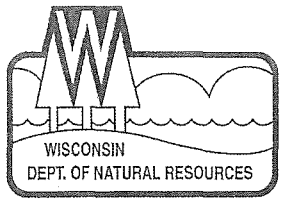
State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
2300 N. Dr. Martin Luther King, Jr. Drive
Milwaukee WI 53212-3128

Scott Walker, Governor
Cathy Stepp, Secretary
Telephone 608-266-2621
Toll Free 1-888-936-7463
TTY Access via relay - 711



August 31, 2017

Whitefish Bay Cleaners
Attn: Mr. Charles Mathers
419 West Silver Spring Drive
Glendale, WI 53217

Subject: Workplan and Cost Estimate - Additional Investigation, Whitefish Bay Cleaners, 419 West Silver Spring Drive, Glendale, WI

FID: 241246060
BRRTS: 02-41-550821

Dear Mr. Mathers:

The Wisconsin Department of Natural Resources ("DNR") has review the Workplan and Cost Estimate Additional Investigation for the subject site as submitted by Stantec Consulting Services, Inc. (Stantec) on July 20, 2016. This was in response to the DNR's email dated June 7, 2016 (see attached) that recommended a utility evaluation, subslab and indoor air sampling of residences and commercial buildings, and installation of additional NR 141 groundwater monitoring wells.

The Stantec July 20th proposal concentrated on the following (see attached map Figure 1):

- Evaluate Buried Utility Corridors
- Complete Additional Soil Investigation: two soil boring locations south and west of the site.
- Complete Additional Groundwater Investigation: the two soil boring locations would be converted into NR 141 groundwater monitoring wells. Then all wells associated with the site would be sampled.
- Sub-Slab Vapor Monitoring Point Installation and Sampling: six sub-slab sample points in three commercial buildings.
- Analyze, Tabulate, and Evaluate Results

Site Discussion

The DNR reviewed the 2014 soil/groundwater and 2016 groundwater sample results. Generally, there is a subsurface sand component in the soil profile that extends from zero to ten, 15 and 17 feet below ground surface (bgs), see attached Table 1. Below this layer is a continuous silty clay layer to 20 feet bgs. Fluids, in this case tetrachloroethene (PCE), will flow through the sand layer faster until it encounters the silty clay layer, at which point, the PCE will laterally disperse over a wider area faster than vertically. This is evident when comparing the groundwater results for PCE in groundwater monitoring well MW-3 (590 ppb) that is less than the concentration in downgradient well MW-4 (3,200 ppb), suggesting that the groundwater contamination plume has higher concentrations south-southwest from the drycleaner site (see Figure 1).

Although the latest site investigation proposal includes additional soil, groundwater, and subslab vapor sampling, the DNR has concerns that there is a higher vapor intrusion risk for the residences located at 5070 and 5576 North Iroquois Avenue and 5575 and 5579 North Mohawk Avenue due to groundwater PCE concentrations in groundwater monitoring wells MW-4 and MW-2, and the close proximity of these residences to these wells.

Therefore, the scope-of-work (SOW) should be revised as follows:

1. In order to protect human health at these residences from the potential risk for vapor intrusion of PCE into the homes, subslab and indoor air will have to be investigated immediately as a priority before the

commercial sites to either rule out or verify the presence of PCE vapors at these locations. If vapor results indicate a vapor risk to the residences, vapor mitigation systems are required to be installed immediately.

2. Or, both the residential and commercial sites may be investigated for vapor intrusion at the same time.

3. The NR 141 groundwater monitoring well located approximately 30+ feet south of MW-4, should be relocated to a point in the alleyway approximately 75 to 100-feet south of MW-4 to further define the degree and extent of the groundwater contamination plume (see Figure 1).

4. Section NR 141.065(2), Wisconsin Administrative Code (WAC), requires that the top of the well casing be referenced to the nearest benchmark for the national geodetic survey datum to an accuracy of 0.01 feet as required in Section NR 716.13(15), WAC. Surveying the well network to this datum must be included in the scope-of-work plan to accurately account for groundwater elevations fluctuations and interpretation of groundwater flow directions.

5. Evaluate Buried Utility Corridors: no changes

6. Complete Additional Soil Investigation: no changes, as this task is in conjunction with the installation of the two ch. NR 141, WAC, groundwater monitoring wells.

The revisions may add additional costs to the proposed additional site investigation. Please have your consultant submit a revised SOW plan that includes Items #1 through #4 above, and any adjustments to the costs. Additional site investigation may be required depending on the results from this SOW. The Department will require installation and sampling of one or more piezometers in order to determine the vertical extent of groundwater contamination that is required in a ch. NR 716, WAC, site investigation.

The Department appreciates the actions you have taken to investigate the contamination at this site. If you have any questions or comments, please feel free to contact me at the above address or at (414) 263-8644. Please refer to the FID number at the top of this letter in any future correspondence. Future correspondence should be sent directly to the Remediation and Redevelopment Environmental Program Assistant Chue Yee Yang (414-263-8366) at the above address.

Sincerely,

John J. Hnat, P.G., C.P.G.
Project Manager\Hydrogeologist
Southeast Region
Remediation and Redevelopment Program

Attachments:

- Email to Chris Hatfield, dated June 7, 2016
- Draft Site Layout Map, Figure 1, Whitefish Bay Cleaners Investigation, Stantec
- Table 1: Soil Sample Field Screening and Volatile Organic Compound Laboratory Results Whitefish Bay Cleaners, Glendale, Wisconsin, dated May 25, 2016

C: Chris Hatfield – Stantec Consulting Services, Inc.
WDNR SER Files

Hnat, John J - DNR

From: Hnat, John J - DNR
Sent: Tuesday, June 07, 2016 2:19 PM
To: 'Hatfield, Chris'
Subject: RE: Whitefish Bay Cleaners DERF Site (BRRTS #02-41-550821)

FID 241246060

Chris,

I've discussed your proposal with our internal peer group. They suggested that another round or two of groundwater sampling be completed since it's been ~two years since the last just to confirm what's in the wells and if anything is increasing or decreasing in concentrations. On suggestions moving forwarding, considering Guidance RR 649 (Utility Investigations), RR 800 (Addressing Vapor Intrusion), and RR 986 (Subslab Vapor Sampling), future investigation must include the following either in a step process, or all at once (see attached map):

- Find out if there's utilities along the east-west and north-south alleyways. If so, do an evaluation for groundwater and vapor migration. Do the utilities intersect the groundwater, sampling along the utilities, etc.
- Subslab in the basement or foundation and indoor air located at buildings #403 and #407, east of site (commercial pet palace)
- Subslab and indoor air for #429 west of site (commercial bedding store)
- Subslab and indoor air for residential houses located at #5576, #5070, #5579, and #5575
- An outdoor air sample if and when subslab and indoor air sampling is completed
- Additional GW monitoring west of #429 in the parking lot
- Additional GW monitoring in the parking lot for #403 and #407
- Your well locations circled in yellow are fine

It's up to the RP and you to decide what to do next. Because of the sand zone from 0 to ~13 feet, I suspect migration south and west of the site. There has been a number of offsite exemptions for chlorinated solvents west of the site and across the street at Bayshore Mall in the past. Defining the degree and extent and vapor migration potential is probably the most important at this time. Especially, for the first two residences south of the site and commercial buildings where people work and conduct business (exposure).

If finances are a hindrance, then a step process would be in order. I would suggest concentrating on potential vapor problems subslab and indoor air for the residences and commercial buildings for the protection of human health.

I hope this helps. Call if you need additional assistance.

J. Hnat, C.P.G, P.G.
Project Manager/Hydrogeologist
Remediation and Redevelopment Program
Southeast Region Headquarters
Wisconsin Department of Natural Resources
(☎) phone: (414) 263-8644
(☎) fax: (414) 263-8550
(✉) e-mail: John.Hnat@wisconsin.gov

We are committed to service excellence. Click here to evaluate how I did.

Charlie,

Attached is a map showing your site, where we installed soil boreholes (red squares) and groundwater monitoring wells (blue dots). The yellow dots representative tentative locations of additional monitoring wells. These locations were based on previous results and accessibility. Also attached are the summary tables of soil and groundwater sampling data. I will call you to discuss as I need your input regarding possible well locations.

Thanks

Chris Hatfield, PG
Senior Geologist
Stantec
12075 Corporate Parkway Suite 200 Mequon WI 53092-2649
Phone: (262) 643-9171
Cell: (414) 687-3640
Fax: (262) 241-8222
Chris.Hatfield@stantec.com

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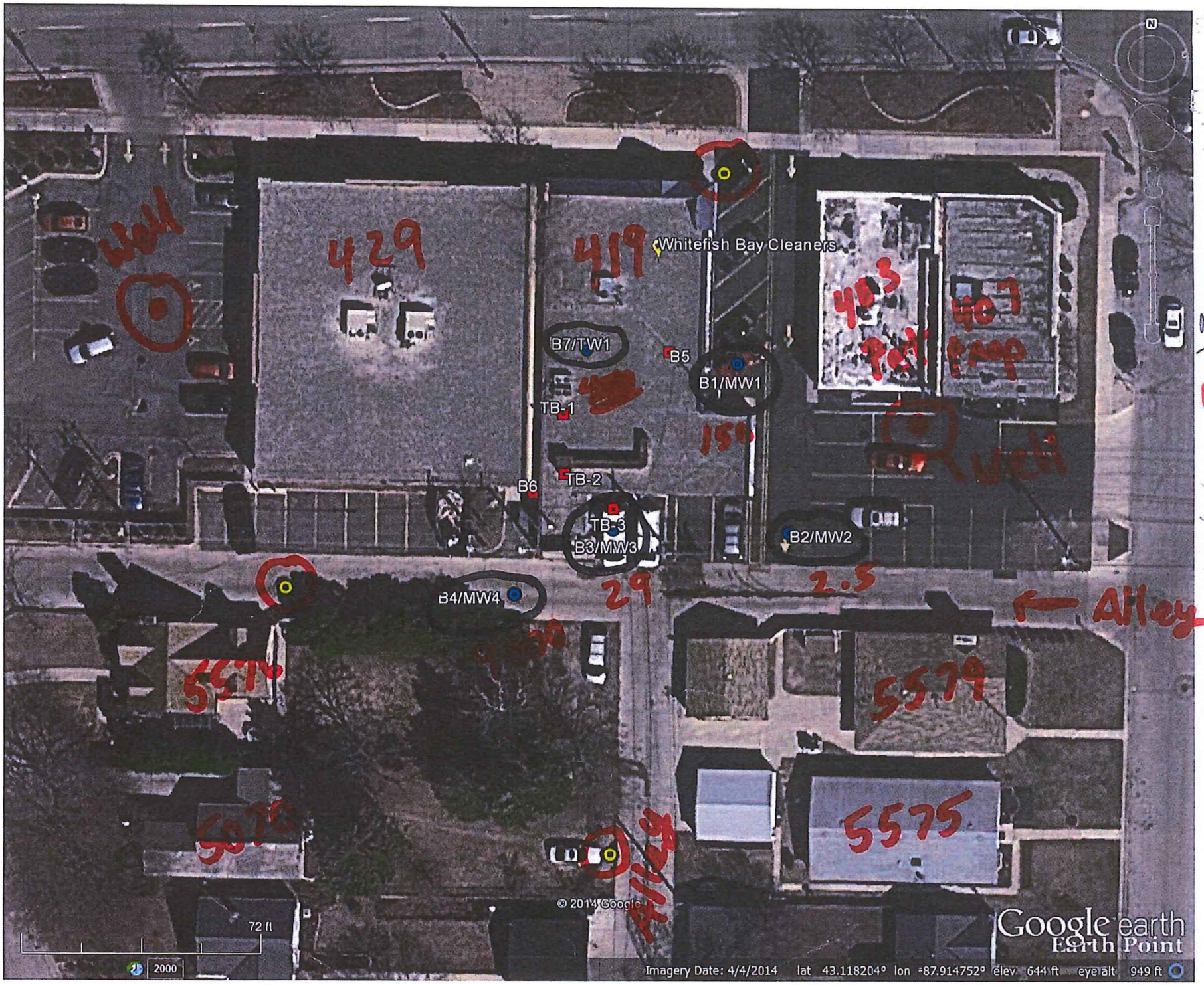
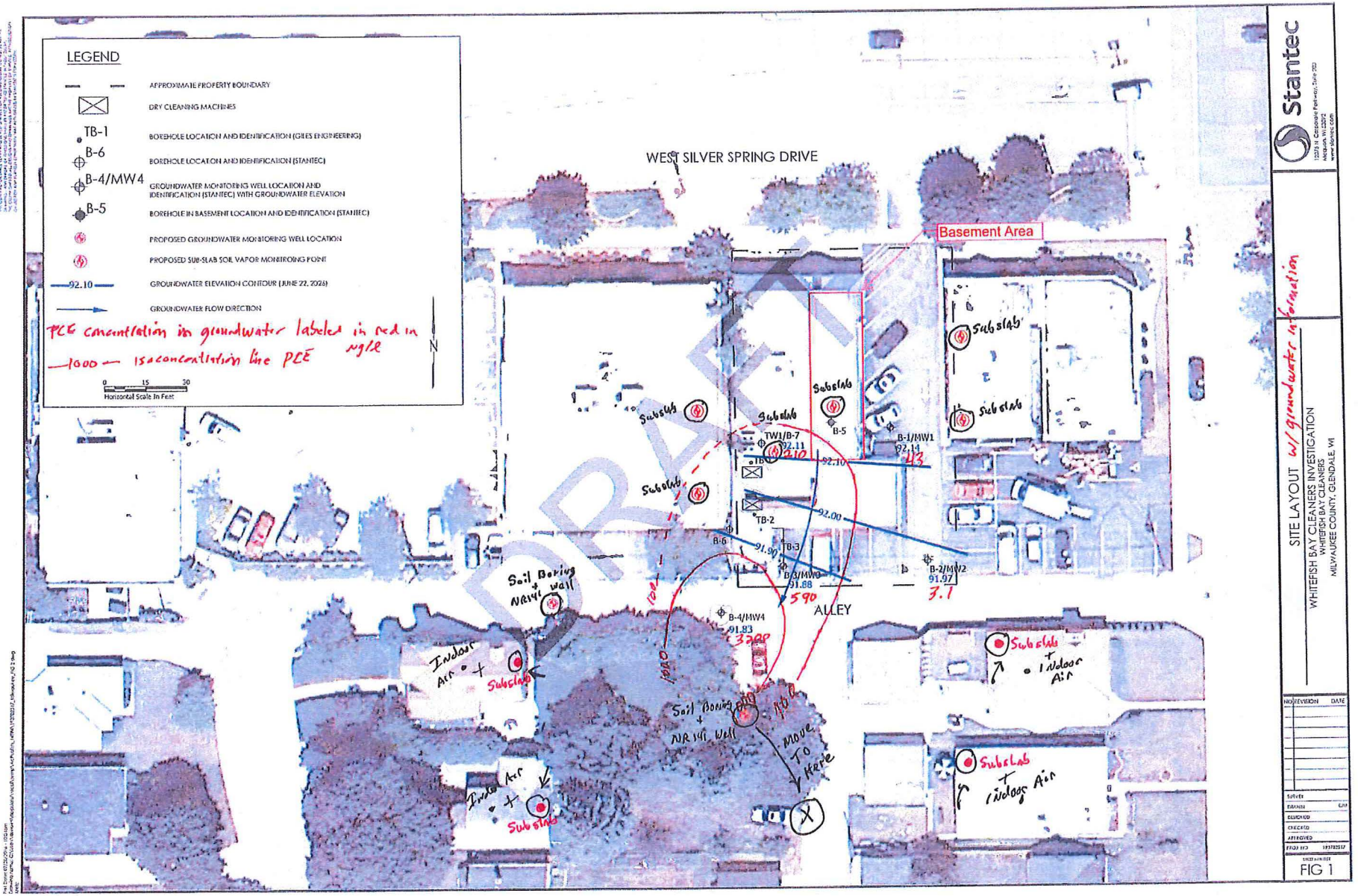


Whitefish Bay Cleaners Sample Locations May 2016.jpg



Stantec

SITE LAYOUT w/ groundwater information

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

NO.	REVISION	DATE

DESIGN
DRAWN
CHECKED
APPROVED
PROJECT NO. 193702517

FIG 1

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

Borehole Number	Sample					Relevant and Significant VOCs					
	Number	Date	Depth (feet below grade)	PID Response (ppm)	Description	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	Naphthalene	Tetrachloroethene (PCE)	Trichloroethene (TCE)	Vinyl Chloride
Non-Industrial WDNR Direct Contact RCL						156,000	1.56E+06	5,150	30,700	1,260	67
WDNR RCL for Groundwater Protection**						41.2	58.8	658.2	4.5	3.6	0.10
B1	S101	08/27/14	0-2.5	<1	sand	-	-	-	-	-	-
	S102		2.5-5	<1	sand	<7.1	<14	<28	<9.6	<11	<6.0
	S103		5-7.5	<1	sand	-	-	-	-	-	-
	S104		7.5-10	2.1	sand	-	-	-	-	-	-
	S105		10-12.5	2.3	sand	<6.5	<13	64 "J"	33 "J"	<9.9	<5.5
	S106		12.5-15	2.6	sand	-	-	-	-	-	-
	S107		15-17.5	2.2	sand	-	-	-	-	-	-
	S108		17.5-20	17.3	silty clay	-	-	-	-	-	-
B2	S201	08/27/14	0-2.5	1.8	sand						
	S202		2.5-5	1.9	sand	<7.1	<14	<28	88	<11	<6.0
	S203		5-7.5	2.4	sand	-	-	-	-	-	-
	S204		7.5-10	2.1	sand	<7.4	<15	<30	220	<11	<6.3
	S205		10-12.5	1.5	sand	-	-	-	-	-	-
	S206		12.5-15	1.2	sand	-	-	-	-	-	-
	S207		15-17.5	-	silty clay	-	-	-	-	-	-
	S208		17.5-20	-	silty clay	-	-	-	-	-	-
B3	S301	08/27/14	0-2.5	14.4	sand						
	S302		2.5-5	23.2	sand	<6.7	<14	<27	5000	<10	<5.6
	S303		5-7.5	28.9	sand	<7.2	<15	<29	2900	<11	<6.1
	S304		7.5-10	14.5	sand	-	-	-	-	-	-
	S305		10-12.5	9.2	silty clay	-	-	-	-	-	-
	S306		12.5-15	3.1	silty clay	-	-	-	-	-	-
	S307		15-17.5	2	silty clay	-	-	-	-	-	-
	S308		17.5-20	1.2	silty clay	-	-	-	-	-	-
B4	S401	08/27/14	0-2.5	8.0	sand	<7.3	<15	<29	160	<11	<6.2
	S402		2.5-5	6.5	sand	-	-	-	-	-	-
	S403		5-7.5	27.1	sand	-	-	-	-	-	-
	S404		7.5-10	20.7	sand	<7.2	<15	<29	4400	<11	<6.1
	S405		10-12.5	78.1	silty clay	<7.5	<15	<30	10000	<11	<6.3
	S406		12.5-15	68.2	silty clay	-	-	-	-	-	-
	S407		15-17.5	64.2	silty clay	-	-	-	-	-	-
	S408		17.5-20	50.3	silty clay	-	-	-	-	-	-
B5	S501	08/27/14	0-1.5	7.5	sand	<6.6	<13	<26	800	<10	<5.6
	S502		1.5-3	3.2	sand	<6.9	<14	<28	1300	<10	<5.8
	S503		3-4.5	2.0	silty clay	-	-	-	-	-	-
B6	S601	08/27/14	0-2	1.3	sand	<6.9	<14	<28	130	<10	<5.8
	S602		2-4	1.4	sand	-	-	-	-	-	-
	S603		4-6	1.5	sand	<7.9	<16	<32	110	<12	<6.7
	S604		6-8	<1	sand	-	-	-	-	-	-
	S605		8-10	<1	sand	-	-	-	-	-	-
	S606		10-12	4.9	silty clay	-	-	-	-	-	-
B7	S701	08/27/14	0-2	7.5	sand	<6.0	<12	<24	1400	<9.1	<5.1
	S702		2-4	3.0	sand	-	-	-	-	-	-
	S703		4-6	7.0	sand	-	-	-	-	-	-
	S704		6-8	14.2	sand	-	-	-	-	-	-
	S705		8-10	9.5	sand	-	-	-	-	-	-
	S706		10-12	19.9	sand	<6.8	<14	<27	4900	<10	<5.8

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