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

Example Workplan

Project Title: WSB Scenario B – Petroleum Only

1. Project Summary:

Site Information

Name: Scenario B – Petroleum Only
Address: Rural western Minnesota

Consultant
Organization: WSB & Associates, Inc.
Contact: Ryan Spencer
Title: Project Manager
Address: 701 Xenia Avenue, South, Suite 300, Minneapolis, MN 55416
Phone: 763-231-4854
Email: rspencer@wsbeng.com

Subcontractors/Partners Information
Organization: Bergerson Caswell, Inc. (Driller)
Contact: Dave Lenzmeier
Title: Environmental Manager
Address: 5115 Industrial Street, Maple Plain, MN 55359
Phone: 763-479-2121
Email: dave.lenzmeier@bergersoncaswell.com

Organization: Pace Analytical (Lab)
Contact: Ryan Mathieu
Title: Account Executive
Address: 1800 Elm Street SE, Minneapolis 55414
Phone: 612-607-6400
Email: ryan.mathieu@pacelabs.com

MPCA Information
Project Manager: TBD
Title: Project Manger
Address: 520 Lafayette Road, St. Paul, MN 55155
Phone: 800-657-3864
Email: xxx@state.mn.us

2. Statement of Problems, Opportunities, and Existing Conditions

Site Description

The site is located in a mixed residential/commercial area in rural western Minnesota. The site is currently occupied by an active gas station with an attached 24-hr restaurant. The gas station has been in operation since the 1950s and the restaurant was constructed in the 1990s. Three active underground storage tanks (USTs) containing diesel and gasoline and one active aboveground storage tank (AST) containing fuel oil are present at the site. The USTs are located just west of the site building and the AST is located just north of the site building. Prior to the construction of the slab-on grade restaurant, two former USTs were located beneath the footprint of the restaurant. During removal of the two USTs, petroleum odors were noted and elevated PID readings of up to 1,263 ppm were observed. A fuel dispersing island containing four pumps is located south of the site building. The site is serviced by municipal water, sanitary, and storm sewer utilities which access the site from the south via Main Street.

Residential homes are located within 100 feet of the site to the north and east. The residential homes are serviced by private domestic wells which are 80 feet deep. Municipal services (water and sewer) are in the area of the residences but have not been connected to the residences. Commercial buildings are located within 100 feet of the site to the west and south and are connected to municipal water. A recreational lake is located approximately 200 feet east of the site that may influence groundwater flow in the area. Based on conversations with the station owner/operator, some of the residents have reported that they have observed petroleum odors in their drinking water.

The site geology is comprised of interbedded sands and gravels to 40-45 feet below grade which overlays shallow bedrock at a depth of 45 feet below grade. Groundwater is reported as being influenced by the nearby recreational lake and is assumed to flow easterly from the site. The depth to groundwater is unknown but assumed to be present in the upper 20 feet at the site.

Petroleum Leak Information

1. Prior to construction of the current restaurant in the 1990s, two USTs were removed from the site. The USTs were formerly located within the current restaurant building's footprint. A strong petroleum odor with photoionization detector (PID) readings up to 1,263 ppm were recorded. The gas station/restaurant building is connected to municipal water and sewer. No additional information related to tank removal, testing, or vapor control measures (e.g. soil correction, sub-slab vapor barrier, passive/active mitigation system, etc.) are available at this time. Evidence of elevated PID readings from the former tank area below the restaurant building indicates a likely historical petroleum leak at the site.

2. Significant staining was observed near the pump island located south of the site building. The area around the pump island is paved and gravel is present approximately 20 feet east of the pump island. The gas station currently supplies gasoline and diesel. The staining at the pump island is evidence of a new and possibly a historically ongoing petroleum leak at the site. For purposes of this example, it is assumed that the petroleum staining is contained on the pavement.

3. A loss of product was noted by the gas station owner/operator over the last few months. The gas station currently has three UST's located just west of the site building that service four dispensers at the pump island located approximately 40 feet southeast of the tank basin. Details regarding the tank system leak detection, tightness testing, and record keeping are unknown at this time. Evidence of product loss over the past few months is evidence of a new petroleum leak at the site. For purposes of this example, it is assumed that the petroleum release is not an ethanol blend containing greater than 10 % ethanol by volume (E10).

Reason for Project, Opportunities, and Human/Ecological Risks

The purpose of the project is to assess the potential human and environmental risks associated with the likely historical and new petroleum leaks at the site. Additionally, the project investigation will define the extent and magnitude of petroleum impacts through sub-surface investigation and the collection of soil, groundwater, soil vapor samples, sub-slab vapor samples, and possibly indoor air samples. The investigation will be designed in a manner that considers all known tank system information (past and present), leak details, and potential receptors. The results of the investigation will be used to assess the need for immediate and/or long term corrective actions to protect human health and the environment. Additionally, the results of the investigation will be used to for decision making purposes to evaluate site closure based on the established site conceptual model and identified risks (if warranted)

The site and surrounding area contain multiple features that have been identified as opportunities to collect initial data for this investigation. These features include, site and adjacent water supplies, site and adjacent utility catch basins/manholes, structures with basements, and the nearby recreation lake. Additionally, the reports of petroleum odors in drinking water at nearby residents and missing product at the site are critical indicators of an emergency situation. Consequently, immediate actions will be taken to collect information related to potential leak sources, receptors, and contamination migration. Initial data collection of site and off-site features are considered high priority to protecting human health and the environment.

Based on the available project details, WSB has identified the following human and ecological risks associated with the site leaks.

1. The site owner/operator indicated nearby residents have been complaining of petroleum odors in their drinking water supplied by private domestic wells. The reports of odors in drinking water at nearby dwellings indicates that petroleum contaminants may have potentially migrated offsite in groundwater. It is unknown what residents have reported petroleum odors and the context in which the owner/operator became aware of the odors. Nonetheless, it is recommended that all adjacent residences be immediately contacted, interviewed and notified that their well may have been impacted by petroleum leaks associated with the site and alternative water sources should be used until each well is sampled and proven to be safe for potable use. WSB would work with the MPCA to help provide alternative water sources.

2. Elevated organic vapor concentrations (PID readings of 1,263 ppm) were recorded in soil below the restaurant prior to construction in the 1990s. It is unknown if the slab-on-grade building contains controls to project against chemical vapor intrusion. Therefore, it is recommended that soil vapor and sub-slab vapor sampling be completed to determine if vapor risks are present at the site.

3. A recreational lake is located approximately 200 feet east of the site. It is possible that petroleum leaks associated with the site have impacted the lake via storm sewer routing and/or groundwater migration. Therefore, a visual inspection of the lake should be completed for evidence of a petroleum sheen or other impacts and evaluating any storm sewer outfalls as a conduit for contamination.

Based on the available information, WSB has determined imminent risks to human health and the environment are present related to petroleum leaks at the site. Therefore, WSB is proposing that this project be completed in two phases. The first phase will consist of rapidly coordinating with the MPCA Project Manager to notify nearby residential property owners regarding potential petroleum impacts to their drinking water and to collect water samples to confirm safe drinking water conditions. Additionally, the first phase will also include completing vapor screening of utilities at the site and adjacent right-of-way areas, conducting a 500-foot walking receptor survey, and performing a visual surface water evaluation of the nearby recreational lake. Concurrently, the fueling station management should be contacted to have them reconcile the product loss. Until the integrity of the fueling system is confirmed the refueling operations should cease.

Once the corrective actions identified in the initial phase have been successfully implemented, the second phase of the project will begin. The second phase will consist of a subsurface evaluation at the site to determine the magnitude and extent of petroleum impacts. The information obtained during the first phase will be used to guide the second phase subsurface investigation which will include soil, groundwater, soil vapor, and sub-slab vapor sampling and analysis. The second phase will evaluate the short and long-term risks related to human health and the environment. The notification, receptor surveys, subsurface investigation, and reporting procedures will be performed in general conformance with MPCA guidance documents 2-07, 2-08, 3-06, 4-01, 4-01a, 4-02, 4-04, 4-05, 4-06, and the MPCA vapor intrusion best management practices. Hereafter, these documents will be referenced generally as "in accordance with MPCA guidance".

3. Goals, Objectives, Tasks, and Subtasks

Goal 1: Determine if conditions associated with the petroleum leaks at the site represent imminent threats to human health or ecological receptors (First Phase).

Goal 2: Determine extent and magnitude of petroleum impacts related to site leaks and assess long-term human health and the environment risks (Second Phase).

Objective 1: Review available information, report identified leaks, and coordinate emergency corrective actions.

Task 1A: Review Available Documents and MPCA WIMN Database

WSB will review available environmental documents related to the site. The MPCA's WIMN database will also be used to gather further information related to leaks, tanks, and other possible sources of petroleum contamination associated with the site, adjacent sites, and surrounding area. Based on the available

information, up to three releases have been identified for the site.

The potential releases include:

1. Previous tank basin below the current restaurant building with PID readings of 1,263 ppm.
2. Significant staining near the pump island located south of the site building.
3. Recorded product loss over the past few months related to the tank system.

Responsible Party: Consultant Project Manager

Task 1B: Report Leaks to the MN State Duty Officer

WSB will contact the State Duty Officer and report the identified leaks associated with the site. Additionally, all information related to the site leaks, adjacent receptors, and reports of petroleum odors in drinking water at adjacent residences will be provided to the State Duty Officer. Based on the preliminary information, WSB will make it clear that immediate actions are required at the site to protect human health and the environment.

Responsible Party: Consultant Project Manager

Task 1C: Contact MPCA Project Manager

The MPCA Project Manager will be contacted (via phone and email) to discuss the immediate corrective actions that need to be taken at the site to protect human health and the environment. The report of petroleum odors in the drinking water at nearby residences is considered a "high priority" and will require a rapid response to notify, gain access, and test the private water supply wells. If not already completed, residents adjacent to the site with private wells will be instructed to use alternative water supplies until their wells are sampled and determined to be safe for potable use. WSB will work with the MPCA to provide an alternative water supply to the nearby residences. Additionally, the loss of product in the tank system is considered "high priority" and will require a rapid response to ensure continued operation of the gas station will not contribute to or exacerbate the leak. WSB will strongly recommend to the fueling station management that any refueling be ceased until the integrity of the fueling system can be confirmed. If the system shows a leak then actions should be taken to minimize any further release.

Responsible Party: Consultant Project Manager

Objective 1 Timeline: Upon authorization, WSB will initiate and complete Objective 1 tasks in 1-2 days.

Objective 1 Cost: $687.60

Objective 1 Deliverables: None

Objective 2: Collect water samples, complete vapor screening, and complete a receptor survey to evaluate human and ecological risks (First Phase).

Task 2A: Create a Receptor Map and Contact the City

WSB will use available GIS database information to create a receptor map that shows all buildings/structures, water wells, and surface waters within 500-feet of the site. The receptor map will also be used to create an address list of all the properties within 500-feet of the site. WSB will provide the property address list to the City to confirm the status of each property's water supply source. WSB will also request information related to the location of municipal water supply wells and if the City plans to perform any groundwater development activities in the near future. Additionally, WSB will also request information related to underground City utilities located at or near the site.

Responsible Party: Scientist 2 / GIS/CADD Specialist

Task 2B: Obtain Offsite Access

WSB will identify offsite receptors that will require immediate water sampling to confirm safe drinking water conditions. It is assumed that the municipal water supply at the site and domestic water wells at the six adjacent sites will require immediate water sampling. WSB will contact the high priority sites immediately to schedule a date/time to conduct the site visit and sampling. If a property owner is not cooperative, WSB will follow-up the MPCA Project Manager to discuss alternative options.

Responsible Party: Project Manager / Scientist 2

Task 2C: Collect Water Samples

Water samples will be collected from the site's municipal water supply and adjacent residential properties domestic well supply (seven total) during the initial site visit. All samples will be collected per MPCA guidance and analyzed for the appropriate petroleum-related constituents. It is anticipated that each will be sampled for DRO, GRO, VOCs, and lead. If any evidence of petroleum contamination is observed during water sampling (odor, sheen, etc.) the MPCA Project Manager will be contacted immediately to discuss the need for additional corrective actions. The samples will be shipped to a state certified lab and analyzed for petroleum constituents on a rush 24-48-hour turnaround time. Within 24 hours of receiving the laboratory data a table will be prepared summarizing the results compared to MDH drinking water standards. The table and data will be presented to the MPCA along with recommendations. Based upon the results additional actions may be required. If results show any exceedances the well owner will be immediately contacted confirming that they are not to use the well water.

Responsible Party: Field Technician

Task 2D: Screen/Monitor Site Utilities

Screening of the site and adjacent subsurface utilities (manholes, catch basins, etc.) will be completed during the initial site visit to determine if petroleum vapors are present. This task will include visually inspecting the stained concrete to verify that the staining is limited to the pavement. If the staining has extended to the gravel surface or catch basins/manholes then additional actions such as sampling may be needed. The utility vapor screening will be completed with a PID meter equipped with a 10.6 eV lamp and with a multi-gas meter. If elevated vapors are detected, the MPCA Project Manager will be contacted to discuss the need for additional corrective actions. If potentially explosive levels are identified the local fire department will also be notified immediately.

Responsible Party: Field Technician

Task 2E: Complete a Walking Receptor Survey

During the initial site visit, a door-to-door walking receptor survey will be completed of all properties within 500-feet of the site per MPCA guidance. The purpose of the survey will be to gather pertinent receptor and petroleum related information to identify potential high risk receptors near the site. If personal contact is not made at receptors within the search distance, a follow-up phone call will be made or a stamped self-addressed letter and survey will be left for completion by the property owners. The findings of the receptor survey will be documented on a map that will include; the locations of buildings/structures, water wells, surface water bodies, vapor receptors near the site, and possible petroleum storage.

Responsible Party: Field Technician

Task 2F: Evaluate Recreational Lake

A visual inspection of the recreational lake will be completed during the initial site visit. Permission will be asked from the residents to walk the lakeshore to perform the inspection. If petroleum impacts are observed at or near the lake, the MPCA Project Manager will be contacted immediately to discuss the need for additional corrective actions. Any stormwater outfalls will be inspected for the potential of conveying petroleum contamination to the lake.

Responsible Party: Field Technician

Task 2G: Prepare a Summary Report

The initial water sampling, vapor screening, and 500-foot walking receptor survey will be summarized in a letter report to the MPCA Project Manager. If the findings of the initial project phase identify imminent risks to human health or the environment, the MPCA Project Manager will be contacted immediately to discuss the need for additional corrective actions. Additionally, the results of the receptor survey and risk evaluation will be used to plan the site investigation (Second Phase).

Responsible Party: Field Technician / Scientists 2 / GIS/CADD Specialist / Project Manager

Objective 2 Timeline: Upon authorization, WSB will initial and complete Objective 2 tasks in 1-2 weeks.

Objective 2 Cost: $6,216.59

Objective 2 Deliverables: Letter Report

Objective 3: Complete field investigation to define the magnitude and extent of soil, groundwater, and soil vapor impacts related to the petroleum leaks at the site and assess risks to potential human and ecological receptors.

Task 3A: Prepare a Health and Safety Plan (HASP)

Prior to investigation activities, WSB will prepare a site-specific HASP for the project. The HASP will contain information related to the known and potential health, safety, and exposure risks at the site. Additionally, the HASP will contain emergency and project staff contact information, a route map to the closest hospital/emergency facility, a brief narrative of the site's history and use, and safety data sheets relevant to contaminants likely to be present at the site. WSB's field staff and subcontractors (if needed) will review and sign the HASP prior to working on site.

Responsible Party: Scientist 2

Task 3B: Schedule Field Investigation and Notify MPCA

WSB will contact the site owner/operator to schedule the field work required for the site investigation. If needed, an access agreement with the site owner will be prepared. Since soil borings and or soil vapor sampling will be performed at the site, WSB will answer any questions related to the investigation activities and discuss special accommodations required for the field work. If the site owner/operator is not cooperative, WSB will work with the MPCA and the MN Attorney General's Office to gain site access. Initially, no subsurface investigation work is planned at offsite locations.

Once scheduled, WSB will notify the MPCA of the field work activities using the e-Services website. The required site, consultant, and planned field work information will be provided. If plans or schedule changes occur, the e-Service notification will be updated.

Responsible Party: Project Manager / Field Technician

Task 3C: Perform Non-Standard Limited Site Investigation (LSI)

WSB will review the results of the initial water sampling, vapor screening, and 500-foot walking receptor survey to help guide the placement of subsurface investigation borings and vapor sample borings. Assuming no findings require immediate corrective actions or that the immediate actions have been completed, WSB will perform a non-standard scope LSI to determine the magnitude and extent of the petroleum impacts at the site. The investigation will be completed in conformance with MPCA guidance and include the collection and analysis of soil, groundwater, soil vapor, and sub-slab vapor samples. The presence of free-product (LNAPL) will also be evaluated at groundwater sample locations. Figure 1 (attached) illustrates the proposed boring locations. Investigation derived waste will be containerized and properly labeled to identify drum contents. Costs for testing and disposal of investigation derived wastes have not been included for this example. Consideration of MPCA Green practices/procedures will be include in all phases of the work. The soil and soil vapor borings will be advanced using Geoprobe technology (direct push) and consist of the following:

Worst Case / Vertical Extent Borings (SB-1, SB-2, and SB-3)

- Advanced at assumed leak sources continuously to 40 feet below grade (groundwater assumed to be at a depth of 20 feet). Groundwater will be collected from each boring by installing a temporary PVC well screen and using a bailer and/or check valve with poly tubing to draw sample.
    - Soil Samples – Two soil samples will be collected at each boring for analysis of DRO, GRO, PVOCs, and lead. One sample will be collected from each boring (3 total) for grain size analysis.
    - Groundwater Samples - One groundwater sample will be collected from each temporary well and analyzed for DRO, GRO, VOCs, and lead.

Note: For all borings, soil samples will be collected in the following order of importance: 1.) from the interval with the highest PID reading, 2.) from the interval displaying visual or olfactory indication of contamination, 3.) from the terminus depth.

Horizontal Extent Borings (SB-4, SB-5, SB-6, SB-7, SB-8, and SB-9)

- Advanced at site boundary areas continuously to 25 feet below grade. Groundwater will be collected from each boring by installing a temporary well screen and using a bailer and/or check valve with poly tubing to draw sample.
    - Soil Samples – One soil sample will be collected from each boring for analysis of DRO, GRO, PVOCs, and lead.
    - Groundwater Samples - One groundwater sample will be collected from each temporary well and analyzed for DRO, GRO, VOCs, and lead.

Worst Case Soil Vapor Borings (SV-1, SV-2, SV-3)

- Advanced at assumed leak sources to 4 feet below grade. The leak sources are all near the site building.
    - Soil Samples – One soil vapor sample will be collected at each location and analyzed for VOCs.

Horizontal Extent Soil Vapor Borings (SV-4, SV-5, SV-6, and SV-7)

- Advanced at perimeter site areas to a depth of 8 feet below grade (depth assumes residences have basements). The adjacent residents are all assumed to have basements.
    - Soil Samples – One soil vapor sample will be collected at each location and analyzed for VOCs.

Worst Case Sub-Slab Vapor Samples (SS-1 and SS-2)

- The floor will be penetrated with an electric hammer drill, vapor pins will be installed and samples will be collected per MPCA vapor intrusion best management practices. These samples will evaluate the potential of vapor intrusion at the restaurant building near the former tank area.
    - Sub-slab samples – One vapor sample will be collected at each location and analyzed for VOCs. A second round may be collected dependent on the results of the first round. If needed, the second round would be collected during the next seasonal event.

Task 3D: Evaluate Non-Standard Scope LSI Results

Based on the results of the non-standard scope LSI, an initial conceptual site model (CSM) will be prepared and evaluated. The CSM will be used to identify additional investigation, monitoring, or corrective actions needed to address exposure pathways or justify site closure. If further work is needed to establish the CSM, monitoring wells and additional sub-slab vapor sampling will likely be required at the site. Therefore, WSB's approach for follow-up groundwater monitoring and sub-slab vapor sampling at the site (if required) is provided in Task 3E.

Responsible Party: Project Manager / Scientist 2

Task 3E: Perform Groundwater Monitoring and Sub-Slab Vapor Sampling (If Required)

Because it is unknown if additional work is required, this task is presented as a conceptual plan to complete additional investigation and monitoring. No costs for this task have been included. WSB will discuss the

placement of groundwater monitoring wells and sub-slab vapor sampling pins at the site with the MPCA Project Manager. Once approved, the installation and sampling of the wells and vapor pins will be completed in accordance with MPCA guidance. The groundwater monitoring wells will be installed using hollow-stem auger technology and the soil vapor pins using an electric hammer drill. The groundwater monitoring and sub-slab vapor investigations will consist of the following:

Worst Case Monitoring Well (MW-1)

- Install west of the building and east of the current tank basin.
    - Groundwater Samples - One groundwater sample will be collected quarterly and analyzed for DRO, GRO, VOCs, and lead. PVOCs may replace the VOC analyses if only petroleum compounds were detected in the previous testing.

Down-Gradient Monitoring Well (MW-2)

- Install east of the building on the eastern site boundary.
    - Groundwater Samples - One groundwater sample will be collected quarterly and analyzed for DRO, GRO, VOCs (or PVOCs), and lead.

Cross-Gradient Monitoring Well (MW-3)

- Install north of the building on the northern site boundary.
    - Groundwater Samples - One groundwater sample will be collected quarterly and analyzed for DRO, GRO, VOCs (or PVOCs), and lead.

Up-Gradient Monitoring Well (MW-4)

- Install west of the current tank basin on the western site boundary.
    - Groundwater Samples - One groundwater sample will be collected quarterly and analyzed for DRO, GRO, VOCs (or PVOCs), and lead.

Sub-Slab Vapor Pins (SS-3, SS-4, SS-5, and SS-6)

- Install two vapor pins in the gas station and two more vapor pins in the restaurant (approximately 17,500 SF building).
    - Vapor Sampling – One vapor sample will be collected at each pin location (six total-SS-1 through SS-6). Two sampling events will be conducted and samples will be analyzed for VOCs.
    - At a minimum, one event will be completed during the heating season (Nov. 1 - March 31) and a second event during the non-heating season (April 1 - Oct. 31) to account for seasonable variability.

Note: Since this task is conceptual, the costs associated with monitoring well and additional vapor pin installation and sampling are not included on Attachment B.

Responsible Party: Field Technician

Task 3D: Prepare an Investigation Report

WSB will prepare an investigation report summarizing the non-standard scope LSI activities and results in accordance with MPCA guidance. Based on the findings and site conceptual model, closure of the site or additional work will be recommended.

Responsible Party: Field Technician / Scientists 2 / GIS/CADD Specialist / Project Manager

Objective 3 Timeline: Upon authorization, WSB will initiate and complete Objective 3 tasks in 4-5 weeks.

Objective 2 Cost: $16,223.50

Objective 3 Deliverables: Investigation Report

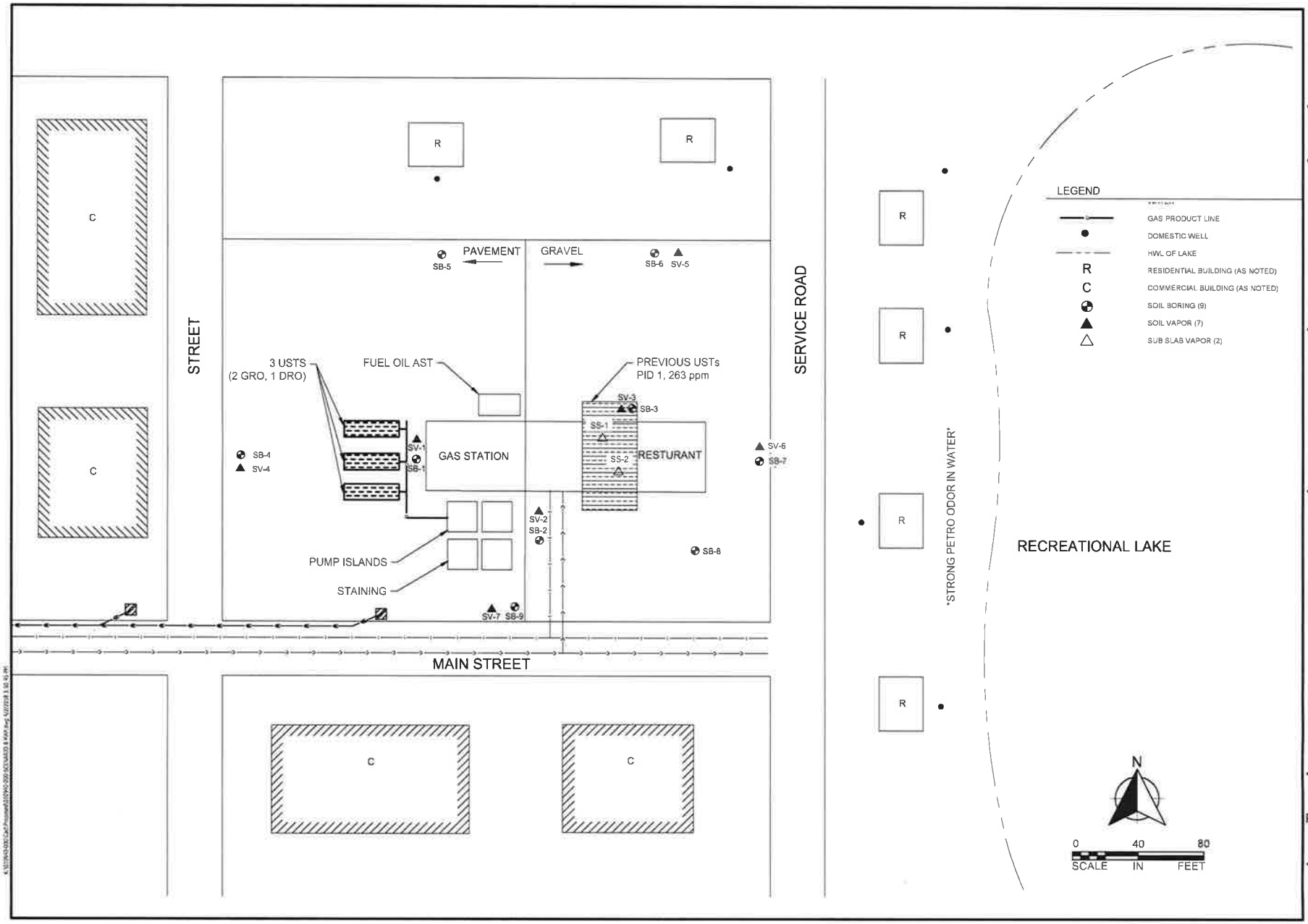
The work will be completed in a stepwise approach and be governed by the identified risks associated with the findings. It is likely that the minimum scope of work to evaluate and mitigate any risks has been presented above. Possible other work tasks dependent on the findings could include the following:

- Support providing potable water to residences
- Abandon area private wells
- Perform free-product recovery
- Collect off-site vapor/sub-slab samples
- Address conveyance of impacts via stormwater drainage
- Install sentry groundwater monitoring wells
- Complete additional delineation as needed in all media
- Support removal of UST system
- Perform soil correction on contaminated soil
- Mitigate vapor intrusion through a sub-slab depressurization system (SSDS)
- Conduct ongoing groundwater and SSDS monitoring
- Oversee fate and transport modeling and capture zone analyses
- Evaluate and implement other remedial alternatives
- Support the completion of Affidavits or Restrictive Covenants

WSB is prepared to complete any work needed to define the extent and magnitude of petroleum contamination and to provide corrective measures to mitigate risks to human health and the environment.

Enclosures

Figure 1 - Proposed Investigation Location Map
Attachment B - Example Scenario Project Spreadsheet



WSB

WSB PROJECT NO.:
010940-000

SCALE: 1" 40'
DESIGN BY: ####
PLAN BY: ####
CHECK BY: ###

REVISIONS

NO. DATE DESCRIPTION

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED LANDSCAPE ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA

DATE: ### LIC. NO. ###

SITE INVESTIGATION

SCENARIO B MAP

PROJECT CITY, MN

SHEET
1
OF
1

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

Attachment B
*Example Scenario Project Spreadsheet

Project title: WSB Scenario B - Petroleum Only

	1. Personnel				2. Subcontracting		3. Equipment					4. Other Expenses		Totals (Extended)
Project Budget	Project Manager	Scientist 2	GIS/CADD Specialist	Field Technician	Drilling - Bergerson Caswell	Lab - Pace Analytical	PID 10.6	Multi-Gas Meter	Water Level Indicator	GPS (Sub meter)	Coring Machine	Millage (100 miles RT)	Per Diem (Lunch)	
	$137.52	$97.48	$78.09	$78.09			$99.00	$123.00	$27.00	$122.00	$104.00	$0.545	$11.00	
Objective 1 - Review available information, report identified leaks, and discuss emergency corrective actions.														
Task 1A - Review Available Documents and MPCA WIMN Database	2													
Task 1B - Report Leaks to the MN State Duty Officer	1													
Task 1C - Contact MPCA Project Manager	2													
Total Hours for Objective	5													
Total for Objective 1	**$687.60**													**$687.60**
Objective 2 - Collect water samples, complete vapor screening, and complete a receptor survey to evaluate human and ecological risks (First Phase).														
Task 2A - Create a Receptor Map and Contact the City		2	2											
Task 2B - Obtain Access	2	2												
Task 2C - Collect Water Samples				6		$2,920.00	$99.00					$55.00	$11.00	
Task 2D - Screen/Monitor Site Utilities				2										
Task 2E - Complete a Walking Receptor Survey				5				$123.00						
Task 2F - Evaluate Recreational Lake				1										
Task 2G - Prepare a Summary Report	2	6	1	2										
Total Hours for Objective	4	10	3	16										
Total for Objective 2	**$550.08**	**$974.80**	**$234.27**	**$1,249.44**		**$2,920.00**	**$99.00**	**$123.00**				**$55.00**	**$11.00**	**$6,216.59**
Objective 3 - Complete field investigation to define the magnitude and extent of soil, groundwater, and soil vapor impacts related to the petroleum leaks at the site and assess risks to potential human and ecological receptors.														
Task 3A - Prepare a Health and Safety Plan (HASP)		2												
Task 3B - Schedule Field Investigation and Notify MPCA	2			2										
Task 3C - Perform Non-Standard Limited Site Investigation (LSI)				16	$4,937.00	$4,977.00	$198.00	$246.00	$54.00	$244.00	$104.00	$55.00	$11.00	
Task 3D - Evaluate Non-Standard Scope LSI Results	2	2												
Task 3E - Perform Groundwater Monitoring and Sub-Slab Vapor Sampling (If Required)														
Task 3F - Prepare an Investigation Report	8	4	4	16										
Total Hours for Objective	12	8	4	34										
Total for Objective 3	**$1,650.24**	**$779.84**	**$312.36**	**$2,655.06**	**$4,937.00**	**$4,977.00**	**$198.00**	**$246.00**	**$54.00**	**$244.00**	**$104.00**	**$55.00**	**$11.00**	**$16,223.50**
Total Project Hours/Cost	**$2,887.92**	**$1,754.64**	**$546.63**	**$3,904.50**	**$4,937.00**	**$7,897.00**	**$297.00**	**$369.00**	**$54.00**	**$244.00**	**$104.00**	**$110.00**	**$22.00**	**$23,127.69**

• www.pca.state.mn.us • Available in alternative formats • 651-296-6300 • 800-657-3864 • TTY 651-282-5332 or 800-657-3864