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July 31, 2019

BRRTS #: 03-04-580236

Janine and Darrin Hahn
South Shore C-Store
14770 Highway 13
Herbster, WI 54844

Dear Mr. and Ms. Hahn:

Enclosed is the report for the Groundwater Sampling Project conducted at the South Shore C-Store property located at 14770 State Highway 13 in Herbster, Wisconsin.

Background Information

This property was a former LUST site (Northland Gas & Supply 03-04-000353) that was started in 1992 and subsequently closed by the WDNR in 2002 with exceedences in soil and groundwater left in place.

On August 30, 2017, two underground petroleum tanks systems were removed from the subject property. MSA Professional Services conducted a Tank System Site Assessment, which included collecting 20 soil samples for laboratory analysis. The results were as follows:

- 1) Seven of the collected soil samples showed no exceedences (S-1, S-4, S-6, S-7, S-8, S-9, S-10).
- 2) Thirteen of the collected soil samples showed Groundwater RCL exceedences (S-2, S-3, S-5, B-1, B-2, B-3, B-4, B-5, B-6, P-1, D-1, D-2, D-3). However, none of these samples showed any other exceedences in soil.

A Soil Data Table is attached.

Per these results, the WDNR sent a letter (dated September 25, 2017) requiring further investigation.

On October 25, 2017, Ron Anderson of METCO and Chris Saari of the WDNR agreed on the following workscope:

- 1) Install four temp wells and collect one round of groundwater samples from each well (along with the private well) for laboratory analysis (PVOC/Napththalene). The temp wells are to be located near the former pump islands, near the former UST's and in the down-gradient groundwater flow direction. No addition soil samples need to be collected as per the twenty soil samples collected during the tank removal.
- 2) Compare the new groundwater results with the concentrations that existed with the previous LUST site (Northland Gas & Supply 03-04-000353) was closed in 2002.
- 3) Prepare a Letter Report of the results.

Groundwater Sampling Project

On July 9, 2019, METCO used a Geoprobe to install four 1" temp wells to a depth 12 feet bgs (with 10-foot screens) in the predetermined locations. The temp wells were labeled TW-1, TW-2, TW-3, and TW-4.

The temp wells were located as follows:

- TW-1 = Area of the former pump islands/piping.
- TW-2 = Area of the former UST's.
- TW-3 = Down-gradient groundwater flow (to the northeast)
- TW-4 = Down-gradient groundwater flow (to the north)

The native soil consisted of a tight brown to red clay. Brown fill sand was also found in temp wells TW-1 and TW-2. No petroleum odors or staining were noticed in any of the soil.

On July 15, 2019, METCO collected groundwater samples from TW-1, TW-2, TW-3, and the private well (PW-1). A groundwater sample could not be collected from TW-4 as there was no water yet in the well due to the tight clay soils. No petroleum odors or sheens were noticed in any of the groundwater samples.

The measured depth to groundwater was as follows:

- TW-1 = 2.75 feet bgs.
- TW-2 = 2.40 feet bgs.
- TW-3 = 10.62 feet bgs.
- TW-4 = N/A

Groundwater Laboratory Results

TW-1 = No laboratory detections.

TW-2 = ES exceedance for Trimethylbenzenes (865 ppb) and PAL exceedance for Naphthalene (51 ppb).

TW-3 = No exceedences.

TW-4 = Groundwater sample could not be collected.

PW-1 = No laboratory detections.

A Groundwater Data Table and Laboratory Report are attached...as well as a Site Map.

Conclusions/Recommendations

METCO recommends that this site be granted a “No Action Required” status for the following reasons:

- 1) Although several low-level exceedences currently exist in the local soils and groundwater, they are many times lower in concentration than existed when the previous LUST site was closed by the WDNR in 2002. Thus, these existing exceedences are likely due to the previous contaminant plume and are not due to a new release from the recently removed UST systems.
- 2) Considering the existing low-level concentrations in soil/groundwater and the local geology (tight clays), it is unlikely that any of the remaining soil/groundwater exceedences could mobilize at a significant concentration to pose any risks.

If you have any questions, please feel free to call (608-781-8879) or email at rona@metcohq.com.

Sincerely,



Ronald J. Anderson PG
Senior Hydrogeologist

c: Chris Saari – DNR



LEGEND

- B-1 ● TANK SAMPLE LOCATION
- D-1 □ DISPENSER LOCATION
- S-1 ● SIDEWALL SAMPLE LOCATION

**Figure 2
Site Plan View**

SOUTH SHORE C-STORE
14770 STATE HIGHWAY 13
HERBSTER, WISCONSIN

MSA ARCHITECTURE | ENGINEERING | ENVIRONMENTAL
FUNDING | PLANNING | SURVEYING
332 W Superior Street #600 Duluth, MN 55802
(218) 722-3915 (800) 777-7300
www.msa-ps.com
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DRAWN BY JAS	DATE 9/7/2017	SHEET NO. F2
CHECKED BY EAK	SCALE 1" = 20'	FILE NO. 18764001

Soil Analytical Results Table from Tank System Site Assessment by MSA
 South Shore C Store BRRTS #03-04-580236

Sample ID	Depth (feet)	Saturation U/S	Date	PID	Benzene (ppm)	Ethyl Benzene (ppm)	MTBE (ppm)	Naphthalene (ppm)	Toluene (ppm)	1,2,4-Trime-thylbenzene (ppm)	1,3,5-Trime-thylbenzene (ppm)	Xylene (Total) (ppm)
S-1	4		08/30/17	4	<0.0294	<0.0294	<0.0588	<0.294	<0.294	<0.0588	<0.0588	<0.088
S-2	4		08/30/17	29.30	<0.0343	<0.0343	0.0716	<0.343	<0.343	0.116	<0.0687	0.0910
S-3	4		08/30/17	1406	0.0287	0.425	0.101	0.304	0.594	5.86	1.87	5.71
S-4	4		08/30/17	10.9	<0.0291	<0.0291	<0.0581	<0.291	<0.291	0.0676	<0.0581	<0.0872
S-5	4		08/30/17	58.4	<0.0300	<0.0300	0.0603	<0.300	<0.300	<0.0601	<0.0601	<0.0901
S-6	4		08/30/17	0.2	<0.0335	<0.0335	<0.0671	<0.335	<0.335	<0.0671	<0.0671	<0.1006
S-7	4		08/30/17	0.3	<0.0307	<0.0307	<0.0614	<0.307	<0.307	<0.0614	<0.0614	<0.0921
S-8	4		08/30/17	0.4	<0.0302	<0.0302	<0.0603	<0.302	<0.302	<0.0603	<0.0603	<0.0905
S-9	4		08/30/17	3.1	<0.0263	<0.0263	<0.0525	<0.263	<0.263	<0.0525	<0.0525	<0.0788
S-10	4		08/30/17	1.8	<0.0261	<0.0261	<0.0523	<0.261	<0.261	<0.0523	<0.0523	<0.0784
B-1	6		08/30/17	1727	0.153	1.85	<0.124	3.91	0.800	78.3	18.5	61.7
B-2	6		08/30/17	1059	<0.0628	<0.0628	<0.126	<0.628	<0.628	1.28	0.584	0.872
B-3	6		08/30/17	208.4	<0.0383	0.402	0.106	<0.383	<0.383	4.62	5.82	1.515
B-4	6		08/30/17	0.3	<0.0288	<0.0288	0.0634	<0.288	<0.288	<0.0577	<0.0577	<0.0865
B-5	6		08/30/17	1.4	<0.0262	<0.0262	0.0660	<0.262	<0.262	<0.0525	<0.0525	0.0787
B-6	6		08/30/17	0.6	<0.0261	<0.0261	0.0526	<0.261	<0.261	<0.0521	<0.0521	<0.0782
P-1	4		08/30/17	0.4	<0.0263	<0.0263	0.0605	<0.263	<0.263	<0.0527	<0.0527	<0.0790
D-1	4		08/30/17	1.1	<0.0302	<0.0302	0.0678	<0.302	<0.302	<0.0605	<0.0605	<0.0907
D-2	4		08/30/17	24.4	<0.0308	<0.0308	<0.0617	0.695	<0.308	<0.0617	<0.0617	<0.0925
D-3	4		08/30/17	0.4	<0.0307	<0.0307	0.0760	<0.307	<0.37	<0.0615	<0.0615	<0.0922
Groundwater RCL					0.0051	1.57	0.027	0.6582	1.1072	1.3787		3.96
Non-Industrial Direct Contact RCL					1.6	8.02	63.8	5.52	818	219	182	260
Industrial Direct Contact RCL					(7.07)	(35.4)	(282)	(24.1)	(818)	(219)	(182)	(260)
Soil Saturation Concentration (C-sat)*					1820*	480*	8870*	-	818*	219*	182*	260*

Bold = Groundwater RCL Exceedance

Bold & Underline = Non Industrial Direct Contact RCL U=UNSATURATED (BASED ON ALL TIME LOW WATER TABLE PER WDNR)

(Bold & Parentheses) = Industrial Direct Contact RCL S=SATURATED (BASED ON ALL TIME LOW WATER TABLE PER WDNR)

Bold & Asteric * = C-sat Exceedance

NS = Not Sampled

NM = Not Measured

(ppm) = parts per million

ND = No Detects

DRO = Diesel Range Organics

GRO = Gasoline Range Organics

PID = Photoionization Detector

PVOC's = Petroleum Volatile Organic Compounds

VOC's = Volatile Organic Compounds

Note: Non-Industrial RCLs apply to this site.

A.1 Groundwater Analytical Table

(Geoprobe)

South Shore C Store BRRTS #03-04-580236

Sample ID	Date	Benzene (ppb)	Ethyl-benzene (ppb)	MTBE (ppb)	Naphthalene (ppb)	Toluene (ppb)	Trimethyl-benzenes (ppb)	Xylene (Total) (ppb)
TW-1	7/15/2019	<0.22	<0.26	<0.28	<2.1	<0.19	<1.43	<0.79
TW-2	7/15/2019	0.27	42	<0.28	51	0.84	865	309
TW-3	7/15/2019	0.42	<0.26	<0.28	<2.1	<0.19	<1.43	<0.79
TW-4	7/15/2019	NO WATER IN TEMP WELL						
PW-1	7/15/2019	<0.22	<0.26	<0.28	<2.1	<0.19	<1.43	<0.79
ENFORCEMENT STANDARD ES = Bold		5	700	60	100	800	480	2000
<i>PREVENTIVE ACTION LIMIT PAL = Italics</i>		<i>0.5</i>	<i>140</i>	<i>12</i>	<i>10</i>	<i>160</i>	<i>96</i>	<i>400</i>

NS = Not Sampled

(ppb) = parts per billion

(ppm) = parts per million

DRO = Diesel Range Organics

GRO = Gasoline Range Organics

Synergy Environmental Lab,

1990 Prospect Ct., Appleton, WI 54914 *P 920-830-2455 * F 920-733-0631

RON ANDERSON
METCO
709 GILLETTE ST
LA CROSSE, WI 54603-2382

Report Date 25-Jul-19

Project Name SOUTH SHORE C-STORE
Project #

Invoice # E36489

Lab Code 5036489A
Sample ID TW-1
Sample Matrix Water
Sample Date 7/15/2019

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
PVOC + Naphthalene										
Benzene	< 0.22	ug/l	0.22	0.71	1	8260B		7/19/2019	CJR	1
Ethylbenzene	< 0.26	ug/l	0.26	0.83	1	8260B		7/19/2019	CJR	1
Methyl tert-butyl ether (MTBE)	< 0.28	ug/l	0.28	0.89	1	8260B		7/19/2019	CJR	1
Naphthalene	< 2.1	ug/l	2.1	6.65	1	8260B		7/19/2019	CJR	1
Toluene	< 0.19	ug/l	0.19	0.6	1	8260B		7/19/2019	CJR	1
1,2,4-Trimethylbenzene	< 0.8	ug/l	0.8	2.55	1	8260B		7/19/2019	CJR	1
1,3,5-Trimethylbenzene	< 0.63	ug/l	0.63	2	1	8260B		7/19/2019	CJR	1
m&p-Xylene	< 0.43	ug/l	0.43	1.38	1	8260B		7/19/2019	CJR	1
o-Xylene	< 0.29	ug/l	0.29	0.93	1	8260B		7/19/2019	CJR	1

Project

Lab Code 5036489B
 Sample ID TW-2
 Sample Matrix Water
 Sample Date 7/15/2019

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
PVOC + Naphthalene										
Benzene	0.27 "J"	ug/l	0.22	0.71	1	8260B	7/19/2019	7/19/2019	CJR	1
Ethylbenzene	42	ug/l	0.26	0.83	1	8260B	7/19/2019	7/19/2019	CJR	1
Methyl tert-butyl ether (MTBE)	< 0.28	ug/l	0.28	0.89	1	8260B	7/19/2019	7/19/2019	CJR	1
Naphthalene	51	ug/l	2.1	6.65	1	8260B	7/19/2019	7/19/2019	CJR	1
Toluene	0.84	ug/l	0.19	0.6	1	8260B	7/19/2019	7/19/2019	CJR	1
1,2,4-Trimethylbenzene	740	ug/l	8	25.5	10	8260B	7/20/2019	7/20/2019	MJR	1
1,3,5-Trimethylbenzene	125	ug/l	0.63	2	1	8260B	7/19/2019	7/19/2019	CJR	1
m&p-Xylene	258	ug/l	0.43	1.38	1	8260B	7/19/2019	7/19/2019	CJR	1
o-Xylene	51	ug/l	0.29	0.93	1	8260B	7/19/2019	7/19/2019	CJR	1

Lab Code 5036489C
 Sample ID TW-3
 Sample Matrix Water
 Sample Date 7/15/2019

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
PVOC + Naphthalene										
Benzene	0.42 "J"	ug/l	0.22	0.71	1	8260B	7/24/2019	7/24/2019	MJR	1
Ethylbenzene	< 0.26	ug/l	0.26	0.83	1	8260B	7/24/2019	7/24/2019	MJR	1
Methyl tert-butyl ether (MTBE)	< 0.28	ug/l	0.28	0.89	1	8260B	7/24/2019	7/24/2019	MJR	1
Naphthalene	< 2.1	ug/l	2.1	6.65	1	8260B	7/24/2019	7/24/2019	MJR	1
Toluene	< 0.19	ug/l	0.19	0.6	1	8260B	7/24/2019	7/24/2019	MJR	1
1,2,4-Trimethylbenzene	< 0.8	ug/l	0.8	2.55	1	8260B	7/24/2019	7/24/2019	MJR	1
1,3,5-Trimethylbenzene	< 0.63	ug/l	0.63	2	1	8260B	7/24/2019	7/24/2019	MJR	1
m&p-Xylene	< 0.43	ug/l	0.43	1.38	1	8260B	7/24/2019	7/24/2019	MJR	1
o-Xylene	< 0.29	ug/l	0.29	0.93	1	8260B	7/24/2019	7/24/2019	MJR	1

Lab Code 5036489D
 Sample ID PW-1
 Sample Matrix Water
 Sample Date 7/15/2019

	Result	Unit	LOD	LOQ	Dil	Method	Ext Date	Run Date	Analyst	Code
Organic										
PVOC + Naphthalene										
Benzene	< 0.22	ug/l	0.22	0.71	1	8260B	7/24/2019	7/24/2019	MJR	1
Ethylbenzene	< 0.26	ug/l	0.26	0.83	1	8260B	7/24/2019	7/24/2019	MJR	1
Methyl tert-butyl ether (MTBE)	< 0.28	ug/l	0.28	0.89	1	8260B	7/24/2019	7/24/2019	MJR	1
Naphthalene	< 2.1	ug/l	2.1	6.65	1	8260B	7/24/2019	7/24/2019	MJR	1
Toluene	< 0.19	ug/l	0.19	0.6	1	8260B	7/24/2019	7/24/2019	MJR	1
1,2,4-Trimethylbenzene	< 0.8	ug/l	0.8	2.55	1	8260B	7/24/2019	7/24/2019	MJR	1
1,3,5-Trimethylbenzene	< 0.63	ug/l	0.63	2	1	8260B	7/24/2019	7/24/2019	MJR	1
m&p-Xylene	< 0.43	ug/l	0.43	1.38	1	8260B	7/24/2019	7/24/2019	MJR	1
o-Xylene	< 0.29	ug/l	0.29	0.93	1	8260B	7/24/2019	7/24/2019	MJR	1

Project Name SOUTH SHORE C-STORE

Invoice # E36489

Project #

"J" Flag: Analyte detected between LOD and LOQ

LOD Limit of Detection

LOQ Limit of Quantitation

Code *Comment*

1 Laboratory QC within limits.

All solid sample results reported on a dry weight basis unless otherwise indicated. All LOD's and LOQ's are adjusted for dilutions but not dry weight. Subcontracted results are denoted by SUB in the analyst field.

Authorized Signature

Michael Ricker

