a Work Order Amendment.

A revised Workplan must be attached to the Work Order Amendment. All Work Order Amendment amounts shall not exceed 10% of the cost established in the original Work Order or $50,000.00, whichever is less, of the overall Work Order, cumulatively.

20. STOP WORK ORDERS

The State's Contract Manager, State's Project Manager, or the State's Authorized Representative may issue a Stop Work Order if it is determined, for any reason, work authorized under a Work Order shall stop. A Stop Work Order may be verbal, but shall be confirmed in writing by the State. The Contractor shall immediately comply with the terms of the Stop Work Order, which may include steps to leave the site in a safe condition.

The Contractor shall be paid for costs properly invoiced for all work satisfactorily completed up to the date of the Stop Work Order. Costs incurred by the Contractor as a result of the issuance of a Stop Work Order shall be paid by the State through a Work Order Amendment.

21. STATE'S AUTHORIZED REPRESENTATIVES

The State's Authorized Representative has the responsibility to monitor the Contractor's performance and the authority to accept the services provided under this Master Contract. If the services are satisfactory, the State's Authorized Representative will certify acceptance on each invoice submitted for payment.

- The MPCA's Authorized Representatives for this Master Contract are: **name and contact information** 520 Lafayette Road North, Saint Paul, Minnesota 55155, or any other person the Commissioner of the MPCA designates in writing to the Contractor. The MPCA's Project Manager shall be designated in writing by the State before the Contractor begins work on a Work Order and may be changed by written notice to the Contractor.

- The MDA's Authorized Representative is **name and contact information** 625 Robert Street North, Saint Paul, Minnesota 55155, or any other person the Commissioner of the MDA designates in writing to the Contractor. The MDA's Project Manager shall be designated in writing by the State before the Contractor begins work on a Work Order and may be changed by written notice to the Contractor.

22. CONTRACTOR'S AUTHORIZED REPRESENTATIVES

The Contractor's Authorized Representative are **name and contact information**, and is authorized to sign Contracts and accept Work Orders from the State on behalf of the Contractor. If the Contractor's Authorized Representative changes at any time during this Master Contract, the Contractor must immediately notify the State.

The Contractor's Authorized Representative may designate alternative or additional representatives by written notice to the State's Authorized Representative.

23. CONFLICTS CHECK

Prior to beginning any work on a project, the Contractor shall determine whether it has any actual or potential conflict of interest in working on the project. If the Contractor determines it has no conflict of interest, it shall provide to the State the following certification within five (5) business days of receiving the first Work Order from the State per site and prior to beginning any work under the Work Order.

> *[To the best of the [name of Contractor]'s knowledge, no conflict of interest would be created by this firm's performance of work for the State at this site. To the best of the firm's knowledge, no relationship exists between this firm, its parent companies, affiliates, Subcontractors and subsidiaries, or any potentially responsible persons involved with the work described in this Workplan, except [disclose any relationship the Contractor has that does not rise to the level of a conflict of interest].*

If the State determines that there is an actual or potential conflict of interest, the State may revoke any previously issued related Work Order. In the event that a conflict is discovered after the Contractor has begun work under the Work Order, the Contractor shall immediately notify the State's Project Manager in writing with a copy sent to State's Contract Manager, and cease work on the project until the conflict is resolved. The cost of demobilization because of a conflict shall be paid by the State unless the State's Authorized Representative finds that the Contractor should have previously discovered the conflict. The Contractor shall not conduct work for any other party on projects for which the Contractor has accepted a State project assignment unless specifically authorized to do so by the State's Authorized Representative.

24. CONTRACT RELATIONS

The Contractor shall cooperate and coordinate with other State Contractors and shall ensure all subcontractors cooperate and coordinate with other State Contractors. The Contractor and Subcontractor shall use their company's personnel assigned to the Master Contract in the Response to the RFP, which is incorporated herein by reference, or as subsequently approved by the State.

Communication among the Contractors shall be as efficient as possible. The State's use of this Master Contract must be easy and efficient, with no extra administrative burden for the State.

25. CONTRACTOR MEETINGS AND TRAINING

The Contractor shall meet with the State's representatives to discuss matters relevant to this Master Contract and the work assigned to the Contractor, upon request of the State Contract Manager, State's Project Manager and/or the State's Authorized Representative. The State's Contract Manager, State's Project Manager and/or the State's Authorized Representative shall meet with the Contractor upon the Contractor's request to discuss matters relevant to this Contract and projects assigned to the Contractor under this Master Contract. The State shall pay for meeting time only for project specific meetings. The State shall not pay for time for Master Contract status meetings or other meetings requested by the State's Authorized Representative.

The Contractor must attend training required by the State.

26. SITE ACCESS

The Contractor shall be responsible for checking property ownership and obtaining access to property needed to accomplish work assigned under this Master Contract unless otherwise notified by the State's Project Manager. However, if, after making reasonable efforts, the Contractor cannot obtain access to the site, the Contractor shall seek assistance from the State's Project Manager. The State will not pay for access to property, but it shall make other reasonable efforts to gain access to the Site. The Contractor shall use the forms provided by the State for obtaining access.

27. PERMITS AND LICENSES

The Contractor shall obtain and maintain all patents, licenses, permits, authorizations, or any other documents required by federal, State, or local governments, patent holders, or other authorities, that are needed for work the Contractor shall perform pursuant to this Master Contract. With limited exception, the State will not pay patent, permit, license, authorization, or other fees, but shall provide reasonable assistance to the Contractor in obtaining such patents, permits, licenses, authorizations, or other documents.

28. GENERAL HEALTH AND SAFETY

The Contractor shall ensure that its personnel assigned under this Master Contract, and the personnel of the State Contractor and all Subcontractors have received the appropriate level of health and safety training as specified by all applicable laws. The Contractor shall be responsible for the health and safety of its employees, and the employees of the State Contractor, and all Subcontractors in connection with the work performed under this Master Contract. The Contractor must have a copy of the project specific Health and Safety Plan available upon request at the project site. Site Security Plans will be developed as needed.

The Contractor is responsible to assure the Contractor, Subcontractor, and the State Contractor follow the Contractor's Health and Safety Plan. The Contractor must notify the State Project Manager in regards to non-performance or health and safety conditions.

29. SITE SECURITY PLAN

After award of a Work Order the Contractor shall prepare a site specific Health and Safety Plan (HASP) that complies with all applicable State and federal laws and regulations.

The Contractor shall submit a copy of the Contractor's HASP and SSP to the State's Project Manager, for review only. MPCA staff shall comply with the provisions of the Contractor's HASP and SSP when on-site. The Contractor's HASP and SSP shall not place more stringent requirements on MPCA staff than on the Contractor's employees. The Contractor must have a copy of the HASP and SSP available upon request at the project site.

Site Safety Conditions: The Contractor shall have authority to restrict from the project site anyone not complying with the Contractor's HASP and SSP. Any person so restricted from the project site shall be allowed to return to the project site after meeting all provisions of the Contractor's HASP and SSP. The Contractor must notify the MPCA Project Manager regarding non-compliance with the HASP or SSP.

The Contractor shall hold regular safety meetings. State staff may attend when appropriate. The topic of the meetings shall specifically involve safety and attendees shall, at a minimum, discuss safety problems and requirements related to the project.

The Contractor shall not be required to supply personal protective equipment or monitoring equipment for any persons other than Contractor's employees. However, the Contractor shall make available its decontamination facilities to those persons who reasonably require access to the work site, including Subcontractors, State, and other regulatory authorities. The Contractor shall be solely responsible for ensuring compliance by all persons with Contractor's HASP. However, the Contractor shall not unreasonably restrict State access to the site. If the State requests the right to observe work and State staff are denied access because of noncompliance with the Contractor's Health and Safety Program, the Contractor shall not proceed with the work until the State may observe the work.

30. SITE STABILIZATION

If the Contractor becomes aware that a site assigned to the Contractor requires immediate corrective action to stabilize the site to prevent further damage to the environment or to remove a threat to public health or welfare, the Contractor shall immediately notify the State's Authorized Representative or State's Project Manager of the situation. If authorized by the State's Authorized Representative or State's Project Manager, the Contractor shall take appropriate measures to stabilize the site.

31. WASTE REMOVAL AND WELL OWNERSHIP

The Contractor shall manage all hazardous and non-hazardous wastes according to applicable local, State and federal laws. The Contractor shall recommend to the State the means of disposal of hazardous waste. In the event the Contractor is required to manage hazardous wastes, the State's Project Manager shall obtain an U.S. Environmental Protection Agency (EPA) hazardous waste identification number to identify the State as generator of the waste. The Contractor is not responsible for the long term maintenance and proper abandonment of wells installed pursuant to this Master Contract unless the Contractor is directed to do so by a Work Order.

32. BROWNFIELD SITE-SPECIFIC STANDARDS AND PRACTICES

Contractor working on Brownfield site-specific activities must meet interim standards and practices established in EPA's proposed All Appropriate Rule, and the standards and practices contained in EPA's All Appropriate Rule when promulgated: http://www.epa.gov/brownfields/aai/index.htm

33. STATE AUDITS

Under Minn. Stat. § 16C.05, Subd. 5, the Contractor's books, records, documents, and accounting procedures and practices relevant to this Work Order are subject to examination by the State and/or the State Auditor or Legislative Auditor, as appropriate, for a minimum of six years from the end of this Master Contract.

34. ASSIGNMENT, AMENDMENTS, WAIVER, AND MASTER CONTRACT COMPLETE

34.1 Assignment. The Contractor may neither assign nor transfer any rights or obligations under this Master Contract without the prior consent of the State and a fully executed assignment agreement, executed and approved by the same parties who executed and approved this Master Contract, or their successors in office.

34.2 Amendments. Any amendment to this Master Contract must be in writing and will not be effective until it has been executed and approved by the same parties who executed and approved the original Master Contract, or their successors in office.

34.3 Waiver. If the State fails to enforce any provision of this Master Contract or any Work Order, that failure does not waive the provision or its right to enforce it.

34.4 Contract complete. This Master Contract and any Work Order contains all negotiations and agreements between the State and the Contractor. No other understanding regarding this Master Contract or Work Order, whether written or oral, may be used to bind either party.

35. CANCELLATION / TERMINATION, CONTINUITY OF SERVICES

Termination by the State: The State or Commissioner of Administration may cancel this Master Contract and any Work Orders at any time, with or without cause, upon thirty (30) days' written notice to the Contractor. Upon termination, the Contractor will be entitled to payment, determined on a pro rata basis, for services satisfactorily performed.

In the event this Master Contract is cancelled or expires, the Contractor shall provide phase-in phase-out (PIPO) training if required to do so by a Work Order. The PIPO services shall be provided to enable the State or another Contractor to continue, extend, or expand the work to be performed by the Contractor. The PIPO training may include conducting a training program and establishing dates for transfer of responsibility to new personnel. During the PIPO period, the Contractor shall provide sufficient experienced personnel to allow the work governed by this Master Contract to proceed without a loss of efficiency. The Contractor shall also provide the State with copies of computer models, data tapes, and other records developed under this Master Contract, and ensure training is provided on the use of these materials. The Contractor shall be reimbursed for its PIPO costs at the rates specified in the attached fee schedule.

Termination for Insufficient Funding: The State may immediately terminate this Master Contract and any Work Order if it does not obtain funding from the Minnesota Legislature or other funding source; or if funding cannot be continued at a level sufficient to allow for the payment of the services covered here. Termination must be by written or fax notice to the Contractor. The State is not obligated to pay for any services that are provided after notice and effective date of termination. However, the Contractor will be entitled to payment, determined on a pro rata basis, for services satisfactorily performed to the extent that funds are available. The State will not be assessed any penalty if the Contract or Work Order is terminated because of the decision of the Minnesota Legislature or other funding source, not to appropriate funds. The State must provide the Contractor notice of the lack of funding within a reasonable time of the State's receiving that notice.

36. INDEMNIFICATION

In the performance of this Contract by Contractor, or Contractor's agents or employees, or Subcontractors, the Contractor must indemnify, save, and hold harmless the State, its agents, and employees, from any claims or causes of action, including attorney's fees incurred by the State, to the extent caused by Contractor's:

a) Intentional, willful, or negligent acts or omissions; or
b) Actions that give rise to strict liability; or
c) Breach of contract or warranty.

The indemnification obligations of this section do not apply in the event the claim or cause of action is the result of the State's sole negligence. This clause will not be construed to bar any legal remedies the Contractor may have for the State's failure to fulfill its obligation under this Contract.

37. LIABILITY

Liability under MERLA

A. When performing work under the Contract for the State when the State is acting pursuant to Minn. Stat. § 115B.17 of the Minnesota Environmental Response and Liability Act (MERLA), the Contractor that is not otherwise responsible for a release or threatened release of hazardous substances or pollutants or contaminants is considered to be a Contractor that is performing response actions in accordance with a plan approved by the Commissioner, for purposes of Minn. Stat. §115B.03, Subd. 10.
B. When performing work under the Contract for the State when the State is acting:
    i. pursuant to Minn. Stat. § 115B.17 of MERLA, or
    ii. in accordance with the National Oil and Hazardous Substances Pollution Contingency Plan (40 CFR 300), promulgated by the U.S. Environmental Protection Agency (EPA) pursuant to 42 U.S.C. § 9605 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) with respect to any release or threatened release of a hazardous substance, the Contractor is considered to be engaged in acts taken or omitted in preparation for, or in the course of rendering care, assistance and advice to the Commissioner or the Agency for purposes of Minn. Stat. § 115B.04, Subd. 11, and, in the event a third

party claims injury or damages resulting from acts or omissions arising from performance of the Contract, the defense provided under Minn. Stat. §115B.04, subd. 11, is intended, but not warranted by the State, to be available to the Contractor and the State as a defense to MERLA liability claims. The provisions of the Liability under MERLA paragraphs are intended, but not warranted by the State, to include subcontractors approved by the State.

Liability under CERCLA

To the extent that the Contractor meets the definition of a "response action contractor" under 42 U.S.C. § 9619(e) of CERCLA, it is intended, but not warranted by the State, that the Contractor be exempt from liability under CERCLA or other federal law as is provided in 42 U.S.C. § 9619. Furthermore, 42 U.S.C. § 9619 provides the President with discretionary authority to indemnify response action contractors for releases of hazardous substances or pollutants or contaminants arising out of negligence in the course of Superfund work. No indemnification by the State is created by the Contract. The term "response action contractor" is intended, but not warranted by the State, to include subcontractors approved by the State. Nothing in this Part is intended to be construed as a waiver by the State of the Tort Claims Act, Minn. Stat. §3.736, or any other law, legislative or judicial, limiting government liability. The duties and obligations imposed by the Contract and the rights and remedies available thereunder shall be in addition to and not a limitation of any duties, obligations, rights and remedies otherwise imposed or available by law. No action or failure to act by the State or the Contractor shall constitute a waiver of any right or duty afforded any of them under the Contract, nor shall any such action or failure to act constitute an approval of or acquiescence in any breach thereunder, except as may be specifically agreed in writing.

38. INSURANCE

Contractor certifies that it is in compliance with all insurance requirements specified in the solicitation document relevant to this Master Contract. Contractor shall not commence work under the Master Contract until they have obtained all the insurance specified in the solicitation document. Contractor shall maintain such insurance in force and effect throughout the term of the Master Contract.

A. Contractor shall not commence work under the Contract until they have obtained all the insurance described below and the State of Minnesota has approved such insurance. Contractor shall maintain such insurance in force and effect throughout the term of the Master Contract.

B. Contractor is required to maintain and furnish satisfactory evidence of the following insurance policies:

Workers' Compensation Insurance: Except as provided below, Contractor must provide Workers' Compensation insurance for all its employees and, in case any work is subcontracted, Contractor will require the Subcontractor to provide Workers' Compensation insurance in accordance with the statutory requirements of the State of Minnesota, including Coverage B, Employer's Liability. Insurance **minimum** limits and coverages are as follows:

$100,000 – Bodily Injury by Disease per employee
$500,000 – Bodily Injury by Disease aggregate
$100,000 – Bodily Injury by Accident
Waiver of Subrogation in favor of the State of Minnesota

If Minn. Stat. § 176.041 exempts Contractor from Workers' Compensation Insurance or if the Contractor has no employees in the State of Minnesota, Contractor must provide a written statement, signed by an authorized representative, indicating the qualifying exemption that excludes Contractor from the Minnesota Workers' Compensation requirements.

If during the course of the Master Contract the Contractor becomes eligible for Workers' Compensation, the Contractor must comply with the Workers' Compensation Insurance requirements herein and provide the State of Minnesota with a certificate of insurance.

Commercial Automobile Liability Insurance: Contractor is required to maintain insurance protecting it from claims for damages for bodily injury as well as from claims for property damage resulting from the ownership, operation, maintenance or use of all owned, hired, and non-owned autos which may arise from operations under this Master Contract, and in case any work is subcontracted the Contractor will require the Subcontractor to maintain Commercial Automobile Liability insurance. Insurance **minimum** limits are as follows:

a. Minimum Limits of Liability:
   i. $2,000,000 – per occurrence Combined Single limit for Bodily Injury and Property Damage
b. In addition, the following coverages should be included:
   i. Owned, Hired, and Non-owned Automobile
   ii. CA9948 Endorsement – Pollution Liability – Broadened
   iii. MCS90 Endorsement

(NOTE: CA9948 and MCS90 Endorsement is required if service includes the transport of pollutants. Refer to MPCA Contractor and Subcontracting Purchasing Manual.)

Commercial General Liability Insurance: Contractor is required to maintain insurance protecting it from claims for damages for bodily injury, including sickness or disease, death, and for care and loss of services as well as from claims for property damage, including loss of use which may arise from operations under the Master Contract whether the operations are by the Contractor or by a subcontractor or by anyone directly or indirectly employed by the Contractor under the Contract. Insurance **minimum** limits are as follows:

a. Minimum Limits of Liability:
   i. $2,000,000 – Per Occurrence
   ii. $2,000,000 – Annual Aggregate
   iii. $2,000,000 – Annual Aggregate – Products/Completed Operations
b. The following coverages shall be included:
   i. Premises and Operations Bodily Injury and Property Damage
   ii. Personal & Advertising Injury
   iii. Blanket Contractual Liability
   iv. Products and Completed Operations Liability (If applicable)
   v. State of Minnesota named as Additional Insured
   vi. Waiver of subrogation in favor of the State of Minnesota

Pollution Liability Insurance: Contractor's Pollution Liability (or equivalent pollution liability coverage endorsed on another form of liability coverage, such as general liability or professional errors and omissions policy).

a. Minimum Limits of Liability:
   i. $2,000,000 – Per Claim
   ii. $2,000,000 – Annual Aggregate
b. Coverages:
   i. Policy will include Non-Owned Disposal Site Pollution Liability.
   ii. Policy will not contain a lead exclusion.
   iii. Owner named as an Additional Insured.
   vii. . Waiver of subrogation in favor of the State of Minnesota

Professional/Technical, Errors and Omissions, and/or Miscellaneous Liability Insurance: This policy will provide coverage for all claims the Contractor may become legally obligated to pay resulting from any actual or alleged negligent act, error, or omission related to Contractor's professional services required under the Master Contract.

Contractor is required to carry the following **minimum** limits:

$2,000,000 – per claim or event
$2,000,000 – annual aggregate

Any deductible will be the sole responsibility of the Contractor and may not exceed $50,000 without the written approval of the State. If the Contractor desires authority from the State to have a deductible in a higher amount, the Contractor shall so request in writing, specifying the amount of the desired deductible and providing financial documentation by submitting the most current audited financial statements so that the State can ascertain the ability of the Contractor to cover the deductible from its own resources.

The retroactive or prior acts date of such coverage shall not be after the effective date of this Master Contract and Contractor shall maintain such insurance for a period of at least three (3) years, following completion of the work. If such insurance is discontinued, extended reporting period coverage must be obtained by Contractor to fulfill this requirement.

Builder's Risk Insurance: The Contractor shall be responsible for providing and maintaining "All Risk" or equivalent Builder's Risk policy insuring the interest of the State, Contractor, and any tier of Subcontractor or the Contractor shall be responsible for requiring that their Subcontractor provide and maintain Builder's Risk policy insuring the interest of the State, Contractor, and any tier of Subcontractor. Coverage on an "All Risk" or equivalent basis shall include the perils of flood, earthquake and pollution cleanup expense. Builder's Risk limit of liability shall be equal to the construction cost. Any deductible shall be the sole responsibility of the Contractor and shall not exceed $10,000 without the written approval of the State.

1. The Builder's Risk policy will cover all materials, supplies and equipment that are intended for construction and specific installation in the project while such materials, supplies and equipment are located at the project site, in transit and while temporarily located away from the project site for the purpose of repair, adjustment or storage at the risk of one of the insured parties.

2. Any property not covered by the Builder's Risk policy, such as the Contractor's or any tier of Subcontractor's licensed motor vehicles or personal property, including job trailers, machinery, tools, equipment and property of a similar nature not destined to become a part of the project, shall be the responsibility of the Contractor or Subcontractor at any tier, and such person or organization may self-insure or provide other insurance at its option for the same.

3. ***Waiver of Liability.*** Absent State or Architect sole negligence or breach of specific Contractual duty specifically and logically related to the damage or loss, the State or Architect will not be responsible for loss or damage to property of any kind owned, borrowed, rented or leased by the Contractor, Subcontractors of all tiers and/or the Contractor's/Subcontractors employees, servants or agents.

4. ***Waivers of Subrogation***. The State and Contractor waive all rights against (1) each other and any of their Subcontractors of all tiers and (2) the Architect, and the Architect's Subcontractors of all tiers for damages caused by fire or other causes of loss to the extent covered by property insurance obtained pursuant to the provisions of paragraph 31.3 or other property insurance applicable to the Work, except such rights as they have to proceeds of such insurance held by the State or Contractor as fiduciary. The State or Contractor, as appropriate, shall require of the Architect, and the Architect's Subcontractors of all tiers, by appropriate agreements, written where legally required for validity, similar waivers each in favor of other parties enumerated herein. The policies shall provide such waivers of subrogation by endorsement or otherwise. A waiver of subrogation shall be effective as to a person or entity even though that person or entity would otherwise have a duty of indemnification, contractual or otherwise, did not pay the insurance premium directly or indirectly, and whether or not the person or entity had an insurable interest in the property damaged.

5. All losses and claims shall be immediately reported to the Contractor, State and applicable insurance carrier, under loss notice procedures as directed by the Contractor.

6. Any loss insured under Section 31.3 is to be adjusted with the Contractor and made payable to the Contractor as trustee for all insured parties, as their interests may appear, subject to the requirements of any applicable mortgage clause. The Contractor shall pay the State a just share of any insurance moneys received, and by appropriate agreement, written where legally required for validity, shall require the Contractor to make just share payments to the Subcontractors and lower tiered Sub-Subcontractors in similar manner.

7. Partial occupancy or use shall not commence until the insurance company or companies providing property insurance have consented to such partial occupancy or use by endorsement or otherwise.

8. ***Boiler and Machinery Insurance***. The Contractor shall purchase and maintain boiler and machinery insurance required by the Contract Documents or by law, which shall specifically cover such insured objects during installation and until final acceptance by the State; this insurance shall include interests of the States, Contractor, Subcontractors and Sub-Subcontractors in the Work, and the State and Contractor shall be named insureds.

   Loss of Use Insurance. The State, at the State's option, may purchase and maintain such insurance as will insure the State against loss of use of the State's property due to fire or other hazards,

C. Additional Insurance Conditions:

- Contractor's policy(ies) shall be primary insurance to any other valid and collectible insurance available to the State of Minnesota with respect to any claim arising out of Contractor's performance under this Master Contract;

- If Contractor receives a cancellation notice from an insurance carrier affording coverage herein, Contractor agrees to notify the State of Minnesota within five (5) business days with a copy of the cancellation notice, unless Contractor's policy(ies) contain a provision that coverage afforded under the policy(ies) will not be cancelled without at least thirty (30) days advance written notice to the State of Minnesota;

- Contractor is responsible for payment of Master Contract related insurance premiums and deductibles;

- If Contractor is self-insured, a Certificate of Self-Insurance must be attached;

- Contractor's policy(ies) shall include legal defense fees in addition to its liability policy limits, with the exception of B.4 above;

- Contractor shall obtain insurance policy(ies) from insurance company(ies) having an "AM BEST" rating of A- (minus); Financial Size Category (FSC) VII or better, and authorized to do business in the State of Minnesota; and

- An Umbrella or Excess Liability insurance policy may be used to supplement the Contractor's policy limits to satisfy the full policy limits required by the Master Contract.

D. The State reserves the right to immediately terminate the Master Contract if the Contractor is not in compliance with the insurance requirements and retains all rights to pursue any legal remedies against the Contractor. All insurance policies must be open to inspection by the State, and copies of policies must be submitted to the State's Authorized Representative upon written request.

E. The Contractor is required to submit Certificates of Insurance acceptable to the State of Minnesota as evidence of insurance coverage requirements prior to commencing work under the Master Contract.

Further, the Contractor certifies that it is in compliance with Minn. Stat. § 176.181, Subd. 2, pertaining to Workers' Compensation insurance coverage. The Contractor's employees and agents will not be considered State employees. Any claims that may arise under the Minnesota Workers' Compensation Act on behalf of these employees or agents and any claims made by any third party as a consequence of any act or omission on the part of these employees or agents are in no way the State's obligation or responsibility.

39. GOVERNMENT DATA PRACTICES AND INTELLECTUAL PROPERTY

39.1 Government data practices. The Contractor and State must comply with the Minnesota Government Data Practices Act, Minn. Stat. Ch. 13, as it applies to all data provided by the State under any Work Order and as it applies to all data created, collected, received, stored, used, maintained, or disseminated by the Contractor under the Work Order. The civil remedies of Minn. Stat. § 13.08 apply to the release of the data referred to in this Clause~~,~~ by either the Contractor or the State.

If the Contractor receives a request to release the data referred to in this Clause, the Contractor must immediately notify the State. The State will give the Contractor instructions concerning the release of the data to the requesting party before the data is released.

39.2 (A) Intellectual property rights.

The State owns all rights, title, and interest in all of the intellectual property rights, including copyrights, patents, trade secrets, trademarks, and service marks in the Works and Documents *created and paid for under Work Orders.* Works means all inventions, improvements, discoveries (whether or not patentable), databases, computer programs, reports, notes, studies, photographs, negatives, designs, drawings, specifications, materials, tapes, and disks conceived, reduced to practice, created or originated by the Contractor, its employees, agents, and Subcontractors, either individually or jointly with others in the performance of this Master Contract or any Work Order. Works includes "Documents." Documents are the originals of any databases, computer programs, reports, notes, studies, photographs, negatives, designs, drawings, specifications, materials, tapes, disks, or other materials, whether in tangible or electronic forms, prepared by the Contractor, its employees, agents, or Subcontractors, in the performance of a Work Order. The Documents will be the exclusive property of the State and all such Documents must be immediately returned to the State by the Contractor upon completion or cancellation of the Work Order. To the extent possible, those Works eligible for copyright protection under the United States Copyright Act will be deemed to be "works made for hire." The Contractor assigns all right, title, and interest it may have in the Works and Documents to the State. The Contractor must, at the request of the State, execute all papers and perform all other acts necessary to transfer or record the State's ownership interest in the Works and Documents

(B)Obligations:

1. ***Notification:*** Whenever any invention, improvement, or discovery (whether or not patentable) is made or conceived for the first time or actually or constructively reduced to practice by the Contractor, including its employees, agents, and Subcontractors, in the performance of the Work Order, the Contractor will immediately give the State's Authorized Representative written notice thereof, and must promptly furnish the State's Authorized Representative with complete information and/or disclosure thereon.

2. ***Representation:*** The Contractor must perform all acts, and take all steps necessary to ensure that all intellectual property rights in the Works and Documents are the sole property of the State, and that neither Contractor nor its employees, agents or Subcontractors retain any interest in and to the Works and Documents. The Contractor represents and warrants that the Works and Documents do not and will not infringe upon any intellectual property rights of other persons or entities. Notwithstanding Clause 24, the Contractor will indemnify; defend, to the extent permitted by the Attorney General; and hold harmless the State, at the Contractor's expense, from any action or claim brought against the State to the extent that it is based on a claim that all or part of the Works or Documents infringe upon the intellectual property rights of others. The Contractor will be responsible for payment of any and all such claims, demands, obligations, liabilities, costs, and damages, including but not limited to, attorney fees. If such a claim or action arises, or in the Contractor's or the State's opinion is likely to arise, the Contractor must, at the State's discretion, either procure for the

State the right or license to use the intellectual property rights at issue or replace or modify the allegedly infringing Works or Documents as necessary and appropriate to obviate the infringement claim. This remedy of the State will be in addition to and not exclusive of other remedies provided by law.

40. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY, AND VOLUNTARY EXCLUSION

Federal money will be used or may potentially be used to pay for all or part of the work under the Master Contract, therefore Contractor certifies that it is in compliance with federal requirements on debarment, suspension, ineligibility and voluntary exclusion specified in the solicitation document implementing Executive Order 12549. Contractor's certification is a material representation upon which the Master Contract award was based.

41. PUBLICITY AND ENDORSEMENT

41.1 ***Publicity*****.** Any publicity regarding the subject matter of a Work Order must identify the State as the sponsoring agency and must not be released without prior written approval from the State's Authorized Representative. For purposes of this provision, publicity includes notices, informational pamphlets, press releases, research, reports, signs, and similar public notices prepared by or for the Contractor individually or jointly with others, or any subcontractors, with respect to the program, publications, or services provided resulting from a Work Order. During State contracted work, the Contractor shall defer all interviews and requests for information from the media, private citizens or public officials to the State unless the State specifically requests the Contractor to handle such requests.

39.2 Endorsement. The Contractor must not claim that the State endorses its products or services

42. GOVERNING LAW, JURISDICTION, AND VENUE

Minnesota law, without regard to its choice-of-law provisions, governs this Master Contract and all Work Orders. Venue for all legal proceedings out of this Master Contract and/or any Work Order, or its breach, must be in the appropriate state or federal court with competent jurisdiction in Ramsey County, Minnesota.

43. DATA DISCLOSURE

Under Minn. Stat. § 270C.65, Subd. 3 and other applicable law, the Contractor consents to disclosure of its social security number, federal employer tax identification number, and/or Minnesota tax identification number, already provided to the State, to federal and State agencies, and State personnel involved in the payment of State obligations. These identification numbers may be used in the enforcement of federal and State laws which could result in action requiring the Contractor to file State tax returns, pay delinquent State tax liabilities, if any, or pay other State liabilities.

44. NON-DISCRIMINATION (IN ACCORDANCE WITH MINN. STAT. § 181.59)

The Contractor will comply with the provisions of Minn. Stat. § 181.59 which requires:
Every contract for or on behalf of the State of Minnesota, or any county, city, town, township, school, school district, or any other district in the State, for materials, supplies, or construction shall contain provisions by which the Contractor agrees: (1) That, in the hiring of common or skilled labor for the performance of any work under any contract, or any subcontract, no contractor, material supplier, or vendor, shall, by reason of race, creed, or color, discriminate against the person or persons who are citizens of the United States or resident aliens who are qualified and available to perform the work to which the employment relates; (2) That no contractor, material supplier, or vendor, shall, in any manner, discriminate against, or intimidate, or prevent the employment of any person or persons identified in clause (1) of this section, or on being hired, prevent, or conspire to prevent, the person or persons from the performance of work under any contract on account of race, creed, or color; (3) That a violation of this section is a misdemeanor; and (4) That this Master Contract may be canceled or terminated by the State, county, city, town, school board, or any other person authorized to grant the contracts for employment, and all money due, or to become due under the Master Contract, may be forfeited for a second or any subsequent violation of the terms or conditions of this Master Contract.

45. STANDARD OF WORK

The Contractor shall comply with the terms of this Master Contract and Work Orders, Change Orders, Work Order Amendments, and Stop Work Orders from the State. The State shall not approve, and no payment shall be made for, work that does not meet these standards. The State reserves the right to request that any data deliverables improperly formatted be corrected before the submittal will be accepted. Any extra expenses incurred due to such edits will be the Contractor's responsibility.

Unless the Force Majeure clause applies, failure to meet such deadline dates shall be a basis for a determination by the State's Authorized Representative that the Contractor has not complied with the terms of the Master Contract.

46. FORCE MAJEURE

Failure to meet time lines established in Work Orders, Change Orders, Work Order Amendments, and Stop Work Orders when caused by acts of God, war, strike, riot or other catastrophe or by acts or omissions of the State or the State's Authorized Representative, or by other reasons beyond the reasonable control of the Contractor, which are not due to negligence or lack of diligence on the Contractor's part, and which occur despite the Contractor's good faith efforts to meet the time lines, shall not be considered to be noncompliance with the Master Contract if the Contractor promptly notifies the State's Authorized Representative of the failure to meet the time lines and the reasons therefore and takes all necessary steps to bring about compliance as soon as practicable.

The Contractor shall have the burden of proof that the failure to meet the schedule was caused by events beyond the reasonable control of the Contractor which could not have been overcome by due diligence. In the event of such interruptions or delays, the date for completion of the Work Order shall be extended for a period of time equal to that of the interruption or delay.

47. PERFORMANCE DEADLINES

The Contractor must comply with all of the time requirements described in this Master Contract. In addition to any other remedy authorized by this Master Contract, the State may elect to invoke the liquidated damages remedy provided in this part.

If the Contractor misses a deadline, and if the Force Majeure clause does not apply, the State's Authorized Representative shall send the Contractor a written notice that a deadline has been missed and that in no sooner than ten (10) days a second written notice shall be sent. No sooner than ten (10) days after the initial written notice, unless the matter has been resolved, the State's Authorized Representative shall send the Contractor a second written notice stating that liquidated damages pursuant to this Master Contract shall begin to accrue twenty (20) days after receipt of the second notice. If pursuant to the Change Order clause or the Work Order Amendments clause of this Master Contract a request for extension has been received and if the State considers the extension request reasonable and the delay does not substantially affect the public interest, the State shall issue a Change Order or Work Order Amendment with the new deadline. If the State considers the request unreasonable, or if a delay would substantially affect the public interest, the State shall not extend the performance deadline.

The Contractor shall pay the State liquidated damages in the amount of $3,000, or 5% of the budget amount authorized in the Work Orders from the State, whichever is less, per week beginning twenty (20) days after the Contractor receives a second written notice of the deadline violation and ending when the performance is complete. The State may also deduct the liquidated damages from its payments to the Contractor under this Master Contract.

48. USE OF STATE CONTRACTS

Contractors and Subcontractors may provide oversight to State Contractors as appropriate, or the State may directly use the State Contractors.

49. FOREIGN OUTSOURCING

Contractor agrees all services under this contract shall be performed within the borders of the United States. All storage and processing of information shall be performed within the borders of the United States. This provision also applies to work performed by subcontractors at all tiers.

50. AFFIRMATIVE ACTION

Affirmative Action Requirements for Contracts in Excess of $100,000 and if the Contractor has More than 40 Full-time Employees in Minnesota or its Principal Place of Business

The State intends to carry out its responsibility for requiring affirmative action by its Contractors.

50.1 ***Covered Contracts and Contractors***. If the Contract exceeds $100,000 and the Contractor employed more than 40 full-time employees on a single working day during the previous 12 months in Minnesota or in the state where it has its principle place of business, then the Contractor must comply with the requirements of Minn. Stat. § 363A.36 and Minnesota Rule Parts 5000.3400-5000.3600. A contractor covered by Minn. Stat. § 363A.36 because it employed more than 40 full-time employees in another state and does not have a certificate of compliance, must certify that it is in compliance with federal affirmative action requirements.

50.2 ***Minn. Stat. § 363A.36.*** Minn. Stat. § 363A.36 requires the Contractor to have an affirmative action plan for the employment of minority persons, women, and qualified disabled individuals approved by the Minnesota Commissioner of Human Rights ("Commissioner") as indicated by a certificate of compliance. The law addresses suspension or revocation of a certificate of compliance and contract consequences in that event. A contract awarded without a certificate of compliance may be voided.

50.3 ***Minnesota Rule Parts 5000.3400-5000.3600.***

A. *General*. Minnesota Rule Parts 5000.3400-5000.3600 implement Minn. Stat. § 363A.36. These rules include, but are not limited to, criteria for contents, approval, and implementation of affirmative action plans; procedures for issuing certificates of compliance and criteria for determining a contractor's compliance status; procedures for addressing deficiencies, sanctions, and notice and hearing; annual compliance reports; procedures for compliance review; and contract consequences for non-compliance. The specific criteria for approval or rejection of an affirmative action plan are contained in various provisions of Minnesota Rule Parts 5000.3400-5000.3600 including, but not limited to, parts 5000.3420-5000.3500 and 5000.3552-5000.3559.

B. *Disabled Workers*. The Contractor must comply with the following affirmative action requirements for disabled workers.

1. The Contractor must not discriminate against any employee or applicant for employment because of physical or mental disability in regard to any position for which the employee or applicant for employment is qualified. The Contractor agrees to take affirmative action to employ, advance in employment, and otherwise treat qualified disabled persons without discrimination based upon their physical or mental disability in all employment practices such as the following: employment, upgrading, demotion or transfer, recruitment, advertising, layoff or termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship.
2. The Contractor agrees to comply with the rules and relevant orders of the Minnesota Department of Human Rights issued pursuant to the Minnesota Human Rights Act.
3. In the event of the Contractor's noncompliance with the requirements of this clause, actions for noncompliance may be taken in accordance with Minn. Stat. § 363A.36, and the rules and relevant orders of the Minnesota Department of Human Rights issued pursuant to the Minnesota Human Rights Act.
4. The Contractor agrees to post in conspicuous places, available to employees and applicants for employment, notices in a form to be prescribed by the commissioner of the Minnesota Department of Human Rights. Such notices must state the Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified disabled employees and applicants for employment, and the rights of applicants and employees.
5. The Contractor must notify each labor union or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the Contractor is bound by the terms of

Minn. Stat. § 363A.36, of the Minnesota Human Rights Act and is committed to take affirmative action to employ and advance in employment physically and mentally disabled persons.

C. *Consequences*. The consequences for the Contractor's failure to implement its affirmative action plan or make a good faith effort to do so include, but are not limited to, suspension or revocation of a certificate of compliance by the Commissioner, refusal by the Commissioner to approve subsequent plans, and termination of all or part of this Master Contract by the Commissioner or the State.

D. *Certification*. The Contractor hereby certifies that it is in compliance with the requirements of Minn. Stat.§ 363A.36 and Minnesota Rule Parts 5000.3400-5000.3600 and is aware of the consequences for noncompliance.

51. TESTIMONY

If requested by the State's Authorized Representative, the Contractor agrees to testify at any State, federal, judicial or administrative proceeding brought by federal or State agencies or by a political subdivision of the State in which the work performed under this Master Contract is relevant. The Contractor agrees to meet and cooperate with the State's legal counsel as necessary to prepare for such testimony, and if so requested by the State's Authorized Agent, the Contractor shall prepare written testimony, graphs, diagrams or other visual aids to be used by the State in the proceeding(s). The Contractor shall be reimbursed at the rates for participation in State or federal judicial or administrative proceedings as specified in the Classifications and Rates.

52. ANTITRUST

The Contractor shall assign to the State any and all claims for overcharges as to goods or services provided in connection with this Contract resulting from antitrust violations which arise under the antitrust laws of the United States or the antitrust laws of the State.

53. E-VERIFY CERTIFICATION (IN ACCORDANCE WITH MINN. STAT. §16C.075)

For services valued in excess of $50,000, Contractor certifies that as of the date of services performed on behalf of the State, Contractor and all its Subcontractors will have implemented or be in the process of implementing the federal E-Verify program for all newly hired employees in the United States who will perform work on behalf of the State. Contractor is responsible for collecting all Subcontractor certifications and may do so utilizing the E-Verify Subcontractor Certification Form available at http://www.mmd.admin.State.mn.us/doc/EverifySubCertForm.doc. All Subcontractor certifications must be kept on file with Contractor and made available to the State upon request.

54. Certification of Nondiscrimination (In accordance with Minn. Stat. § 16C.053)

The following term applies to any contract for which the value, including all extensions, is $50,000 or more: Contractor certifies it does not engage in and has no present plans to engage in discrimination against Israel, or against persons or entities doing business in Israel, when making decisions related to the operation of the vendor's business. For purposes of this section, "discrimination" includes but is not limited to engaging in refusals to deal, terminating business activities, or other actions that are intended to limit commercial relations with Israel, or persons or entities doing business in Israel, when such actions are taken in a manner that in any way discriminates on the basis of nationality or national origin and is not based on a valid business reason.

[Signatures as required by the State]

ATTACHMENT D

STATE OF MINNESOTA
AFFIDAVIT OF NONCOLLUSION

I swear (or affirm) under the penalty of perjury:

1. That I am the Responder (if the Responder is an individual), a partner in the company (if the Responder is a partnership), or an officer or employee of the responding corporation having authority to sign on its behalf (if the Responder is a corporation);

2. That the attached proposal submitted in response to the Remediation Master Contract Request for Proposals has been arrived at by the Responder independently and has been submitted without collusion with and without any agreement, understanding or planned common course of action with, any other Responder of materials, supplies, equipment or services described in the Request for Proposal, designed to limit fair and open competition;

3. That the contents of the proposal have not been communicated by the Responder or its employees or agents to any person not an employee or agent of the Responder and will not be communicated to any such persons prior to the official opening of the proposals; and

4. That I am fully informed regarding the accuracy of the statements made in this affidavit.

Responder's Firm Name: Terracon Consultants Inc.

Authorized Representative (Please Print) David Wolfgram

Authorized Signature: David Wolfg

Date: 3/12/18

Subscribed and sworn to me this 12th day of March

Notary Public Signature: Karen Martinez

KAREN M MARTINEZ
Notary Public
Minnesota
My Commission Expires
Jan 31, 2022

My commission expires: 1/31/2022

ATTACHMENT E
STATE OF MINNESOTA – WORKFORCE CERTIFICATE INFORMATION

Required by state law for ALL bids or proposals that could exceed $100,000

Complete this form and return it with your bid or proposal. The State of Minnesota is under no obligation to delay proceeding with a contract until a company becomes compliant with the Workforce Certification requirements in Minn. Stat. §363A.36.

BOX A – MINNESOTA COMPANIES that have employed more than 40 full-time employees within this state on any single working day during the previous 12 months, check one option below:

☒ Attached is our current Workforce Certificate issued by the Minnesota Department of Human Rights (MDHR).

☐ Attached is confirmation that MDHR received our application for a Minnesota Workforce Certificate on _____ (date).

BOX B – NON-MINNESOTA COMPANIES that have employed more than 40 full-time employees on a single working day during the previous 12 months in the state where it has its primary place of business, check one option below:

☐ Attached is our current Workforce Certificate issued by MDHR.

☐ We certify we are in compliance with federal affirmative action requirements. Upon notification of contract award, you must send your federal or municipal certificate to MDHR at compliance.MDHR@state.mn.us. If you are unable to send either certificate, MDHR may contact you to request evidence of federal compliance. The inability to provide sufficient documentation may prohibit contract execution.

BOX C – EXEMPT COMPANIES that have not employed more than 40 full-time employees on a single working day in any state during the previous 12 months, check option below if applicable:

☐ We attest we are exempt. If our company is awarded a contract, we will submit to MDHR within 5 business days after the contract is fully signed, the names of our employees during the previous 12 months, the date of separation, if applicable, and the state in which the persons were employed. Send to compliance.MDHR@state.mn.us.

By signing this statement, you certify that the information provided is accurate and that you are authorized to sign on behalf of your company.

Name of Company: Terracon Consultants, Inc. Date 3/13/18

Authorized Signature: Danette Smith Telephone number: 913-577-0435

Printed Name: Danette Smith Title: Corporate HR Coordinator

For assistance with this form, contact:

Minnesota Department of Human Rights, Compliance Services

Web: http://mn.gov/mdhr/
Email: compliance.mdhr@state.mn.us

TC Metro: 651-539-1095

Toll Free: 800-657-3704
TTY: 651-296-1283

Minnesota Department of
HUMAN RIGHTS

CERTIFICATE OF COMPLIANCE

TERRACON CONSULTANTS INC is hereby certified as a contractor by the Minnesota Department of Human Rights. This certificate is valid from 8/20/2014 to 8/19/2018.

This certification is subject to revocation or suspension prior to its expiration if the department issues a finding of noncompliance or if your organization fails to make a good faith effort to implement its affirmative action plan.

Minnesota Department of Human Rights

FOR THE DEPARTMENT BY:

Kevin M. Lindsey, Commissioner

ATTACHMENT F

CERTIFICATION REGARDING LOBBYING

For State of Minnesota Contracts and Grants over $100,000

The undersigned certifies, to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, A Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, Disclosure Form to Report Lobbying in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all subawards at all tiers (including subcontracts, subgrants, and contracts under grants, loans and cooperative agreements) and that all subrecipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than $10,000 and not more than $100,000 for each such failure.

Terracon Consultants, Inc.
Organization Name

David Wolfgram Principal
Name and Title of Official Signing for Organization

By: David Wolfgram
Signature of Official

3/12/18
Date

ATTACHMENT G

State of Minnesota – Equal Pay Certificate

If your response could be in excess of $500,000, please complete and submit this form with your submission. **It is your sole responsibility to provide the information requested and when necessary to obtain an Equal Pay Certificate (Equal Pay Certificate) from the Minnesota Department of Human Rights (MDHR) prior to contract execution. You must supply this document with your submission.** Please contact MDHR with questions at: 651-539-1095 (metro), 1-800-657-3704 (toll free), 711 or 1-800-627-3529 (MN Relay) or at compliance.MDHR@state.mn.us.

Option A – If you have employed 40 or more full-time employees on any single working day during the previous 12 months in Minnesota or the state where you have your primary place of business, please check the applicable box below:

☒ Attached is our current MDHR Equal Pay Certificate.

☐ Attached is MDHR's confirmation of our Equal Pay Certificate application.

Option B – If you have not employed 40 or more full-time employees on any single working day during the previous 12 months in Minnesota or the state where you have your primary place of business, please check the box below.

☐ We are exempt. We agree that if we are selected we will submit to MDHR within five (5) business days of final contract execution, the names of our employees during the previous 12 months, date of separation if applicable, and the state in which the persons were employed. Documentation should be sent to compliance.MDHR@state.mn.us.

The State of Minnesota reserves the right to request additional information from you. **If you are unable to check any of the preceding boxes, please contact MDHR to avoid a determination that a contract with your organization cannot be executed.**

Your signature certifies that you are authorized to make the representations, the information provided is accurate, the State of Minnesota can rely upon the information provided, and the State of Minnesota may take action to suspend or revoke any agreement with you for any false information provided.

Danette Smith	Danette Smith	Corporate HR Coordinator
Authorized Signature	Printed Name	Title
Terracon Consultants, Inc.	42-1249917	03/28/2018
Organization	MN/FED Tax ID#	Date

Issuing Entity	Project # or Lease Address

Minnesota Department of
HUMAN RIGHTS

CERTIFICATE OF EQUAL PAY

TSVC INC (TERRACON CONSULTANTS) is hereby awarded a Certificate of Equal Pay by the Minnesota Department of Human Rights. This certificate is valid from August 15, 2014 to August 14, 2018.

This certification is subject to revocation or suspension prior to its expiration if the Department issues a finding of noncompliance.

Minnesota Department of Human Rights

FOR THE DEPARTMENT BY:

Kevin M. Lindsey, Commissioner

ATTACHMENT H
STATE OF MINNESOTA
RESIDENT VENDOR FORM

In accordance with Laws of Minnesota 2013, Chapter 142, Article 3, Section 16, amending Minn. Stat. § 16C.02, subd. 13, a "Resident Vendor" means a person, firm, or corporation that:

(1) is authorized to conduct business in the state of Minnesota on the date a solicitation for a contract is first advertised or announced. It includes a foreign corporation duly authorized to engage in business in Minnesota;
(2) has paid unemployment taxes or income taxes in this state during the 12 calendar months immediately preceding submission of the bid or proposal for which any preference is sought;
(3) has a business address in the state; and
(4) has affirmatively claimed that status in the bid or proposal submission.

To receive recognition as a Minnesota Resident Vendor ("Resident Vendor"), your company must meet each element of the statutory definition above by the solicitation opening date and time. If you wish to affirmatively claim Resident Vendor status, you should do so by submitting this form with your bid or proposal.

Resident Vendor status may be considered for purposes of resolving tied low bids or the application of a reciprocal preference.

I HEREBY CERTIFY THAT THE COMPANY LISTED BELOW:

1. Is authorized to conduct business in the State of Minnesota on the date a solicitation for a contract is first advertised or announced. *(This includes a foreign corporation duly authorized to engage in business in Minnesota.)*
   X Yes ___No (must check yes or no)

2. Has paid unemployment taxes or income taxes in the State of Minnesota during the 12 calendar months immediately preceding submission of the bid or proposal for which any preference is sought.
   X Yes ___No (must check yes or no)

3. Has a business address in the State of Minnesota.
   X Yes ___No (must check yes or no)

4. Agrees to submit documentation, if requested, as part of the bid or proposal process, to verify compliance with the above statutory requirements.
   X Yes ___No (must check yes or no)

BY SIGNING BELOW, you are certifying your compliance with the requirements set forth herein and claiming Resident Vendor status in your bid or proposal submission.

Name of Company: Terracon Consultants Inc Date: 3/12/18

Authorized Signature: David Wolfgram Telephone: 651. 770. 1500

Printed Name: David Wolfgram Title: Principal

IF YOU ARE CLAIMING RESIDENT VENDOR STATUS, SIGN AND RETURN THIS FORM WITH YOUR BID OR PROPOSA SUBMISSION.