Stantec Consulting Services Inc.
12075 Corporate Parkway, Suite 200
Mequon, WI 53092
Tel: (262) 241-4466
Fax: (262) 241-4901

SI Work Plan

RECEIVED
29
AUG 30 2019
Initial:

August 21, 2019
Stantec No.: 725553

Mr. John J. Hnat, P.G., C.P.G.
Wisconsin Department of Natural Resources
2300 North Dr. Martin Luther King, Jr. Drive
Milwaukee, Wisconsin 53212-3128

Reference: **Workplan and Cost Estimate – Additional Investigation**
Whitefish Bay Cleaners, 419 West Silver Spring Drive, Glendale, Wisconsin
WDNR BRRTS #02-41-550821

Change Order #1

FID 241 246 060

Dear Mr. Hnat:

Stantec Consulting Services Inc. (Stantec) continues to investigate a tetrachloroethene (PCE) release at the above-referenced property (the Site). Based on a previous conversation with you, the Wisconsin Department of Natural Resources (WDNR) requires additional investigation to further evaluate the extent of PCE in soil, soil vapor, and groundwater. Therefore, Stantec developed this workplan and cost estimate for additional investigation. To ensure the additional investigation is eligible for reimbursement under the Drycleaner Environmental Response Fund, estimated costs are summarized on the attached WDNR Form 4400-214D.

BACKGROUND INFORMATION

Whitefish Bay Cleaners, an active dry cleaner business, has operated at 419 West Silver Spring Drive, Glendale, Wisconsin (the Site) for more than 30 years. Dry cleaning businesses have continuously operated at the Site since the 1950s. Giles Engineering Associates, Incorporated (Giles) completed a Preliminary Site Assessment (PSA) at the Site during December 2007 and PCE was detected in soil and groundwater. Giles concluded that spillage and/or leakage of PCE associated with dry cleaning activities was the source of the release. Giles reported the results of the PSA to the WDNR who subsequently requested a site investigation and appropriate remedial action be completed.

During November 2013, Stantec, on behalf of Whitefish Bay Cleaners, submitted a Site Investigation Workplan to the WDNR. During August 2014, Stantec oversaw the collection of sub-surface soil samples from boreholes B-1 through B-7 and installation of groundwater monitoring wells MW1 through MW4 and TW1 at the Site or in the adjacent public alleyway. Soil sampling results are summarized on Table 1. During September 2014, Stantec collected groundwater samples from the wells. The Site layout and borehole and groundwater monitoring wells locations are shown on Figure 1.

PCE in soil and groundwater extended off-site to the south and west requiring additional investigation. During May 2016, Stantec provided the WDNR with the soil and groundwater sampling results and recommended installation of additional groundwater monitoring wells. During June 2016 the WDNR responded to Stantec's recommendations with additional suggestions related to future investigation. More specifically, the WDNR requested that samples be collected from the groundwater monitoring wells since the wells had not been sampled since 2014. In addition, the WDNR requested that a vapor intrusion assessment be conducted at the Site.

Therefore, during June 2016 Stantec collected samples from each groundwater monitoring well at the Site. Groundwater elevation measurements and laboratory analysis results are summarized on Table 2 and 3, respectively. In every well, the PCE concentrations in groundwater during June 2016 were less than the initial groundwater sampling event. Soil and groundwater sampling results indicated that released PCE has migrated off-site to the west and south and documented a south to southwest groundwater flow across the Site.

During July 2016, Stantec submitted a workplan to the WDNR for additional soil and groundwater investigation. The WDNR reviewed the workplan and requested revisions to the proposed soil and groundwater sample locations and the addition of a soil vapor assessment.

Reference: **Workplan and Cost Estimate – Additional Investigation**
Whitefish Bay Cleaners, 419 West Silver Spring Drive, Glendale, Wisconsin

This workplan addresses the WDNR's July 2016 recommendations regarding the soil and groundwater investigation and vapor assessment.

WORKPLAN

The additional investigation includes soil, soil vapor, and indoor air sample collection and groundwater monitoring well installation in the adjacent alleyway and properties south and west of the Site and in the parking lot directly east of the Whitefish Bay Cleaner building. The additional investigation will be divided into the following six tasks.

Task 1: Vapor Intrusion Assessment – Residential Properties
Task 2: Vapor Intrusion Assessment – Commercial Properties
Task 3: Evaluate Buried Utility Corridors
Task 4: Additional Soil Investigation
Task 5: Additional Groundwater Investigation
Task 6: Site Investigation Report

Task 1: Vapor Intrusion Assessment – Residential Properties

The vapor intrusion assessment will include collection of indoor air samples and sub-slab vapor samples as described below.

Subtask 1.1 - Obtain Access Agreements

Stantec will assist Whitefish Bay Cleaners in obtaining access agreements to sample inside the homes located at 5570 and 5576 North Iroquois Avenue and 5575 and 5579 North Mohawk Avenue (4 total homes) Access agreements will be drafted for the property owners' review and approval.

Subtask 1.2 - Indoor Air Sampling

Stantec will collect indoor air samples inside the four homes. Each indoor air sample collection device (6-liter Summa canister with 8-hour flow controller) will be positioned at a height considered to represent the normal breathing zone (approximately 3 to 5 feet above the lowest floor of the house [assumed to be the basement]). Summa canisters may be placed on a desk, table, shelf, cabinet, etc. so that the sampling location is at the correct height. Collection of indoor air samples near windows or sources of outdoor air leakage will be avoided. Stantec will use a placard labeled "Do Not Disturb – Active Air Sampling". Stantec assumes home occupants will not tamper with the Summa canisters during the 8-hour sample collection time, as Stantec personnel will not be continuously monitoring each canister. After approximately 8 hours, the canisters will be sealed and collected for shipment to the project laboratory.

Subtask 1.3 - Sub-Slab Vapor Sampling

The vapor assessment will consist on collection of sub-slab soil vapor samples from up to four residential homes south and southeast of the Site. The sub-slab vapor point will be constructed using a 5/8-inch diameter VaporPin® kit. A 1.5-inch diameter drill bit will be used to allow placement of a flush mounted cover over the VaporPin® in the upper 4-inches of concrete. A 5/8-inch diameter drill bit is then used to fully penetrate the concrete floor and allow VaporPin® installation. The VaporPin® is fitted with a stainless-steel sealable hose barb to allow for sample collection.

After vapor point construction, leak testing consisting of a "shut-in test" that measures airtightness of the fittings between the sample probe and the sample container and a "helium shroud test" to measure if the vapor point seal leaks will be performed. The helium shroud test consists of using a shroud filled with helium and placed over the vapor point. Air purged from the vapor is then tested for helium. If helium is detected, the sampling point will be resealed and retested for helium. After successful shut-in and helium shroud tests, the vapor point will be purged of one well volume at a flow rate near or less than 200 milliliters per minute. Following purging, "grab" samples will be collected at a flow rate near or less than 200 milliliters per minute using a laboratory

provided 6-liter Summa canister. The air samples will be analyzed for volatile organic compounds (VOCs) using EPA Method TO-15.

Subtask 1.4 – Outdoor (background) Air Sampling

Stantec will also collect an outdoor ambient air sample. The outdoor air sample will be collected at an upwind location from the Site. The sample will be collected using a 6-liter Summa canister with 8-hour flow controller. If possible, the canister will be placed in a concealed location to minimize the chance of tampering. After approximately 8 hours, the canister will be sealed and collected for shipment to the project laboratory. Meteorological data will be obtained from the nearest National Weather Service station. Data will be collected for the time period corresponding to the sampling period. Data collected will include minimum and maximum temperature, barometric pressure, precipitation, and a summary of hourly wind speed and direction.

Task 2: Vapor Intrusion Assessment – Commercial Properties

The vapor intrusion assessment will include collection of indoor air samples and sub-slab vapor samples from the commercial business buildings described below.

Subtask 2.1 - Obtain Access Agreements

Stantec will assist Whitefish Bay Cleaners in obtaining access agreements to the samples inside the commercial buildings located at 407 and 429 West Silver Spring Road (2 adjacent buildings located east and west of the Site). Access agreements will be drafted for the property owners' review and approval.

Subtask 2.2 - Indoor Air Sampling

Stantec will collect indoor air samples inside the two commercial buildings. Each indoor air sample collection device (6-liter Summa canister with 8-hour flow controller) will be positioned at a height considered to represent the normal breathing zone (approximately 3 to 5 feet above the lowest floor of the building). Summa canisters may be placed on a desk, table, shelf, cabinet, etc. so that the sampling location is at the correct height. Collection of indoor air samples near windows or sources of outdoor air leakage will be avoided. Stantec will use a placard labeled "Do Not Disturb – Active Air Sampling". Stantec assumes building occupants will not tamper with the Summa canisters during the 8-hour sample collection time, as Stantec personnel will not be continuously monitoring each canister. After approximately 8 hours, the canisters will be sealed and collected for shipment to the project laboratory.

Subtask 2.3 - Sub-Slab Vapor Sampling

The vapor assessment will consist on collection of sub-slab soil vapor samples from up to four residential homes south and southeast of the Site. The sub-slab vapor point will be constructed using a 5/8-inch diameter VaporPin® kit. A 1.5-inch diameter drill bit will be used to allow placement of a flush mounted cover over the VaporPin® in the upper 4-inches of concrete. A 5/8-inch diameter drill bit is then used to fully penetrate the concrete floor and allow VaporPin® installation. The VaporPin® is fitted with a stainless-steel sealable hose barb to allow for sample collection.

After vapor point construction, leak testing consisting of a "shut-in test" that measures airtightness of the fittings between the sample probe and the sample container and a "helium shroud test" to measure if the vapor point seal leaks will be performed. The helium shroud test consists of using a shroud filled with helium and placed over the vapor point. Air purged from the vapor is then tested for helium. If helium is detected, the sampling point will be resealed and retested for helium. After successful shut-in and helium shroud tests, the vapor point will be purged of one well volume at a flow rate near or less than 200 milliliters per minute. Following purging, "grab" samples will be collected at a flow rate near or less than 200 milliliters per minute using a laboratory provided 6-liter Summa canister. The air samples will be analyzed for VOCs using EPA Method TO-15.

Task 3: Evaluate Buried Utility Corridors

Stantec will add the locations and determine the depths of buried utilities that extend through or are near areas of PCE contamination and evaluate the potential of the buried utilities to act as a contaminant migration pathway

based on subsurface soil, depth to groundwater observations near these utilities. Buried utility locations will be added to an updated site figure for future reference.

Task 4: Additional Soil Investigation

Stantec will obtain a permit from the City of Glendale (the City) for the two proposed monitoring wells installed in City right-of-ways. The necessary access agreements and City permits will be obtained before completing work on these properties.

Stantec proposes to collect soil samples from three boreholes located on the northeast corner of the Site and offsite to the south and west using direct push soil sampling techniques. Groundwater monitoring wells will also be constructed in these boreholes and are discussed in the next section. The goal of the additional sampling is to evaluate the extent of released PCE in soil. The proposed soil borehole locations are shown in Figure 1.

Soil samples will be continuously collected, described, and field screened using a photoionization detector (PID) to a total depth of 16 feet below grade (fbg). One near surface soil sample (0 to 4 fbg) from each borehole will be submitted for VOC laboratory analysis. Based on field screening results, a second soil sample from each borehole collected between four fbg and the groundwater table will be laboratory analyzed for VOCs.

Task 5: Additional Groundwater Investigation

Stantec proposes to install three groundwater monitoring wells south and west of MW4 and north of MW1 to further evaluate the lateral extent of PCE in groundwater and groundwater flow direction at and near the Site. The monitoring wells will be installed using hollow stem auger drilling methods to a total anticipated depth of 16 fbg. The proposed monitoring well locations are shown in Figure 1.

West of 429 ? Later.

The monitoring wells will be constructed in accordance with state requirements (Chapter NR 141, Wisconsin Administrative Code). Specifically, the wells will be constructed of 2-inch diameter polyvinyl chloride (PVC) threaded casing utilizing 5-feet of 0.010-inch slot PVC screen. No glues, solvents, or lubricants will be used in well construction. The horizontal and vertical locations of the wells (old and new) will be surveyed to determine the groundwater flow direction and gradient (referenced to mean sea level). The wells will be completed with flush-mounted protective covers. All new and previously existing wells will be surveyed and referenced to mean sea level.

The monitoring wells will be developed using a variable capacity bailer or centrifugal pump to remove the effects of drilling and well installation and to maximize well yield. During development, measurements of specific conductance, pH, temperature, and turbidity will be recorded. Development will continue until 10 saturated well volumes are removed from the wells or the wells produce sediment-free water.

The three newly installed wells and the currently existing wells (MW1 through MW4 and TW1) will be purged and sampled in accordance with WDNR groundwater sampling procedures (WDNR Publication No. WR-168). Groundwater samples will be submitted for laboratory analysis for VOCs. A duplicate sample will be collected and laboratory analyzed for VOCs from one well during each sampling event. All non-disposable well development and sampling equipment will be thoroughly cleaned between wells. Groundwater produced from each well will be stored in 55-gallon drums on-site. Appropriate disposal of the groundwater will be determined after receipt of laboratory analyses.

Task 6: Site Investigation Report

Stantec will complete the required soil borehole logs and monitoring well construction forms for the additional boreholes and monitoring wells (WDNR Forms 4400-113A and 4400-122). Soil, groundwater, and vapor analysis results will be tabulated, and the site figures will be updated to reflect the additional investigation completed. The results will be summarized in a site investigation report that will be submitted to the WDNR.

PROBABLE SCHEDULE AND COST

The scope of work outlined above will be completed in phases. Task 1 and 2 will be initiated immediately after approval of this workplan and cost estimate by the WDNR. The schedule for collection of air samples inside the homes and business buildings will be dependent upon off-site access approval and may be variable. If air

samples indicate a health risk to home/building occupants, Tasks 3 through 6 will be delayed and a workplan and cost estimate would be prepared to install a mitigation system in the affected building(s). If indoor air sampling does not indicate a health risk to any homes/buildings Tasks 3 through 6 would then be completed.

The cost presented below is based on the quantities listed in the workplan. For budgeting purposes, the proposed work will be divided into cost categories consistent with the WDNR Linking Spreadsheet with off-site access coordination, data tabulation, and reporting incorporated into the various cost categories. A summary of probable costs are included on the enclosed WDNR Form 4400-214D. The probable costs are presented below.

WDNR Linking Spreadsheet Cost Category A – Soil Investigation

Consulting Services			
	Associate Geologist	1 hour @ $185/hr	$ 185.00
	Senior Geologist/Project Manager	3 hours @ $158/hr	$ 474.00
	Registered Geologist	10 hours @ $137/hr	$ 1,370.00
	GIS/CAD Technician	1 hours @ $121/hr	$ 121.00
	Administrative Aid	1 hours @ $97/hr	$ 97.00
		Subtotal	$2,247.00
Direct Push Services		Subtotal	$1,177.00
		Cost Category A Total	**$ 3,424.00**

WDNR Linking Spreadsheet Cost Category C – Groundwater Investigation

Consulting Services			
	Associate Geologist	2 hour @ $185/hr	$ 370.00
	Senior Geologist/Project Manager	4 hours @ $158/hr	$ 632.00
	Registered Geologist	40 hours @ $137/hr	$ 5,480.00
	Staff Geologist	10 hours @ $121/hr	$ 1,210.00
	GIS/CAD Technician	3 hours @ $121/hr	$ 363.00
	Administrative Aid	3 hours @ $97/hr	$ 291.00
		Subtotal	$8,346.00
Well Installation		Subtotal	$2,185.00
		Cost Category C Total	**$10,531.00**

WDNR Linking Spreadsheet Cost Category E – Air/Vapor Investigation

Consulting Services			
	Associate Geologist	1 hour @ $185/hr	$ 185.00
	Senior Geologist/Project Manager	10 hours @ $158/hr	$ 1,580.00
	Registered Geologist	20 hours @ $137/hr	$ 2,740.00
	Staff Geologist	27 hours @ $121/hr	$ 3,267.00
	GIS/CAD Technician	2 hours @ $121/hr	$ 242.00
	Administrative Aid	4 hours @ $97/hr	$ 388.00
		Subtotal	$8,402.00

Vapor Point Construction Supplies

Vapor Pin	6 each @ $50/each	$ 300.00
Coring Drill Rental	2 days @ $45/day	$ 90.00
	Subtotal	$390.00
	Cost Category E Total	**$8,792.00**

WDNR Linking Spreadsheet Costs Category G - Laboratory Analysis

Air VOCs	13 samples @ $200/each	$ 2,600.00
Soil VOCs	7 samples @ $51.50/each	$ 360.50
Water VOCs (1 round of samples)	9 samples @ $51.50/each	$ 463.50
	Cost Category G Total	**$ 3,424.00**

WDNR Linking Spreadsheet Costs Category H – Miscellaneous Costs

Soil and Purge Water Barrel Disposal (6 drums total)

Consulting Services		
Registered Geologist	1 hours @ $137/hr	$ 137.00
Disposal Contractor*	drum disposal	$ 3,050.00
	Cost Category H Total	**$ 3,187.00**

TOTAL COSTS CATEGORIES A THROUGH H **$29,358.00**

* Note: containerized water will be classified as hazardous waste thereby increasing disposal cost

Reference: **Workplan and Cost Estimate – Additional Investigation**
Whitefish Bay Cleaners, 419 West Silver Spring Drive, Glendale, Wisconsin

Please contact us if you have any questions or comments.

Regards,

STANTEC CONSULTING SERVICES INC.

Chris Hatfield
Senior Geologist
Phone: (262) 643-9171
Fax: (262) 241-8222
Chris.Hatfield@stantec.com

Attachments

Client Approval

I, Charles Mathers, approve the scope and probable costs presented above.

Signature – Title

8-28-2019
Date

Enclosures

c: Charles Mathers, Whitefish Bay Cleaners

Site Name: *Whitefish Bay Cleaners*
BRRTS #: *02-41-550821*
Type of Action: *Site Investigation*

Dry Cleaner Environmental Response Program
Reimbursement Cost Detail Linking Spreadsheet Form 4400-214D (R 08/12)

TASKS	BUDGET				INVOICES						DERF COST BREAKOUT (this claim)											
Bid / Budgeted Description	Bid / Budgeted Amount	INSERT	Total Approved Budget	Previous Claims (If applicable)	*Provider Name, Invoice #, Billing Date*	*Provider Name, Invoice #, Billing Date*	*Provider Name, Invoice #, Billing Date*	*Provider Name, Invoice #, Billing Date*	INSERT	Total Invoiced Costs	A Soil Investigation	B Soil Remediation	C Groundwater Investigation	D Groundwater Remediation	E Air/Vapor Investigation	F Air/Vapor Remediation	G Lab & Other Analysis	H Miscellaneous Costs	Budget Remaining Use (-) to indicate cost over-run	% Task Complete, Remarks
Consultant Costs																				
Task			$ -							$ -									$ -	Task % Complete
Additional Soil Boreholes	$ 2,315.50		$ 2,315.50							$ -	$ 2,247.00							$ 68.50	$ 2,315.50	
Groundwater Monitoring Well Installation & GW Sampling	$ 8,414.50		$ 8,414.50							$ -			$ 8,346.00					$ 68.50	$ 8,414.50	
Air/Vapor Sampling	$ 8,792.00		$ 8,792.00												$ 8,792.00				$ 8,792.00	
			$ -							$ -									$ -	
			$ -							$ -									$ -	
			$ -							$ -									$ -	
			$ -							$ -									$ -	
			$ -							$ -									$ -	
			$ -							$ -									$ -	
			$ -							$ -									$ -	
Consultant Cost Total	*$ 19,522.00*	*$ -*	*$ 19,522.00*	*$ -*						*$ -*									*$ 19,522.00*	
Sub-Contractor Costs																				
Well Driller	$ 3,362.00	$ -	$ 3,362.00							$ -	$ 1,177.00		$ 2,185.00						$ 3,362.00	
Laboratory	$ 3,424.00		$ 3,424.00							$ -							$ 3,424.00		$ 3,424.00	
Waste Disposal	$ 3,050.00		$ 3,050.00							$ -								$ 3,050.00	$ 3,050.00	
			$ -							$ -									$ -	
			$ -							$ -									$ -	
			$ -							$ -									$ -	
			$ -							$ -									$ -	
Sub-Contractor Cost Total	*$ 9,836.00*	*$ -*	*$ 9,836.00*	*$ -*						*$ -*									*$ 9,836.00*	
DERF ELIGIBLE SUB-TOTALS	$ 29,358.00	$ -	$ 29,358.00	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 3,424.00	$ -	$ 10,531.00	$ -	$ 8,792.00	$ -	$ 3,424.00	$ 3,187.00	$ 29,358.00	

Non-DERF Eligible Expenses									
								$ -	
								$ -	
Non-DERF Cost Total		$ -	$ -	$ -	$ -	$ -		$ -	
INVOICE GRAND TOTAL		$ -	$ -	$ -	$ -	$ -	$-	$ -	

Total DERF Eligible Costs This Claim $ 29,358.00

LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- DRY CLEANING MACHINES
- TB-1 — BOREHOLE LOCATION AND IDENTIFICATION (GILES ENGINEERING)
- B-6 — BOREHOLE LOCATION AND IDENTIFICATION (STANTEC)
- B-4/MW4 — GROUNDWATER MONITORING WELL LOCATION AND IDENTIFICATION (STANTEC)
- B-5 — BOREHOLE IN BASEMENT LOCATION AND IDENTIFICATION (STANTEC)
- PROPOSED BOREHOLE AND GROUNDWATER MONITORING WELL LOCATION (STANTEC)

0 15 30
Horizontal Scale In Feet

407 W Silver Spring Rd

WEST SILVER SPRING DRIVE

429 W Silver Spring Rd

B-7/TW1
B-5
B-1/MW1
TB-1
TB-2
B-6
TB-3
B-3/MW3
B-2/MW2
B-4/MW4

ALLEY

5576 N Iroquis Ave

5579 N Mohawk Ave

5570 N Iroquis Ave

5575 N Mohawk Ave

Stantec
12075 N. Corporate Parkway, Suite 200
Mequon, WI 53092
www.stantec.com

SITE LAYOUT

WHITEFISH BAY CLEANERS INVESTIGATION
WHITEFISH BAY CLEANERS
MILWAUKEE COUNTY, GLENDALE, WI

NO	REVISION	DATE

SURVEY	
DRAWN	EJM
DESIGNED	
CHECKED	
APPROVED	
PROJ. NO.	193702517

SHEET NUMBER
FIG 1

Plot Date: 12/05/2014 11:07pm
Drawing Name: V:\193\active\193702517\05_report_dell\dwgs_design\figures\193702517-Milwaukee_FIG 2.dwg
Xrefs: