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July 20, 2016 File No.: 193702517

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

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 recent conversation with you, the Wisconsin Department of Natural Resources (WDNR) requires additional investigation to further evaluate the extent of near-surface soil contamination and vertical extent of groundwater contamination. 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 (DERF), 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.

The Site investigation data collected to date provided valuable information. However, additional investigation to further evaluate the extent of PCE in soil and groundwater and an assessment of vapor migration is warranted. Therefore, Stantec proposes a phased approach for the additional investigation as outlined below.

WORKPLAN

The additional investigation includes soil sample collection and groundwater monitoring well installation in the adjacent alleyway and property south of the Site. In addition, sub-slab soil vapor samples will be collected inside the Site building and the adjacent buildings east and west of the Site. Our workplan to complete the additional investigation is provided below.

Obtain Off-Site Access Agreements

To further evaluate the extent of released PCE in soil, soil vapor, and groundwater, additional boreholes, vapor monitoring points, and monitoring wells are needed beyond the Site boundaries. Therefore, Stantec, on behalf of Whitefish Bay Cleaners, will request access to these properties. Stantec will also request access to adjacent property buildings for sub-slab vapor sample collections. Access agreements will be drafted for the property owners' review and approval.

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

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.

Complete Additional Soil Investigation

Stantec proposes to collect soil samples from two boreholes located south and west of the Site 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 if released PCE in soil extends onto the adjacent property to the south. 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 volatile organic compound (VOC) laboratory analysis. Based on field screening results, a second soil sample from each borehole collected between 4 fbg and the groundwater table will be laboratory analyzed for VOCs.

Complete Additional Groundwater Investigation

Stantec proposes to install groundwater monitoring wells south and west of MW4 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.



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 will be surveyed to determine the groundwater flow direction and gradient. The wells will be completed with flush-mounted protective covers.

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 newly installed wells (MW5 and MW6) and the current 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. Drums will be disposed of following receipt of laboratory analytical results.

Sub-Slab Vapor Monitoring Point Installation and Sampling

Per the request of the WDNR, six sub-slab vapor monitoring points will be installed through the concrete floors of the Site building and adjacent buildings east and west of the Site to evaluate subslab vapor concentrations. Two of the sub-slab vapor monitoring points will be installed in the small basement area in the northeast corner of the Site building. Two other sub-slab vapor monitoring points will be constructed in the basement of the building east of the Site. The adjacent building west of the Site does not have a basement, so the remaining two sub-slab vapor monitoring points will be installed through the concrete floor in the eastern portion of this building. The proposed locations of the vapor sample points are shown on Figure 1. These locations may be adjusted depending upon building accessibility. The sub-slab vapor monitoring points will be constructed in general conformance with WDNR guidance document RR-986.

Leak testing will be conducted on each vapor point using a shroud filled with helium and placed over the vapor point at least one day after installation. The quality control measures will be implemented using the two-step method described in the WDNR guidance document RR-986. If helium is detected in a sampling point, the sampling point will be resealed and retested for helium. After successful helium tests at each sampling "grab" samples will be collected from each location using a six-liter Summa canister. The air samples will be analyzed by Pace Analytical for VOCs using EPA Method TO-15.

Analyze and Tabulate Data and Evaluate Need for Additional Investigation

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, soil vapor, and groundwater analysis results will be tabulated and the site figures will be updated to reflect the additional investigation completed. The results will be provided to the WDNR and discussions with the WDNR will occur to determine the appropriate additional investigation required.



Incorporate Additional Data into Site Investigation Report

If little or no additional investigation appears warranted, a comprehensive site investigation report will be completed. The report will include sufficient text, tables, figures, field data, and laboratory reports necessary to support the findings and conclusions. Project work will be supervised by a Stantec Professional Geologist. The report will be submitted to the WDNR. Information collected during the site investigation will be used to determine appropriate response actions.

PROBABLE COST AND SCHEDULE

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 Registered Geologist Geologist/CAD Technician Administrative Aid	1 hour @ \$155/hr 3 hours @ \$108/hr 10 hours @ \$85/hr 1 hours @ \$71/hr	 \$ 155.00 \$ 324.00 \$ 850.00 \$ 71.00
Direct Push Services	Subtotal Subtotal	\$1,400.00 \$800.00
	Cost Category A Total	\$ 2,200.00
WDNR LINKING SPREADSHEET COST CATEGORY B - GROUND	water Investigation	
Consulting Services		
Associate Geologist	2 hour @ \$155/hr	\$ 310.00
Registered Geologist	10 hours @ \$108/hr	\$ 1,080.00
Geologist/CAD Technician	22 hours @ \$85/hr	\$ 1,870.00
Administrative Aid	3 hours @ \$71/hr	<u>\$ 213.00</u>
	Subtotal	\$3,473.00
Well Installation	Subtotal	\$1,500.00
	Cost Category B Total	\$ 4,973.00
WDNR LINKING SPREADSHEET COST CATEGORY E – AIR/VAP	OR INVESTIGATION	
Consulting Services		
Associate Geologist	1 hour @ \$155/hr	\$ 155.00
Registered Geologist	10 hours @ \$108/hr	\$ 1,080.00
Geologist/CAD Technician	22 hours @ \$85/hr	\$ 1,870.00

3 hours @ \$71/hr

Subtotal

213.00

\$3,318.00

\$

Administrative Aid



Equipment		
Helium Detector Rental	1 day @ \$100/day	\$ 100.00
Coring Device Rental	1 day @ \$100/day	\$ 100.00
Vapor Monitoring Point Construction Supplies	6 each @ \$25/each	\$ 150.00
Helium Tank Rental	1 day @ \$65/day	<u>\$ 65.00</u>
	Subtotal	\$ 415.00
	COST CATEGORY E TOTAL	\$3,733.00
WDNR LINKING SPREADSHEET COSTS CATEGORY G - LABORA	ORY ANALYSIS	
Soil VOCs	4 samples @ \$64/each	\$ 256.00
<u>Air VOCs</u>	6 samples @ \$210/each	\$ 1,260.00
<u>Water VOCs</u>	8 samples @ \$64/each	<u>\$ 512.00</u>
	COST CATEGORY G TOTAL	\$ 2,028.00
WDNR LINKING SPREADSHEET COSTS CATEGORY H – MISCELL	ANEOUS COSTS	
Soil and Purge Water Barrel Disposal (3 drums total)		
Consulting Services		
Registered Geologist	1 hours @ \$108/hr	\$ 108.00
Disposal Contractor	3 drums @ \$ 140/drum	<u>\$ 420.00</u>
	COST CATEGORY H TOTAL	\$ 528.00
TOTAL COSTS CATEGORIES A THROUGH H		\$13,462.00

*Note: unit rates for subcontractor services will remain unchanged from previous WDNR approved rates or will be re-bid.

Initial contacts with off-site property owners will be made immediately after approval of this workplan and cost estimate by the WDNR. Scheduling of the onsite work will be dependent upon off-site access approval and may be quite variable. Groundwater sampling will occur less than 2-weeks after the groundwater monitoring well installation. Stantec anticipates the proposed scope of work to be completed within 4-months of WDNR approval of this workplan and cost estimate.

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



Client Approval

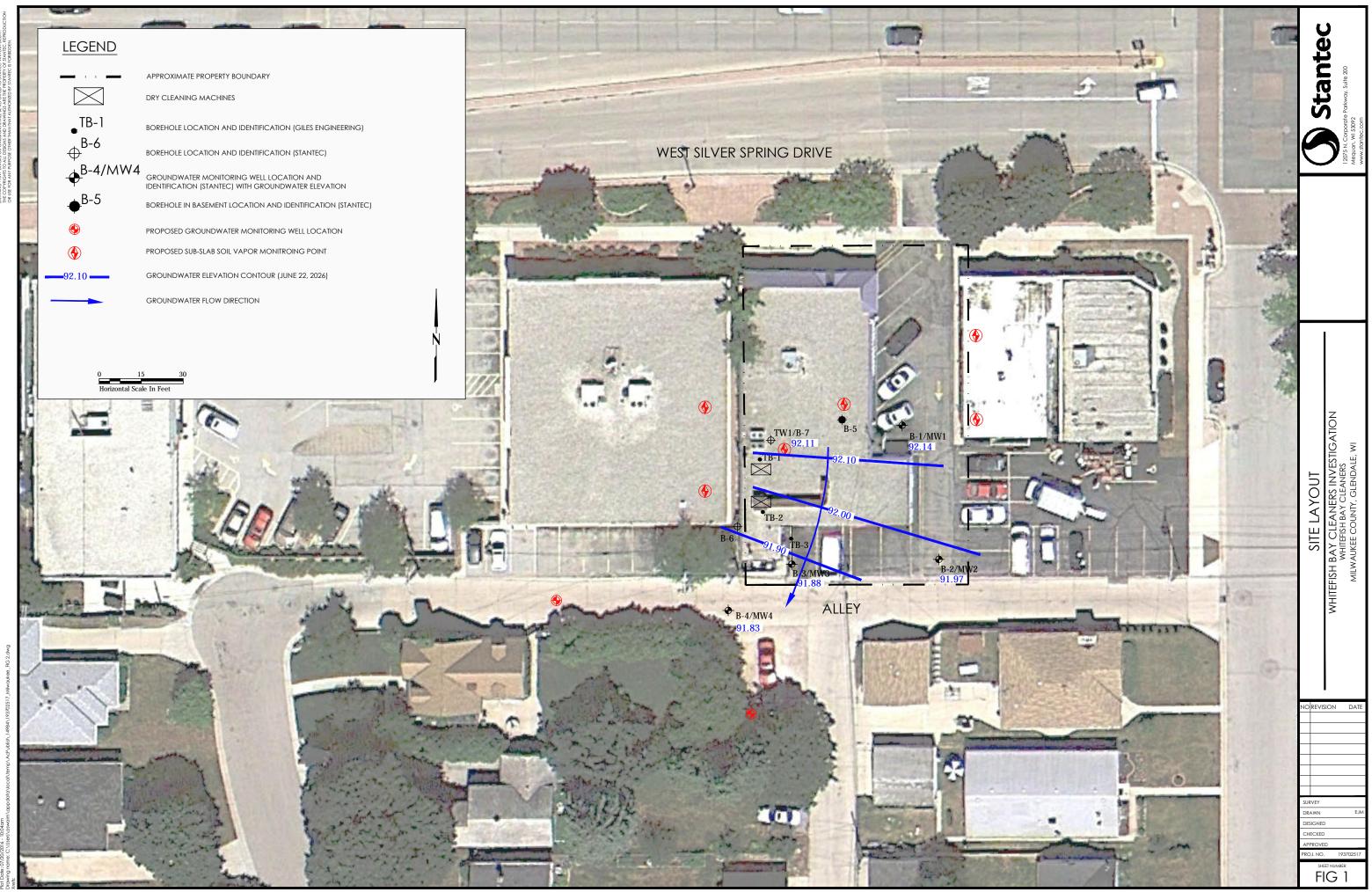
I, Charles Mathers, approve the scope and probable costs presented above.

Signature - Title

7/22/16 Date

Enclosures

c: Charles Mathers, Whitefish Bay Cleaners



			Sample	9			Relevant	and Signi	ficant VC	Cs	
Borehole Number	Number Date Depth (feet below grade) PID Response (iui) PID Response (iui)		cis-1,2- Dichloroethene	trans-1,2- Dichloroethene	Naphthalene	Tetrachloroethene (PCE)	Trichloroethene (TCE)	Vinyl Chloride			
	Non-Indu	strial WDN	R Direct (Contact	RCL	156,000	1.56E+06	5,150	30,700	1,260	67
	WDNR RO	CL for Grou	undwater	Protecti	on**	41.2	58.8	658.2	4.5	3.6	0.10
В1	\$101 \$102 \$103 \$104 \$105 \$106 \$107 \$108	08/27/14	0-2.5 2.5-5 5-7.5 7.5-10 10-12.5 12.5-15 15-17.5 17.5-20	<1 <1 2.1 2.3 2.6 2.2 17.3	sand sand sand sand sand sand sand silty clay	- <7.1 - <6.5 - -	- <14 - <13 - -	- <28 - - 64 "J" - -	- <9.6 - - 33 "J" - -	- <11 - - <9.9 - -	- <6.0 - - <5.5 - -
B2	S201 S202 S203 S204 S205 S206 S207 S208	08/27/14	0-2.5 2.5-5 5-7.5 7.5-10 10-12.5 12.5-15 15-17.5 17.5-20	1.8 1.9 2.4 2.1 1.5 1.2 -	sand sand sand sand sand silty clay silty clay	<7.1 - <7.4 - - -	- <14 - <15 - - -	<28 - <30 - - - -	- 88 - 220 - - - - -	- <11 - <11 - - -	<6.0 - <6.3 - - -
B3	\$301 \$302 \$303 \$304 \$305 \$306 \$307 \$308	08/27/14	0-2.5 2.5-5 5-7.5 7.5-10 10-12.5 12.5-15 15-17.5 17.5-20	14.4 23.2 28.9 14.5 9.2 3.1 2 1.2	sand sand sand silty clay silty clay silty clay silty clay silty clay	<6.7 <7.2 - - - -	<14 <15 - - - -	<27 <29 - - - -	5000 2900 - - - - -	<10 <11 - - - -	<5.6 <6.1 - - -
B4	S401 S402 S403 S404 S405 S406 S407 S408	08/27/14	0-2.5 2.5-5 5-7.5 7.5-10 10-12.5 12.5-15 15-17.5 17.5-20	8.0 6.5 27.1 20.7 78.1 68.2 64.2 50.3	sand sand sand silty clay silty clay silty clay silty clay silty clay	<7.3 - - <7.2 <7.5 - -	<15 - - <15 <15 - - -	<29 - - <29 <30 - -	160 - - 4400 10000 - - -	<11 - <11 <11 - - -	<6.2 - <6.1 <6.3 - -
B5	S501 S502 S503	08/27/14	0-1.5 1.5-3 3-4.5	7.5 3.2 2.0	sand sand silty clay	<6.6 <6.9 -	<13 <14 -	<26 <28 -	800 1300 -	<10 <10 -	<5.6 <5.8 -
B6	\$601 \$602 \$603 \$604 \$605 \$606	08/27/14	0-2 2-4 4-6 6-8 8-10 10-12	1.3 1.4 1.5 <1 <1 4.9	sand sand sand sand sand silty clay	<6.9 - <7.9 - -	<14 - <16 - -	<28 - <32 - - -	130 - 110 - - -	<10 - <12 - - -	<5.8 - <6.7 - -
B7	\$701 \$702 \$703 \$704 \$705 \$706	08/27/14	0-2 2-4 4-6 6-8 8-10 10-12	7.5 3.0 7.0 14.2 9.5 19.9	sand sand sand sand sand sand	<6.0 - - - - <6.8	<12 - - - <14	<24 - - - - <27	1400 - - - - 4900	<9.1 - - - <10	<5.1 - - - <5.8

Table 1: Soil Sample Field Screening and Volatile Organic Compound Laboratory Results Whitefish Bay Cleaners, Glendale, Wisconsin

Notes: WDNR soil RCL Summary table (June 2014) used to establish RCLs for groundwater protection and direct contact.

< x = compound not detected to a detection limit of x

- = not laboratory analyzed

XXX = exceeds WDNR RCL for direct contact risk

XXX = exceeds WDNR RCL for protection of groundwater

					Depth to V			
Well I.D.	Ground Surface Elevation (msl)	Reference Point Elevation (msl)	Top / Bottom Well Screen Elevation (fbg)	Date	Below Reference Point	Below Grade	Water Table Elevation (feet)	
MW1	103.87	103.68	10/20	09/02/14	11.12	11.31	92.56	
				06/22/16	11.54	11.73	92.14	
MW2	102.54	102.16	10/20	09/02/14	9.86	10.24	92.30	
				06/22/16	10.19	10.57	91.97	
MW3	103.19	102.77	10/20	09/02/14	10.43	10.85	92.34	
				06/22/16	10.89	11.31	91.88	
MW4	102.6	102.1	10/20	09/02/14	9.80	10.30	92.30	
				06/22/16	10.27	10.77	91.83	
TW1	103.96	103.83	7/12	09/02/14	11.29	11.42	92.54	
				06/22/16	11.72	11.85	92.11	

Table 2 Water Level Data, Whitefish Bay Cleaners, Glendale, WI

Table 3 Groundwater Monitoring Well Volatile Organic Compound Laboratory Results Whitefish Bay Cleaners, Glendale, WI

					n (feet)	Relavent and Significant Volatile Organic Compounds Concentrations (mircograms per liter)							
Sample Location/ Label	Sample Date	Sampling Company	Laboratory Sample ID	Sample Type	Groundwater Elevation	Dichloroethene, cis- 1,2-	Dichloroethene, trans- 1,2-	Tetrachloroethene (PCE)	Trichloroethene (TCE)	Vinyl chloride			
	NR 14	0, Wis. Adm.	Code PAL ^A		n/v	7	20	0.5	0.5	0.02			
	NR 14	IO, Wis. Adm.	Code ES ^B		n/v	70	100	5	5	0.2			
M\\/1	MW1 09/02/14 STANTEC 500-83412-2		grab	92.56	<1.0	<1.0	150	3.3	<0.50				
	06/22/16	STANTEC 500-113436-1		grab	92.14	<1.0	<1.0	43	< 0.50	< 0.50			
MW2	09/02/14	STANTEC	500-83412-3	grab	92.30	<1.0	<1.0	2.5	<0.50	<0.50			
	06/22/16	STANTEC	500-113436-2	grab	91.97	<1.0	<1.0	3.1	< 0.50	< 0.50			
	09/02/14	STANTEC	500-83412-4	grab	92.34	0.96 J	<1.0	29	5.7	<0.50			
MW3	06/22/16	STANTEC	500-113436-3	grab	91.88	11	<1.0	590	120	<0.50			
	06/22/16	STANTEC			-	10	<1.0	460	100	< 0.50			
	MW4 09/02/14 STANTEC 500-83412-5		grab	92.30	12	<10	9000	20	<5.0				
101004	06/22/16	STANTEC	500-113436-4	grab	91.83	<10	<10	3200	10	<5.0			
TW1	09/02/14	STANTEC	500-83412-1	grab	92.54	<1.0	<1.0	440	1.7	<0.50			
1 VV 1	06/22/16	STANTEC	500-113436-5	grab	92.11	1.2	<1.0	210	12	<0.50			
TRIP BLANK	06/22/16	STANTEC	500-113436-7	Trip Blank	-	<1.0	<1.0	<1.0	< 0.50	<0.50			

Notes:

NR140 Wisconsin Department of Natural Resources

	A	Chapter NR 140, Wisconsin Administrative Code (NR 140, Wis. Adm. Code) preventative action limit (PAL) - Public Health
	В	Chapter NR 140, Wisconsin Administrative Code (NR 140, Wis. Adm. Code) enforcement limit (ES)
_	XXX	exeeds Chapter NR 140, Wisconsin Administrative Code (NR 140, Wis. Adm. Code) preventive action limit (PAL)
	XXX	exceeds NR 140, Wis. Adm. Code enforcement limit (ES)
	15.2	Measured concentration did not exceed the indicated standard.
	<0.03	Analyte was not detected at a concentration greater than the laboratory reporting limit.
	n/v	No standard/quideline value.
	-	Parameter not analyzed / not available.

Standard is applicable to the sum of 1,2,4 and 1,3,5-Trimethylbenzene. The reported result is an estimated value.

s6 J



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

Non-DERF Cost Total INVOICE GRAND TOTAL

TASKS	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	INSERT	Total Invoiced Costs	A Soil Investigation	B Soil Remediation	C Groundwater Investigation	D Groundwater Remediation	E Air/Vapor	F Air/Vapor	G Lab & Other Analysis	H Miscellaneous Costs	Budget Remaining Use (-) to indicate cost over-run	% Task Complete, Remark				
Consultant Costs																					
lask 🦷			\$-							\$-									\$-	Task % Complete	
Additional Soil Boreholes	\$ 1,454.00		\$ 1,454.00							\$-	\$ 1,400.00							\$ 54.00	\$ 1,454.00		
Groundwater Monitoring Well Installation & Generation & Generation & Generation & Generation & Generation & Gene	\$ 3,527.00		\$ 3,527.00							s -			\$ 3,473.00					\$ 54.00	\$ 3,527.00		
apor Investigation	\$ 3,733.00		\$ 3,733.00							\$ -			φ 0,470.00		\$ 3,733.00			φ 04.00	\$ 3,733.00		
apor mooligation	φ 0,700.00		\$ -							\$ -					φ 0,700.00				\$ -		
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Consultant Cost Total	\$ 8,714.00	\$ -	\$ 8,714.00	\$-						\$-									\$ 8,714.00		
Sub-Contractor Costs																					
Vell Driller	\$ 2,300.00		\$ 2,300.00							\$-	\$ 800.00		\$ 1,500.00						\$ 2,300.00		
aboratory	\$ 2,028.00		\$ 2,028.00							\$-							\$ 2,028.00		\$ 2,028.00		
aste Disposal	\$ 420.00		\$ 420.00							\$-								\$ 420.00	\$ 420.00		
			\$-							\$-									\$-		
			\$-							\$-									\$-		
			\$ -		<u> </u>					\$ -									\$ -		
Sick Contractor Cost Total		<u> </u>	\$ -	-						\$-									\$-		
Sub-Contractor Cost Total			\$ 4,748.00							\$-		-							\$ 4,748.00		
DERF ELIGIBLE SUB-TOTALS	\$ 13,462.00	\$ -	\$ 13,462.00	\$-	\$ -	\$-	\$-	\$-	\$-	\$-	\$ 2,200.00	\$-	\$ 4,973.00	\$-	\$ 3,733.00	\$-	\$ 2,028.00	\$ 528.00	\$ 13,462.00		
Non-DERF Eligible Expenses	¥ 13,402.00	Ψ -	¥ 10,402.00			•	•	*	ψ -	•	÷ 2,200.00	*	¥ 4,573.00		¥ 3,133.00	Total DERF E			\$ 13,462.00	I	

\$

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