THE SIGMA GROUP
Single Source. Sound Solutions.

May 29, 2013

Project Reference #10724

Mr. David Hansen
Administrative Assistant
Wisconsin Dept. of Natural Resources
2300 N. Dr. Martin Luther King Jr. Drive
Milwaukee, WI 53212-3128

RE: Technical Meeting fee
Superior Health Linens
5005 South Packard Avenue
Cudahy, Wisconsin

FID #241780880
BRRTS #02-41-532649

Dear Mr. Hansen:

Enclosed is a check in the amount of $500 for our technical meeting with Michelle Norman held Wednesday May 8, 2013. If you have any questions, comments or need additional information, please feel free to contact us at (414) 643-4200.

Sincerely,

THE SIGMA GROUP, INC.

Kristin K. Kurzka, P.E.
Senior Engineer

Enclosure

THE SIGMA GROUP
Single Source. Sound Solutions.

October 19, 2012 Project Reference #10724

Mr. Andrew Boettcher
Wisconsin Dept. of Natural Resources
2300 Dr. Martin Luther King Jr. Drive
Milwaukee, WI 53212

Subject: Remedial Approach Documentation
Superior Health Linens
Cudahy, Wisconsin

Dear Mr. Boettcher:

This letter has been prepared to memorialize the mutually agreed upon remedial approach to be implemented at the Superior Health Linens, Cudahy, Wisconsin site as discussed in our July 24, 2012 meeting. Specifically, we discussed actions to be taken at the property to address existing risks present as a result of the historic release of chlorinated volatile organic compounds (CVOCs) on the Superior Health Linens site and an adjacent property.

SITE CONDITIONS

In general, shallow CVOC soil impacts are present at and around groundwater monitoring wells MW-3 and MW-5 within the southwest corner of the site at concentrations greater than regulatory standards which pose a risk for direct contact and threat to groundwater. In addition, groundwater impacts are present within the soil impact area, extending down-gradient in the direction of shallow groundwater flow below the building to the north east. Details regarding site conditions as determined through the most recent site investigation activities completed in (November and December 2010 and March 2011) follow:

- One monitoring well and double-cased piezometer nest was installed within the northeastern portion of the site to assess down-gradient groundwater quality.
- One double-cased piezometer was installed near groundwater monitoring well MW-5 to assess the potential for deep groundwater impacts originating from off-site.
- One groundwater monitoring well was installed near the northwest corner of the site to further assess the northern extent of groundwater impacts.
- Groundwater elevation measurements were collected from the existing groundwater monitoring wells.
- Two rounds of groundwater samples were collected from the entire groundwater monitoring well network (December 23, 2010 and March 17, 2011). The groundwater samples were submitted for laboratory analysis of volatile organic compounds (VOCs).

- The elevations and horizontal positions of the newly installed groundwater monitoring wells and piezometers were surveyed to mean sea level (MSL) and the State Plane Coordinate System.

- Approximately twenty 55-gallon drums of soil (14 from recent drilling, 6 from previous investigation activities) and six 55-gallons drums of purge/drilling water (4 from recent drilling and 2 from previous groundwater sampling activities) were properly disposed of.

Well Installation, Development and Surveying. The additional monitoring wells and piezometers were installed on November 15 through 17, 2010. Soil Boring Logs summarizing well boring data and observations are included as ***Appendix A***, and Monitoring Well Construction Forms documenting monitoring well installation are included as ***Appendix B***. The monitoring wells were designated MW-6 and MW-7, and the piezometers were designated PZ-2 and PZ-3. The locations of these wells are shown on the attached ***Figure 1***. Sigma surveyed the elevations of four newly installed wells' tops of casings and their horizontal position during installation, and developed them on ***November 19, 2010***. Well development is documented on well development forms also included in ***Appendix B***.

Groundwater Elevation Measurements and Groundwater Sampling. Water level measurements and groundwater samples were collected from the newly installed wells and all pre-existing wells on December 23, 2010 and March 17, 2011. The groundwater samples were submitted to Synergy Environmental Lab, Inc.'s Appleton, Wisconsin facility for analysis of VOCs by Method 8260B. The laboratory report for the analyses is included as ***Appendix C***.

Soil and Water Disposal. The 55-gallon drums of soil from the November 2010 and previous site investigation activities were transported by Veolia Environmental Services to Veolia's Emerald Park Landfill in Muskego, Wisconsin for disposal. Sigma transported the 55-gallon drums of water from the December 2010 and March 2011 as well as previous groundwater sampling activities to the City of Port Washington's wastewater treatment facility for contracted disposal.

Results

The groundwater elevation measurements are summarized on ***Table 1***, and the groundwater sample laboratory results are summarized on ***Table 2***. The laboratory results and estimated extents of groundwater standard exceedances for select compounds are also summarized on ***Figure 1***.

The groundwater elevations measured in previously existing wells during the two additional monitoring rounds are generally consistent with the previous data, as are the relative differences in groundwater elevations between wells. The elevation data are indicative of a groundwater flow direction generally to the northeast in both the shallow saturated zone (screen depths of wells MW-1 through MW-7) and the deeper saturated zone (screen depths of piezometers PZ-1 through PZ-3), with local variations to the north or east appearing to be present in the shallow zone, also consistent with previous data. Based on the groundwater elevation measurements, slight downward vertical gradients are present in each of the three water table observation well/piezometer nest locations.

Exceedances of Enforcement Standards (ESs) set forth in Wisconsin Administrative Code (WAC), chapter NR 140 by several of the chlorinated compounds detected elsewhere at the site were reported in groundwater samples from monitoring well MW-6, located in the northeast portion of the site, but no compounds were detected in samples of deeper groundwater from the adjacent piezometer PZ-3.

One chlorinated compound was also reported at concentrations exceeding NR 140 ESs in groundwater samples from well MW-7, located in the northwest corner of the site. One chlorinated compound exceeded NR 140 Preventive Action Limits (PALs) but not ESs in groundwater samples from newly installed piezometer PZ-2, located adjacent to well MW-5. The compound has been reported at significantly higher concentrations in samples from the adjacent monitoring well.

Groundwater sample results for newly installed monitoring wells MW-6 and MW-7 indicate that chlorinated compounds are not present or are present at concentrations significantly lower than those reported in the southwest portion of the site. Based on piezometer groundwater sample results, especially for downgradient piezometer PZ-3, the chlorinated groundwater impacts appear to generally be confined to the shallow saturated zones. Reported compounds and concentrations in the groundwater samples from the previously existing wells are generally consistent with previous results.

Remediation to address the site risks is required per Ch. NR 292 Wisconsin Administrative Code. As discussed in our July 24, 2012 meeting, a remedial approach consisting of remediation by natural attenuation (RNA), capping of shallow soil impacts and sub slab vapor mitigation is the most applicable and appropriate strategy to address these risks and obtain site closure. The proposed scope of activities is presented below.

REMEDIAL OBJECTIVES

The remediation objectives, consistent with Wisconsin State Statues are intended to be protective of the environment (e.g., reduce the contaminant mass to further protect groundwater) and human health (e.g., direct contact and vapor intrusion pathways). More specifically, the primary objectives of the active soil remediation to address CVOC impacts should be to: 1) reduce the long term risk associated with direct contact with shallow impacts; 2) reduce the potential for migration of volatile vapors into site structures; and 3) minimize the contribution of the contaminant mass of chlorinated solvents in the MW-3 and MW-5 areas of the site such that natural attenuation processes can more effectively address residual groundwater impacts over time.

REMEDIAL APPROACH

The proposed remedial approach, as discussed in our July 24, 2012 meeting, include the capping of shallow soil impacts, installation and operation of a sub-slab vent system, and groundwater monitoring for documentation of natural attenuation. The activities necessary to implement this remedial approach include the following:

- Capping of the areas of both monitoring wells MW-3 and MW-5 with a minimum thickness of asphalt paving of 3 to 4 inches. The cap will reduce infiltration through the highest area of on-site soil impacts and minimize direct contact risk.
- Installation of sub slab venting system to minimize any potential vapor intrusion risk from impacted soil and groundwater.

- Confirm sub slab venting system installation and performance.
- Collect groundwater samples from the site's seven ch. NR 141 compliant groundwater monitoring wells and three piezometers to document the stability of the groundwater plume. A minimum of three rounds of groundwater sampling will likely be conducted to document natural attenuation processes and contaminant concentration trends.
- Pending the groundwater quality data and biodegradation trends, perform data analysis, and preparation and submittal of a site closure and off-site exemption request, as appropriate.

Implementation of the proposed remedial activities will be initiated shortly. If you have any questions or wish to further clarify any of the information presented in this letter, please call us at (414) 643-4200.

Sincerely,

THE SIGMA GROUP

Kristin Kurzka, P.E.
Senior Engineer

Randy Boness, P.G.
Geosciences Group Leader

kal

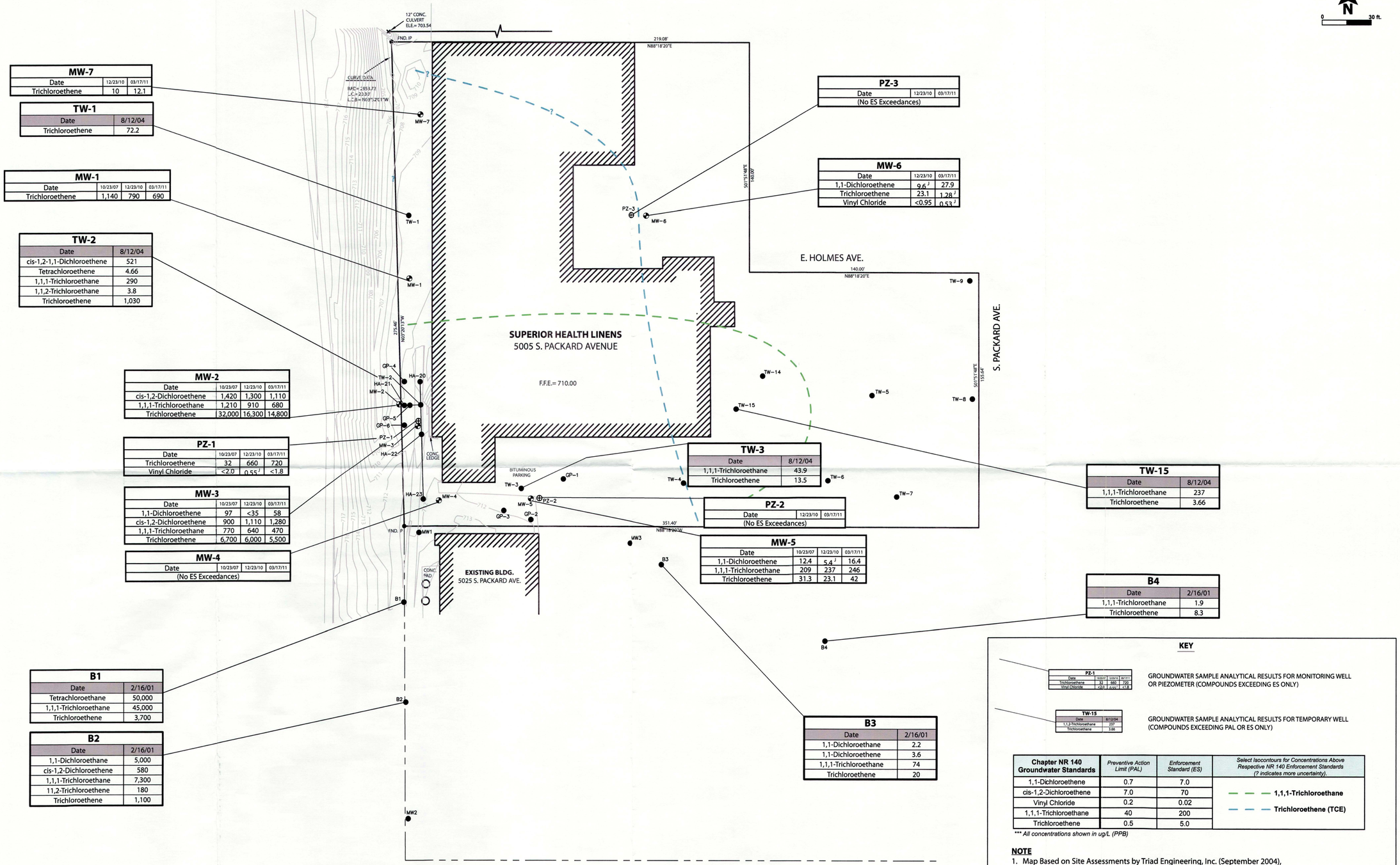
List of Attachments

Tables
Figures
Appendix A Soil Boring Logs
Appendix B Monitoring Well Construction Forms and Well Development Forms
Appendix C Groundwater Analytical Laboratory Report

TABLE 1
STATIC GROUNDWATER ELEVATIONS
SUPERIOR HEALTH LINENS
CUDAHY, WISCONSIN
Project Reference #10724

Monitoring Well Identification	Date	Top of Casing Elevation (feet MSL)	Depth to Groundwater (feet from TOC)	Groundwater Elevation (feet MSL)
MW-1	10/22/07	709.00	4.25	704.75
	10/23/07		4.23	704.77
	11/05/07		5.83	703.17
	05/15/08		4.60	704.40
	12/23/10		5.15	703.85
	03/17/11		2.60	706.40
MW-2	10/22/07	709.52	8.34	701.18
	10/23/07		8.23	701.29
	11/05/07		9.32	700.20
	05/15/08		6.70	702.82
	12/23/10		9.15	700.37
	03/17/11		6.16	703.36
MW-3	10/22/07	712.58	6.13	706.45
	10/23/07		6.02	706.56
	11/05/07		7.34	705.24
	05/15/08		6.45	706.13
	12/23/10		6.50	706.08
	03/17/11		3.85	708.73
MW-4	10/22/07	711.68	7.45	704.23
	10/23/07		11.17	700.51
	11/05/07		5.05	706.63
	05/15/08		4.25	707.43
	12/23/10		4.45	707.23
	03/17/11		1.43	710.25
MW-5	10/22/07	710.57	1.29	709.28
	10/23/07		3.00	707.57
	11/05/07		4.88	705.69
	05/15/08		4.20	706.37
	12/23/10		5.29	705.28
	03/17/11		1.75	708.82
MW-6	12/23/10	705.26	9.00	696.26
	03/17/11		7.42	697.84
MW-7	12/23/10	708.22	4.61	703.61
	03/17/11		2.84	705.38
PZ-1	10/22/07	713.00	14.29	698.71
	10/23/07		14.16	698.84
	11/05/07		15.06	697.94
	05/15/08		14.12	698.88
	12/23/10		15.82	697.18
	03/17/11		12.97	700.03
PZ-2	12/23/10	710.88	14.78	696.10
	03/17/11		12.65	698.23
PZ-3	12/23/10	705.58	12.55	693.03
	03/17/11		11.44	694.14

Notes:
feet MSL = feet above Mean Sea Level
feet from TOC = feet below top of casing
feet bgs = feet below ground surface


N
0
30 ft.
12" CONC. CULVERT ELE.= 703.54
FND. IP
219.08'
N88°18'20"E
CURVE DATA:
RAD.= 2953.73'
L.C.= 23.33'
L.C.B.= N10°52'01"W
MW-7
TW-1
MW-1
TW-2
PZ-3
MW-6
PZ-3
MW-6
501°51'48"E
140.00'
E. HOLMES AVE.
140.00'
N88°18'20"E
TW-9
S. PACKARD AVE.
501°51'48"E
155.64'
SUPERIOR HEALTH LINENS
5005 S. PACKARD AVENUE
F.F.E.= 710.00
275.46'
N03°20'13"W
TW-14
TW-5
TW-8
TW-15
GP-4
TW-2
HA-20
HA-21
MW-2
GP-5
GP-6
PZ-1
MW-3
HA-22
CONC. LEDGE
BITUMINOUS PARKING
GP-1
TW-3
TW-4
TW-6
TW-7
HA-23
MW-4
MW-5
PZ-2
GP-3
GP-2
351.40'
N88°18'20"W
FND. P
MW1
MW3
B3
CONC. PAD
EXISTING BLDG.
5025 S. PACKARD AVE.
B1
B2
B4
MW2
MW-7
Date | 12/23/10 | 03/17/11
Trichloroethene | 10 | 12.1
TW-1
Date | 8/12/04
Trichloroethene | 72.2
MW-1
Date | 10/23/07 | 12/23/10 | 03/17/11
Trichloroethene | 1,140 | 790 | 690
TW-2
Date | 8/12/04
cis-1,2-1,1-Dichloroethene | 521
Tetrachloroethene | 4.66
1,1,1-Trichloroethane | 290
1,1,2-Trichloroethane | 3.8
Trichloroethene | 1,030
MW-2
Date | 10/23/07 | 12/23/10 | 03/17/11
cis-1,2-Dichloroethene | 1,420 | 1,300 | 1,110
1,1,1-Trichloroethane | 1,210 | 910 | 680
Trichloroethene | 32,000 | 16,300 | 14,800
PZ-1
Date | 10/23/07 | 12/23/10 | 03/17/11
Trichloroethene | 32 | 660 | 720
Vinyl Chloride | <2.0 | 0.55J | <1.8
MW-3
Date | 10/23/07 | 12/23/10 | 03/17/11
1,1-Dichloroethene | 97 | <35 | 58
cis-1,2-Dichloroethene | 900 | 1,110 | 1,280
1,1,1-Trichloroethane | 770 | 640 | 470
Trichloroethene | 6,700 | 6,000 | 5,500
MW-4
Date | 10/23/07 | 12/23/10 | 03/17/11
(No ES Exceedances)
PZ-3
Date | 12/23/10 | 03/17/11
(No ES Exceedances)
MW-6
Date | 12/23/10 | 03/17/11
1,1-Dichloroethene | 9.6J | 27.9
Trichloroethene | 23.1 | 1.28J
Vinyl Chloride | <0.95 | 0.53J
TW-3
Date | 8/12/04
1,1,1-Trichloroethane | 43.9
Trichloroethene | 13.5
PZ-2
Date | 12/23/10 | 03/17/11
(No ES Exceedances)
MW-5
Date | 10/23/07 | 12/23/10 | 03/17/11
1,1-Dichloroethene | 12.4 | 5.4J | 16.4
1,1,1-Trichloroethane | 209 | 237 | 246
Trichloroethene | 31.3 | 23.1 | 42
TW-15
Date | 8/12/04
1,1,1-Trichloroethane | 237
Trichloroethene | 3.66
B4
Date | 2/16/01
1,1,1-Trichloroethane | 1.9
Trichloroethene | 8.3
B1
Date | 2/16/01
Tetrachloroethane | 50,000
1,1,1-Trichloroethane | 45,000
Trichloroethene | 3,700
B2
Date | 2/16/01
1,1-Dichloroethane | 5,000
cis-1,2-Dichloroethene | 580
1,1,1-Trichloroethane | 7,300
11,2-Trichloroethene | 180
Trichloroethene | 1,100
B3
Date | 2/16/01
1,1-Dichloroethane | 2.2
1,1-Dichloroethane | 3.6
1,1,1-Trichloroethane | 74
Trichloroethene | 20
KEY
GROUNDWATER SAMPLE ANALYTICAL RESULTS FOR MONITORING WELL OR PIEZOMETER (COMPOUNDS EXCEEDING ES ONLY)
GROUNDWATER SAMPLE ANALYTICAL RESULTS FOR TEMPORARY WELL (COMPOUNDS EXCEEDING PAL OR ES ONLY)
Chapter NR 140 Groundwater Standards | Preventive Action Limit (PAL) | Enforcement Standard (ES) | Select Isocontours for Concentrations Above Respective NR 140 Enforcement Standards (? indicates more uncertainty).
1,1-Dichloroethene | 0.7 | 7.0
cis-1,2-Dichloroethene | 7.0 | 70
Vinyl Chloride | 0.2 | 0.02
1,1,1-Trichloroethane | 40 | 200
Trichloroethene | 0.5 | 5.0
1,1,1-Trichloroethane
Trichloroethene (TCE)
*** All concentrations shown in ug/L (PPB)
NOTE
1. Map Based on Site Assessments by Triad Engineering, Inc. (September 2004), Northern Environmental (September 1999) and Sigma (October 2007)
2. All concentrations are in ug/L(PPB)
3. Base map is Sigma Survey Map 10724-V-001.dwg
THE SIGMA GROUP
Single Source. Sound Solutions.
SITE PLAN AND GROUNDWATER QUALITY MAP
SUPERIOR HEALTH LINENS
5005 SOUTH PACKARD AVENUE, CUDAHY, WISCONSIN
FIGURE
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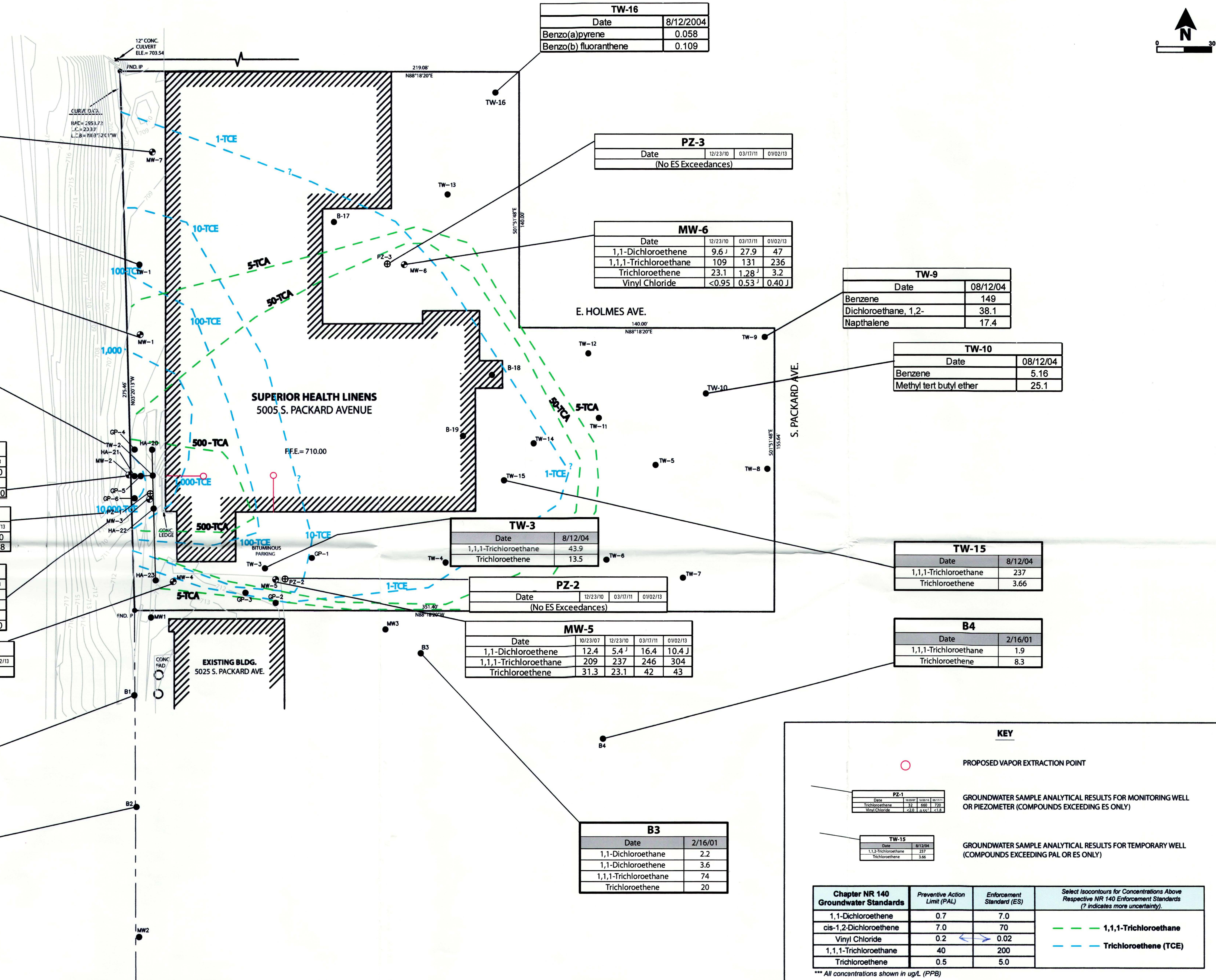
02-41-532649 AC97 5/30/13 P.8



MW-7			
Date	12/23/10	03/17/11	01/02/13
Trichloroethene	10	12.1	5

TW-1	
Date	8/12/04
Trichloroethene	72.2

MW-1				
Date	10/23/07	12/23/10	03/17/11	01/02/13
Trichloroethene	1,140	790	690	760

TW-2	
Date	8/12/04
cis-1,2-1,1-Dichloroethene	521
Tetrachloroethene	4.66
1,1,1-Trichloroethane	290
1,1,2-Trichloroethane	3.8
Trichloroethene	1,030
Total Trimethylbenzene	166

MW-2				
Date	10/23/07	12/23/10	03/17/11	01/02/13
cis-1,2-Dichloroethene	1,420	1,300	1,110	1,290
1,1,1-Trichloroethane	1,210	910	680	640
Trichloroethene	32,000	16,300	14,800	11,200

PZ-1				
Date	10/23/07	12/23/10	03/17/11	01/02/13
Trichloroethene	32	660	720	380
Vinyl Chloride	<2.0	0.55 J	<1.8	<1.8

MW-3				
Date	10/23/07	12/23/10	03/17/11	01/02/13
1,1-Dichloroethene	97	<35	58	<30
cis-1,2-Dichloroethene	900	1,110	1,280	950
1,1,1-Trichloroethane	770	640	470	520
Trichloroethene	6,700	6,000	5,500	6,000

MW-4				
Date	10/23/07	12/23/10	03/17/11	01/02/13
(No ES Exceedances)				

B1	
Date	2/16/01
Tetrachloroethane	50,000
1,1,1-Trichloroethane	45,000
Trichloroethene	3,700

B2	
Date	2/16/01
1,1-Dichloroethane	5,000
cis-1,2-Dichloroethene	580
1,1,1-Trichloroethane	7,300
11,2-Trichloroethene	180
Trichloroethene	1,100

TW-16	
Date	8/12/2004
Benzo(a)pyrene	0.058
Benzo(b) fluoranthene	0.109

PZ-3			
Date	12/23/10	03/17/11	01/02/13
(No ES Exceedances)			

MW-6			
Date	12/23/10	03/17/11	01/02/13
1,1-Dichloroethene	9.6 J	27.9	47
1,1,1-Trichloroethane	109	131	236
Trichloroethene	23.1	1.28 J	3.2
Vinyl Chloride	<0.95	0.53 J	0.40 J

TW-9	
Date	08/12/04
Benzene	149
Dichloroethane, 1,2-	38.1
Napthalene	17.4

TW-10	
Date	08/12/04
Benzene	5.16
Methyl tert butyl ether	25.1

TW-3	
Date	8/12/04
1,1,1-Trichloroethane	43.9
Trichloroethene	13.5

TW-15	
Date	8/12/04
1,1,1-Trichloroethane	237
Trichloroethene	3.66

PZ-2			
Date	12/23/10	03/17/11	01/02/13
(No ES Exceedances)			

MW-5				
Date	10/23/07	12/23/10	03/17/11	01/02/13
1,1-Dichloroethene	12.4	5.4 J	16.4	10.4 J
1,1,1-Trichloroethane	209	237	246	304
Trichloroethene	31.3	23.1	42	43

B4	
Date	2/16/01
1,1,1-Trichloroethane	1.9
Trichloroethene	8.3

B3	
Date	2/16/01
1,1-Dichloroethane	2.2
1,1-Dichloroethene	3.6
1,1,1-Trichloroethane	74
Trichloroethene	20

KEY

PROPOSED VAPOR EXTRACTION POINT

PZ-1				
Date	10/23/07	12/23/10	03/17/11	01/02/13
Trichloroethene	32	660	720	
Vinyl Chloride	<2.0	0.55 J	<1.8	

GROUNDWATER SAMPLE ANALYTICAL RESULTS FOR MONITORING WELL OR PIEZOMETER (COMPOUNDS EXCEEDING ES ONLY)

TW-15	
Date	8/12/04
1,1,2-Trichloroethane	237
Trichloroethene	3.66

GROUNDWATER SAMPLE ANALYTICAL RESULTS FOR TEMPORARY WELL (COMPOUNDS EXCEEDING PAL OR ES ONLY)

Chapter NR 140 Groundwater Standards	Preventive Action Limit (PAL)	Enforcement Standard (ES)	Select Isocontours for Concentrations Above Respective NR 140 Enforcement Standards (? indicates more uncertainty).
1,1-Dichloroethene	0.7	7.0	- - - 1,1,1-Trichloroethane
cis-1,2-Dichloroethene	7.0	70	- - - Trichloroethene (TCE)
Vinyl Chloride	0.2	0.02	
1,1,1-Trichloroethane	40	200	
Trichloroethene	0.5	5.0	

**** All concentrations shown in ug/L (PPB)*

NOTE

1. Map Based on Site Assessments by Triad Engineering, Inc. (September 2004), Northern Environmental (September 1999) and Sigma (October 2007)
2. All concentrations are in ug/L(PPB)
3. Base map is Sigma Survey Map 10724-V-001.dwg

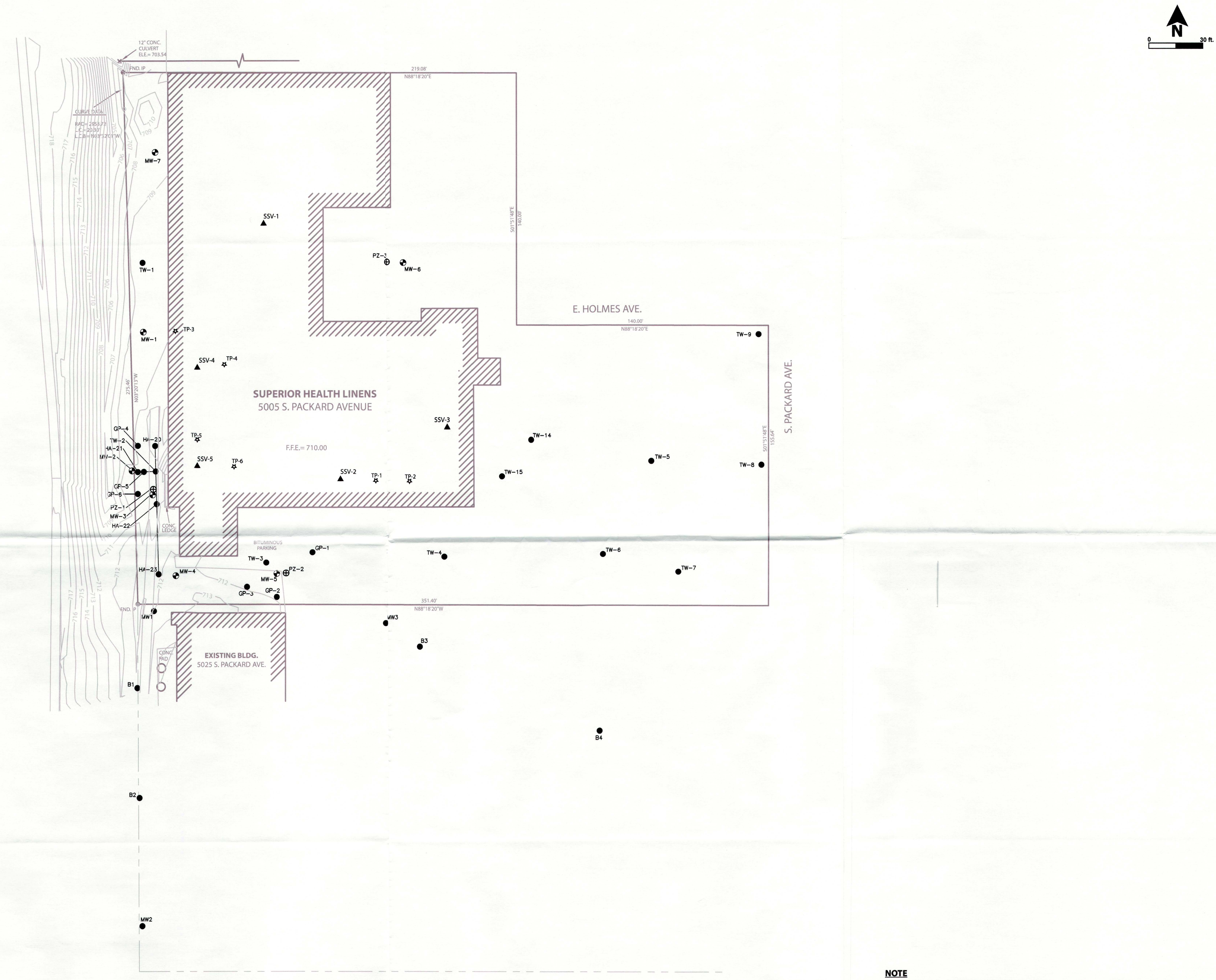
THE SIGMA GROUP — Single Source. Sound Solutions.

SITE PLAN AND GROUNDWATER QUALITY MAP

SUPERIOR HEALTH LINENS
5005 SOUTH PACKARD AVENUE, CUDAHY, WISCONSIN

FIGURE 1

02-41-532649 AC 97 5/30/13 p. 7



NOTE

1. Map Based on Site Assessments by Triad Engineering, Inc. (September 2004), Northern Environmental (September 1999) and Sigma (October 2007)
2. Base map is Sigma Survey Map 10724-V-001.dwg

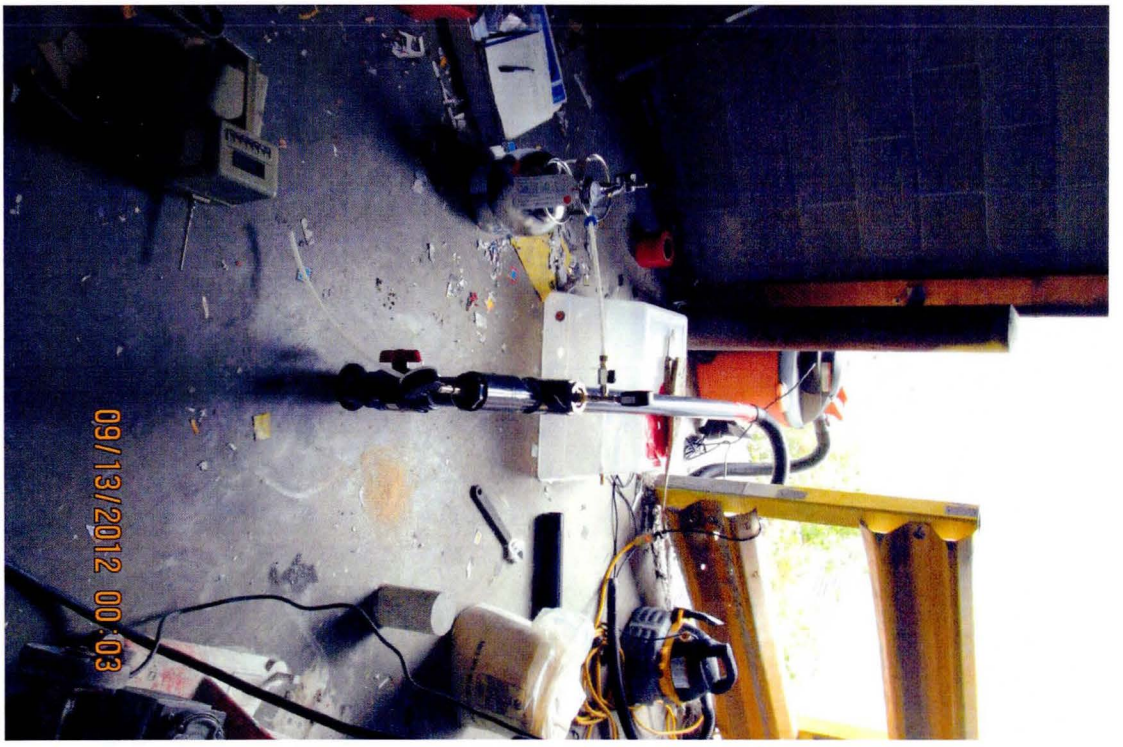
THE SIGMA GROUP Single Source. Sound Solutions.	**SITE PLAN MAP** Superior Health Linens 5005 South Packard Avenue, Cudahy, Wisconsin	FIGURE **2**

02-41-532649 AC 97 5/30/13

Attachment 2

September High Purge Volume Testing Photographs


09/13/2012 00:03


09/13/2012 00:03

Attachment 3

Subslab Vapor Analytical Data

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

February 25, 2013

Steve Meer
Sigma Environmental Services
1300 W. Canal St.
Milwaukee, WI 53233

RE: Project: 10724 SHL
Pace Project No.: 10219882

Dear Steve Meer:
Enclosed are the analytical results for sample(s) received by the laboratory on February 12, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Scott C. Unze

Scott Unze for
Carolynne Trout
carolynne.trout@pacelabs.com
Project Manager

Enclosures

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

CERTIFICATIONS

Project: 10724 SHL
Pace Project No.: 10219882

Minnesota Certification IDs
1700 Elm Street SE Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: Pace
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Hawaii Certification #Pace
Idaho Certification #: MN00064
Illinois Certification #: 200011
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Maryland Certification #: 322
Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
Montana Certification #: MT CERT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Tennessee Certification #: 02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Virginia/DCLS Certification #: 002521
Virginia/VELAP Certification #: 460163
Washington Certification #: C754
West Virginia Certification #: 382
Wisconsin Certification #: 999407970

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SAMPLE SUMMARY

Project: 10724 SHL
Pace Project No.: 10219882

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10219882001	**SSV-1**	Air	02/08/13 11:05	02/12/13 09:28
10219882002	**SSV-2**	Air	02/08/13 13:08	02/12/13 09:28
10219882003	**SSV-3**	Air	02/08/13 14:26	02/12/13 09:28
10219882004	**SSV-4**	Air	02/08/13 14:48	02/12/13 09:28
10219882005	**SSV-5**	Air	02/08/13 16:16	02/12/13 09:28

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SAMPLE ANALYTE COUNT

Project: 10724 SHL
Pace Project No.: 10219882

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10219882001	**SSV-1**	TO-15	CJR	7
10219882002	**SSV-2**	TO-15	CJR	7
10219882003	**SSV-3**	TO-15	CJR	7
10219882005	**SSV-5**	TO-15	CJR	7

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ANALYTICAL RESULTS

Project: 10724 SHL
Pace Project No.: 10219882

Sample: SSV-1 **Lab ID: 10219882001** Collected: 02/08/13 11:05 Received: 02/12/13 09:28 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
1,1-Dichloroethene	ND	ug/m3	5.5	6.76		02/16/13 02:49	75-35-4	
cis-1,2-Dichloroethene	ND	ug/m3	5.5	6.76		02/16/13 02:49	156-59-2	
trans-1,2-Dichloroethene	ND	ug/m3	5.5	6.76		02/16/13 02:49	156-60-5	
Tetrachloroethene	ND	ug/m3	4.7	6.76		02/16/13 02:49	127-18-4	
1,1,1-Trichloroethane	ND	ug/m3	7.5	6.76		02/16/13 02:49	71-55-6	
Trichloroethene	ND	ug/m3	3.7	6.76		02/16/13 02:49	79-01-6	
Vinyl chloride	ND	ug/m3	1.8	6.76		02/16/13 02:49	75-01-4	

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ANALYTICAL RESULTS

Project: 10724 SHL
Pace Project No.: 10219882

Sample: SSV-2 **Lab ID: 10219882002** Collected: 02/08/13 13:08 Received: 02/12/13 09:28 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
1,1-Dichloroethene	ND	ug/m3	1.4	1.68		02/16/13 01:51	75-35-4	
cis-1,2-Dichloroethene	ND	ug/m3	1.4	1.68		02/16/13 01:51	156-59-2	
trans-1,2-Dichloroethene	ND	ug/m3	1.4	1.68		02/16/13 01:51	156-60-5	
Tetrachloroethene	ND	ug/m3	1.2	1.68		02/16/13 01:51	127-18-4	
1,1,1-Trichloroethane	ND	ug/m3	1.9	1.68		02/16/13 01:51	71-55-6	
Trichloroethene	ND	ug/m3	0.92	1.68		02/16/13 01:51	79-01-6	
Vinyl chloride	ND	ug/m3	0.44	1.68		02/16/13 01:51	75-01-4	

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ANALYTICAL RESULTS

Project: 10724 SHL
Pace Project No.: 10219882

Sample: SSV-3 **Lab ID: 10219882003** Collected: 02/08/13 14:26 Received: 02/12/13 09:28 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
1,1-Dichloroethene	ND	ug/m3	1.3	1.55		02/16/13 01:21	75-35-4	
cis-1,2-Dichloroethene	ND	ug/m3	1.3	1.55		02/16/13 01:21	156-59-2	
trans-1,2-Dichloroethene	ND	ug/m3	1.3	1.55		02/16/13 01:21	156-60-5	
Tetrachloroethene	ND	ug/m3	1.1	1.55		02/16/13 01:21	127-18-4	
1,1,1-Trichloroethane	**79.1**	ug/m3	1.7	1.55		02/16/13 01:21	71-55-6	
Trichloroethene	**1.1**	ug/m3	0.85	1.55		02/16/13 01:21	79-01-6	
Vinyl chloride	ND	ug/m3	0.40	1.55		02/16/13 01:21	75-01-4	

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ANALYTICAL RESULTS

Project: 10724 SHL
Pace Project No.: 10219882

Sample: SSV-5 **Lab ID: 10219882005** Collected: 02/08/13 16:16 Received: 02/12/13 09:28 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR	Analytical Method: TO-15							
1,1-Dichloroethene	ND	ug/m3	1.6	1.92		02/16/13 00:52	75-35-4	
cis-1,2-Dichloroethene	ND	ug/m3	1.6	1.92		02/16/13 00:52	156-59-2	
trans-1,2-Dichloroethene	ND	ug/m3	1.6	1.92		02/16/13 00:52	156-60-5	
Tetrachloroethene	ND	ug/m3	1.3	1.92		02/16/13 00:52	127-18-4	
1,1,1-Trichloroethane	ND	ug/m3	2.1	1.92		02/16/13 00:52	71-55-6	
Trichloroethene	ND	ug/m3	1.1	1.92		02/16/13 00:52	79-01-6	
Vinyl chloride	ND	ug/m3	0.50	1.92		02/16/13 00:52	75-01-4	

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QUALITY CONTROL DATA

Project: 10724 SHL
Pace Project No.: 10219882

QC Batch: AIR/16783 Analysis Method: TO-15
QC Batch Method: TO-15 Analysis Description: TO15 MSV AIR Low Level
Associated Lab Samples: 10219882001, 10219882002, 10219882003, 10219882005

METHOD BLANK: 1378280 Matrix: Air
Associated Lab Samples: 10219882001, 10219882002, 10219882003, 10219882005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/m3	ND	1.1	02/15/13 15:38	
1,1-Dichloroethene	ug/m3	ND	0.81	02/15/13 15:38	
cis-1,2-Dichloroethene	ug/m3	ND	0.81	02/15/13 15:38	
Tetrachloroethene	ug/m3	ND	0.69	02/15/13 15:38	
trans-1,2-Dichloroethene	ug/m3	ND	0.81	02/15/13 15:38	
Trichloroethene	ug/m3	ND	0.55	02/15/13 15:38	
Vinyl chloride	ug/m3	ND	0.26	02/15/13 15:38	

LABORATORY CONTROL SAMPLE: 1378281

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/m3	55.5	56.0	101	69-131	
1,1-Dichloroethene	ug/m3	40.3	38.5	95	64-136	
cis-1,2-Dichloroethene	ug/m3	40.3	40.4	100	73-135	
Tetrachloroethene	ug/m3	69	69.1	100	66-135	
trans-1,2-Dichloroethene	ug/m3	40.3	39.9	99	68-129	
Trichloroethene	ug/m3	54.6	50.7	93	68-134	
Vinyl chloride	ug/m3	26	24.3	94	64-134	

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QUALIFIERS

Project: 10724 SHL
Pace Project No.: 10219882

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 10724 SHL
Pace Project No.: 10219882

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10219882001	**SSV-1**	TO-15	AIR/16783		
10219882002	**SSV-2**	TO-15	AIR/16783		
10219882003	**SSV-3**	TO-15	AIR/16783		
10219882005	**SSV-5**	TO-15	AIR/16783		

10219882

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AIR: CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

10219807

08815

Page: 1 of 1

Section A Required Client Information:

Company:	Sigma Environmental
Address:	1300 W. Canal St. Milwaukee, WI 53233
Email To:	smear@thesigmagroup.com
Phone:	414-643-4200 Fax: 414-643-4210
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	Steve Mear
Copy To:	
Purchase Order No.:	10724
Project Name:	SHL
Project Number:	10724

Section C Invoice Information:

Attention:	Same
Company Name:	
Address:	
Pace Quote Reference:	
Pace Project Manager/Sales Rep.	
Pace Profile #:	

Program: ☐ UST ☐ Superfund ☐ Emissions ☐ Clean Air Act ☐ Voluntary Clean Up ☐ Dry Clean ☐ RCRA ☐ Other____

Location of Sampling by State: WI

Reporting Units: ug/m³ X mg/m³ ___ PPBV ___ PPMV ___ Other ___

Report Level: II.___ III.___ IV.___ Other____

'Section D Required Client Information

AIR SAMPLE ID

Sample IDs MUST BE UNIQUE

Valid Media Codes

MEDIA	CODE
Tedlar Bag	TB
1 Liter Summa Can	1LC
6 Liter Summa Can	6LC
Low Volume Puff	LVP
High Volume Puff	HVP
Other	PM10

ITEM #	AIR SAMPLE ID	MEDIA CODE	PID Reading (Client only)	COLLECTED COMPOSITE START END/GRAB DATE	COLLECTED COMPOSITE START END/GRAB TIME	COLLECTED COMPOSITE - DATE	COLLECTED COMPOSITE - TIME	Canister Pressure (Initial Field - psig)	Canister Pressure (Final Field - psig)	Summa Can Number	Flow Control Number	Method: PM10	3C: Fixed Gas (%)	TO-3	TO-3M (Methane)	TO-4 (PCBs)	TO-13 (PAH)	TO-14	TO-15	TO15 Short List*	Pace Lab ID
1	SSV-1	6LC	0	2/8	10:02	2/8	11:05	-35	-27	2087	0304									X	
2	SSV-2	6LC	0	2/8	12:05	2/8	1:08	-32	-8	1064	0332									X	
3	SSV-3	6LC	0	2/8	12:23	2/8	2:26	-31	-5	1046	0244									X	
4	SSV-4	6LC	0	2/8	1:43	2/8	2:48	-32	-30	2035	0104									X	
5	SSV-5	6LC	0	2/8	3:14	2/8	4:16	-32	-21	2091	0105									X	
6																					
7																					
8																					
9																					
10																					
11																					
12																					

Comments: short list compounds: PCE, TCE, CB-1,2-DCE, 1,1-DCE, 1,1,1-TCA, Vinyl chloride

RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME
[signature]	2/11/13	11:30	[signature] Pace	2/12/13	9:28

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Stephen Mear

SIGNATURE of SAMPLER: [signature] DATE Signed (MM / DD / YY): 2/11/13

SAMPLE CONDITIONS

	Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
	AMB	Y/N	Y/N	Y/N
		Y/N	Y/N	Y/N
		Y/N	Y/N	Y/N
		Y/N	Y/N	Y/N

ORIGINAL

Pace Analytical®	Document Name: Air Sample Condition Upon Receipt	Document Revised: 28Jan2013 Page 1 of 1
	Document No.: F-MN-A-106-rev.07	Issuing Authority: Pace Minnesota Quality Office

Air Sample Condition Upon Receipt

Client Name: Sigma Environmental

Project #: WO#: 10219882

10219882

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☐ Pace ☐ Other:

Tracking Number: 12 27W 444 03 5682 9266

Custody Seal on Cooler/Box Present? ☐ Yes ☑ No **Seals Intact?** ☐ Yes ☑ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☑ Foam ☐ None ☐ Other:

Temp. (TO17 and TO13 samples only) (°C): AMB **Corrected Temp (°C):** **Thermom. Used:** ☐ B88A912167504 ☐ 80512447 ☐ 72337080

Temp should be above freezing to 6°C **Correction Factor:** **Date & Initials of Person Examining Contents:** CAJ 2/12/13

				Comments:
Chain of Custody Present?	☑ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☑ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☑ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☑ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☑ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☑ No	☐ N/A	6.
Rush Turn Around Time Requested?	☐ Yes	☑ No	☐ N/A	7.
Sufficient Volume?	☑ Yes	☐ No	☐ N/A	8.
Correct Containers Used?	☑ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☑ Yes	☐ No	☐ N/A	
Containers Intact?	☑ Yes	☐ No	☐ N/A	10.
Media: Air (Can)				11.
Sample Labels Match COC?	☑ Yes	☐ No	☐ N/A	12.

Samples Received: 5 Air Can, 5 Flow Controllers

Canisters		Flow Controllers		Stand Alone G	
Sample Number	Can ID	Sample Number	Can ID	Sample Number	Can ID
SSV-1	PACE 2087		FC 0304		
SSV-2	" 1064		FC 0332		
SSV-3	" 1046		FC 0244		
SSV-4	" 2035		FC 0104		
SSV-5	" 2091		FC 0105		

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

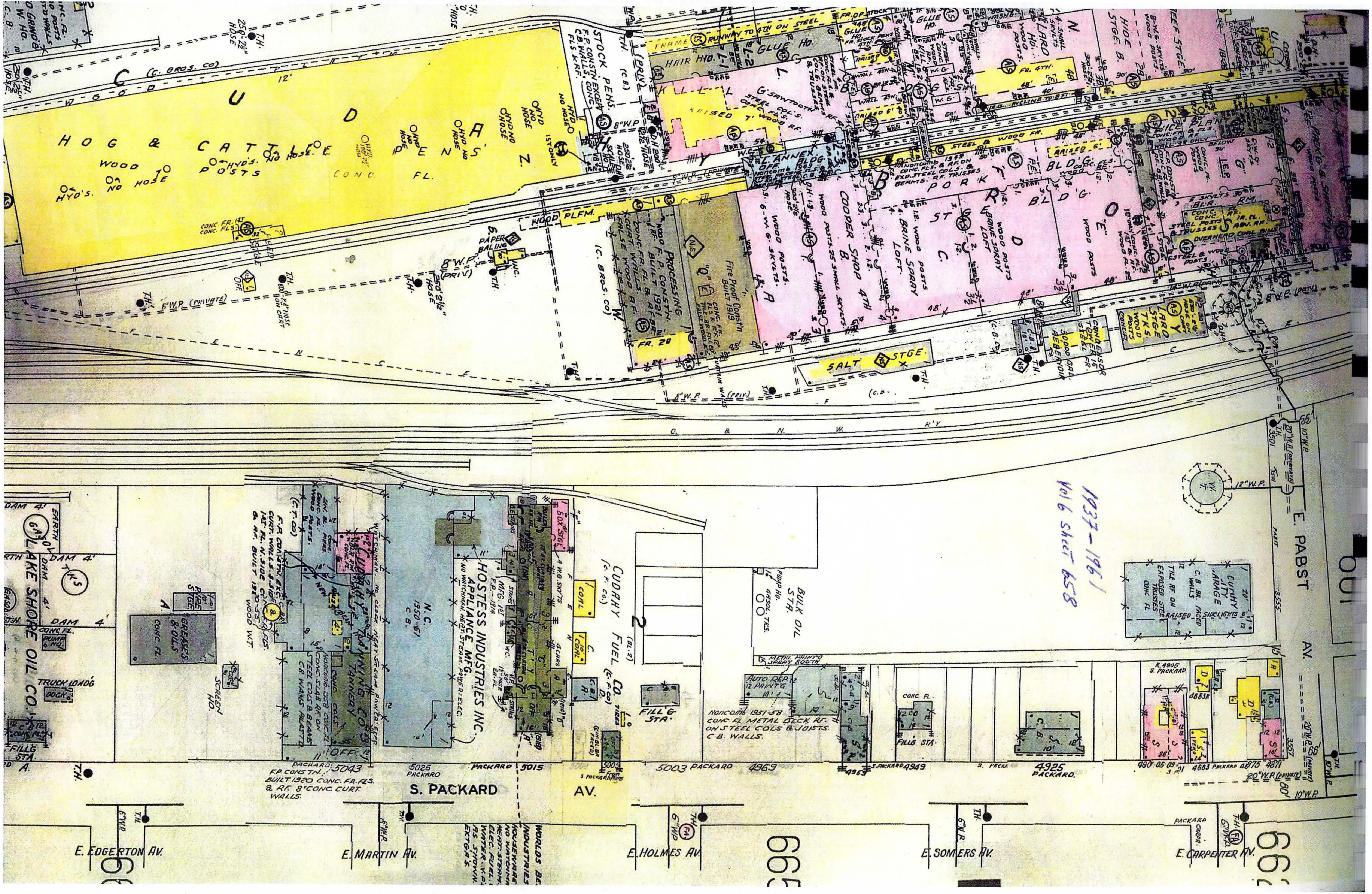
Person Contacted: Steve Meer Date/Time: 2/13/13 email

Comments/Resolution: Lab measured can SSV1 at -29, SSV4 - -29, SSV-5 -19.

Per Steve Metcalf, hold sample SSV4 - run the other 2.

Project Manager Review: CAJ **Date:** 2/13/13

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e out of hold, incorrect preservative, out of temp, incorrect containers)



CUDAHY BROS. CO.
HOG & CATTLE PENS
WOOD POSTS
CONC. FL.
HYD'S. NO HOSE
STOCK PENS
F.P. CONSTN EXCEPT C.B. WALLS, CONC FLS. & RF.
GLUE HO.
HAIR HO.
RUNWAY TO 4TH ON STEEL
KILLING
LARD HO.
HIDE STGE. B.
BEEF STGE.
L. ANNEX OFF. BLDG.
PORK BLD'G.
COOPER SHOP
BRINE SPRAY LOFT
ICE PLANT
PACK'G & SHIPP'G
BLR. RM.
OVERHEAD COAL BINS
PROCESSING
F.P. CONST'N. BUILT 1921
Fire Proof Const'n Built 1919
WOOD PLFM.
PAPER BALING
SALT STGE.
LARD STGE TKS. WOOD POSTS
CONDENSOR TOWER
50,000 GAL. RESERVOIR
8"W.P. (PRIVATE)
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FILL'G STA.
SCREEN HO.
CUDAHY TANNING CO.
TANNERY
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APPLIANCE MFG.
NO WATCHMAN. HEAT: STEAM. POWER: ELEC.
N.C. 1950-51 C.B.
BOX STGE.
CUDAHY FUEL CO.
COAL
BULK OIL STA.
AUTO REP. PAINT'G
Noncomb 1951-58 CONC. FL. METAL DECK RF. ON STEEL COLS & JOISTS. C.B. WALLS.
CUDAHY CITY GARAGE
TILE RF ON EXPOSED STEEL TRUSSES CONC. FL.
E. PABST AV.
S. PACKARD AV.
5043 5025 5015 5009 5003 4969 4963 4949 4925 4905 4883 4875 4871
E. EDGERTON AV.
E. MARTIN AV.
E. HOLMES AV.
E. SOMERS AV.
E. CARPENTER AV.
WORLDS BEST INDUSTRIES HOUSEWARE
665
1937-1961
Vol 6 Sheet 658

1910 - 1926
Vol. 6. Sheet 621

HOLMES AV.

HOLMES

MARTIN

CUDAHY FUEL CO.
COAL & WOOD YARD

HELMHOLTZ MITTEN CO. MFR'S OF MITTENS.
NO WATCHMAN. POWER & LIGHT: ELEC.
HEAT: STEAM. FUEL: COAL.

GARAGE
CAP'Y 20 CARS. HEAT: STEAM.
CONCR. FL. CURTAIN WALL.
RE-INFORCED CONCR. CONSTN

GARAGE
CAP'Y. 25 CARS
HEAT: STEAM. LTS: ELEC.
STEEL TRUSS ROOF.
CONCRETE FLOOR.
PILASTERED WALLS

HAY & FEED

Scale of Feet
50 40 30 20 10 0 50 100 150

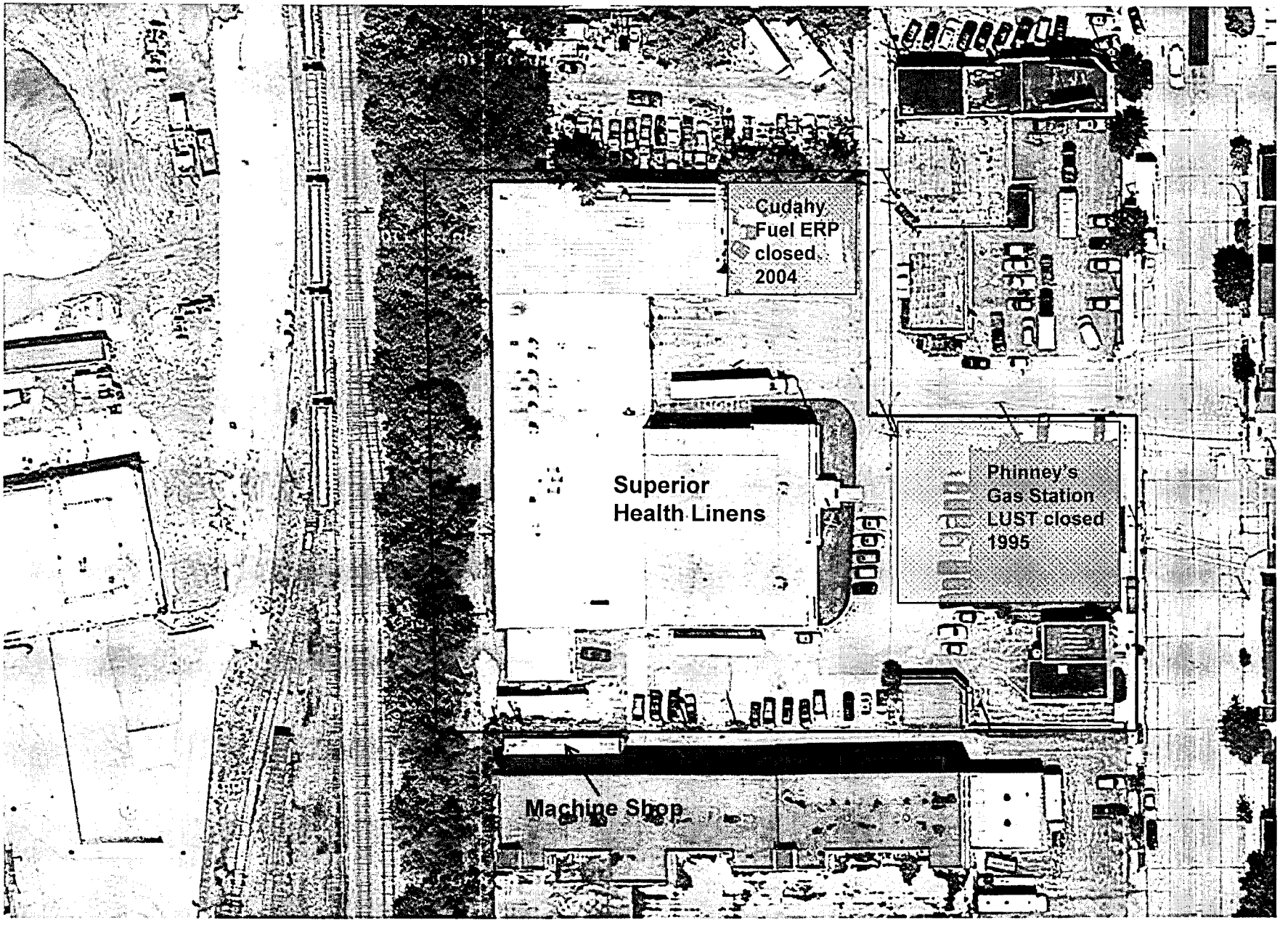
7-2-13

Request for Technical Assistance

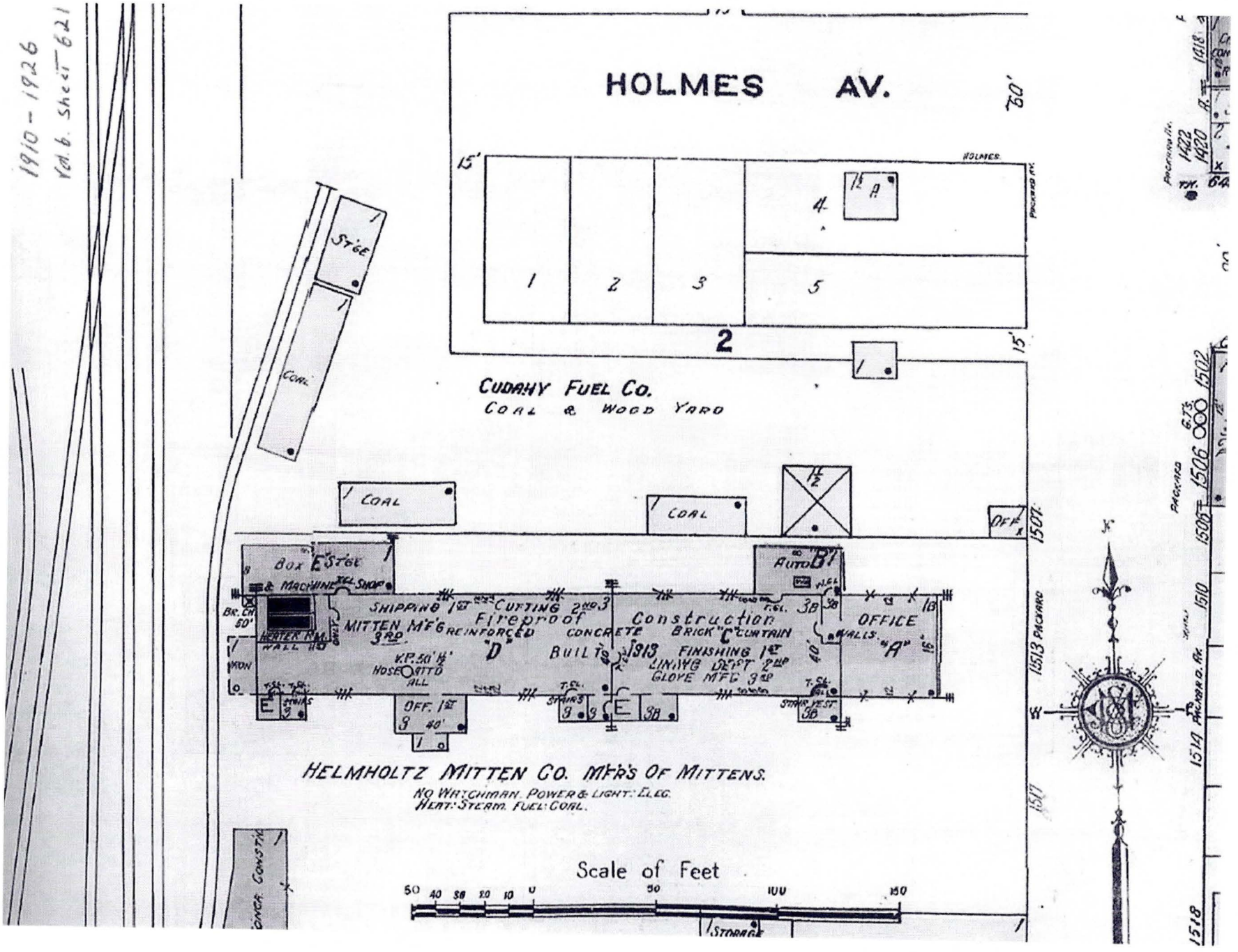
Superior Health Linens

5005 S. Packard Ave
Cudahy, WI
BRRTS #02-41-532649
FID #241780880

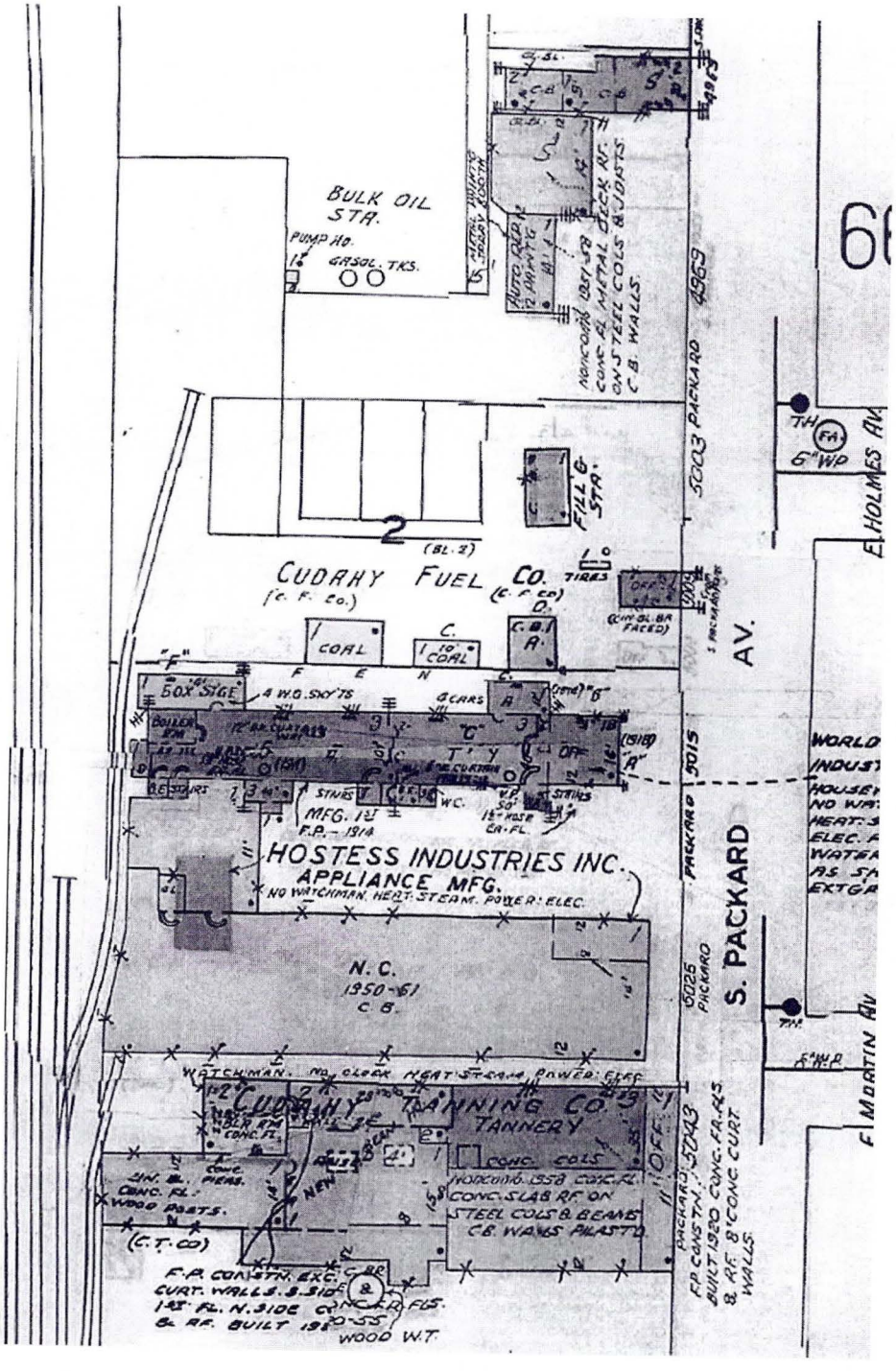
WISCONSIN
DEPT. OF NATURAL RESOURCES


Cudahy
Fuel ERP
closed
2004
Superior
Health Linens
Phinney's
Gas Station
LUST closed
1995
Machine Shop

Historic Sanborn Fire Insurance Map (1910-1926)



Historic Sanborn Fire Insurance Map (1937-1961)



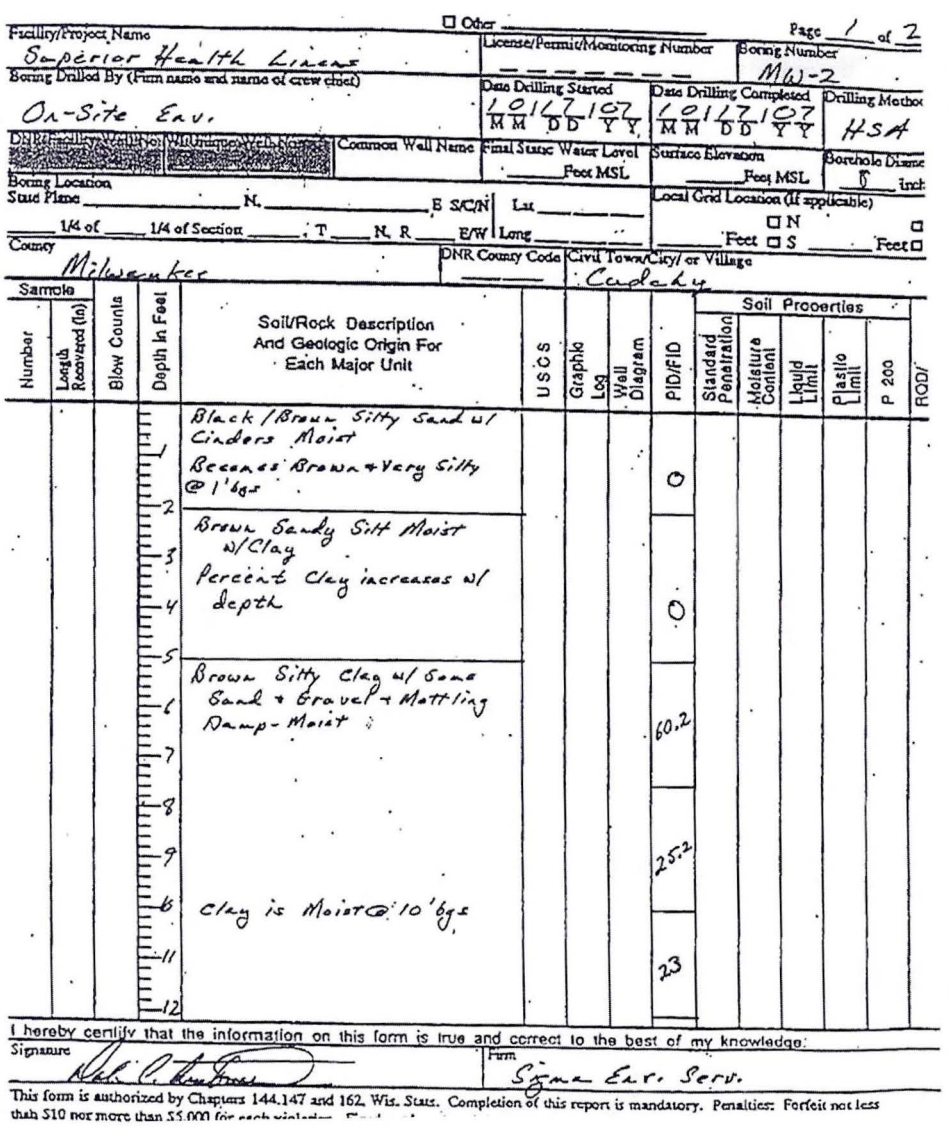
Site Activities

2004 – Phase I & II Environmental Site Assessments by Triad

2007 – Present by Sigma

- Subsurface investigation and analysis of remedial alternatives.
- 2008, 2012, 2013 – Meetings with RP & consultants re: requests for technical assistance.
  - 2008 – requested additional sampling
  - 2012 – continue groundwater sampling, install downgradient wells at MW-6 and PZ-3, perform vapor assessment
  - 2013 – reviewed vapor results

Typical Soil Boring



Other _____ Page 1 of 2

Facility/Project Name: Superior Health Linens | License/Permit/Monitoring Number: _____ | Boring Number: MW-2

Boring Drilled By (Firm name and name of crew chief): On-Site Env. | Date Drilling Started: 10/17/07 | Date Drilling Completed: 10/17/07 | Drilling Method: HSA

DNR Facility Well No. [redacted] | Wis Unique Well No. [redacted] | Common Well Name | Final Static Water Level: ____ Feet MSL | Surface Elevation: ____ Feet MSL | Borehole Diameter: 8 inch

Boring Location: State Plane ____ N, ____ E S/C/N | Lat ____ | Long ____ | ____ 1/4 of ____ 1/4 of Section ____, T ____ N, R ____ E/W | Local Grid Location (If applicable): ____ Feet N ____ Feet S ____ Feet

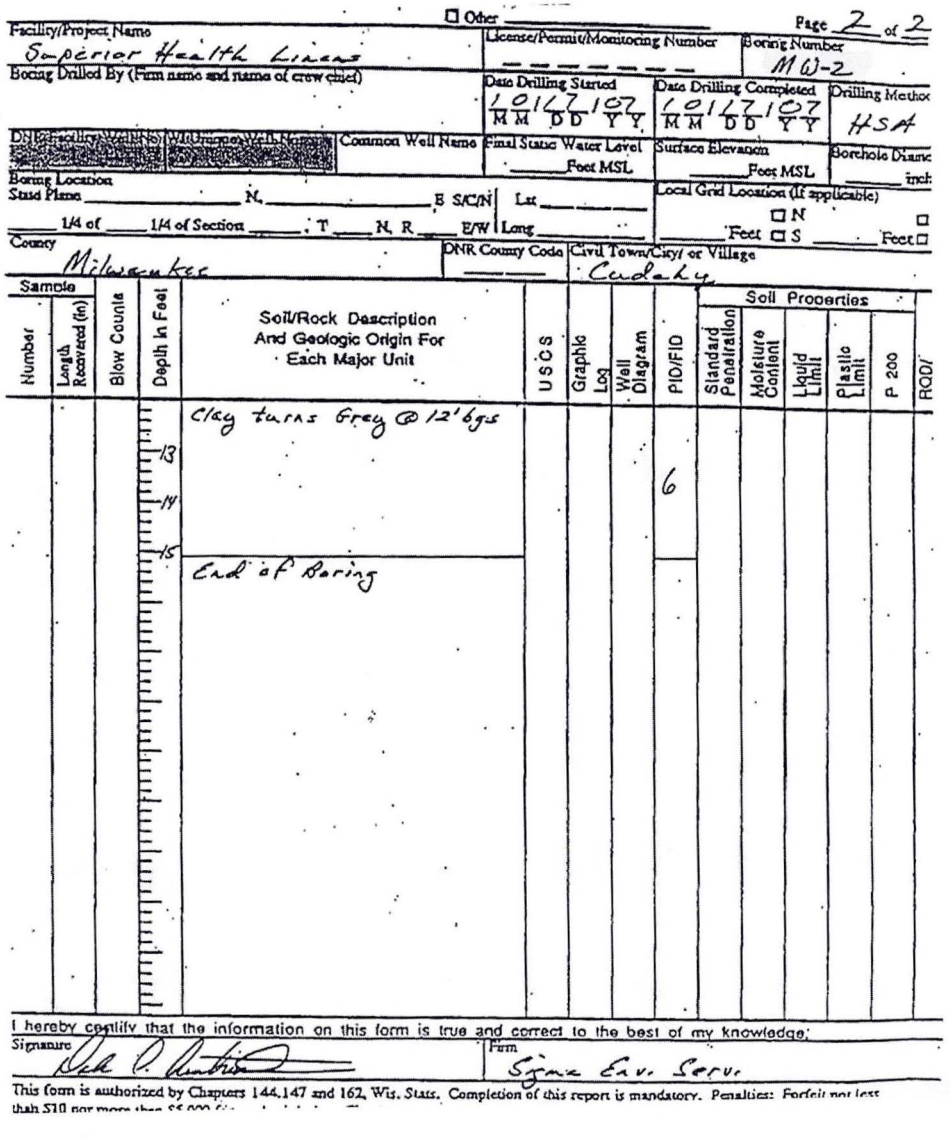
County: Milwaukee | DNR County Code: ____ | Civil Town/City/ or Village: Cudahy

Sample Number	Sample Length Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/
			1	Black/Brown Silty Sand w/ Cinders Moist				0						
			2	Becomes Brown + Very Silty @ 1' bgs										
			3	Brown Sandy Silt Moist w/ Clay				0						
			4	Percent Clay increases w/ depth										
			5											
			6	Brown Silty Clay w/ Some Sand + Gravel + Mottling Damp - Moist				60.2						
			7											
			8											
			9					25.2						
			10	Clay is Moist @ 10' bgs										
			11					23						
			12											

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: [signature] | Firm: Sigma Env. Serv.

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 [illegible]



Other _____ Page 2 of 2

Facility/Project Name: Superior Health Linens | License/Permit/Monitoring Number: _____ | Boring Number: MW-2

Boring Drilled By (Firm name and name of crew chief): | Date Drilling Started: 10/17/07 | Date Drilling Completed: 10/17/07 | Drilling Method: HSA

DNR Facility Well No. [redacted] | Wis Unique Well No. [redacted] | Common Well Name | Final Static Water Level: ____ Feet MSL | Surface Elevation: ____ Feet MSL | Borehole Diameter: ____ inch

Boring Location: State Plane ____ N, ____ E S/C/N | Lat ____ | Long ____ | ____ 1/4 of ____ 1/4 of Section ____, T ____ N, R ____ E/W | Local Grid Location (If applicable): ____ Feet N ____ Feet S ____ Feet

County: Milwaukee | DNR County Code: ____ | Civil Town/City/ or Village: Cudahy

Sample Number	Sample Length Recovered (in)	Blow Counts	Depth in Feet	Soil/Rock Description And Geologic Origin For Each Major Unit	USCS	Graphic Log	Well Diagram	PID/FID	Soil Properties: Standard Penetration	Moisture Content	Liquid Limit	Plastic Limit	P 200	RQD/
			13	Clay turns Grey @ 12' bgs				6						
			14											
			15	End of Boring										

I hereby certify that the information on this form is true and correct to the best of my knowledge.

Signature: [signature] | Firm: Sigma Env. Serv.

This form is authorized by Chapters 144.147 and 162, Wis. Stats. Completion of this report is mandatory. Penalties: Forfeit not less than $10 nor more than $5,000 [illegible]

Investigation Results

Soil – Figure 4

- Shallow impacts
- Concentrations increase with depth.

Groundwater – Figure 1

- 5-7 feet bgs
- Flow to the NE
- Sampling events planned for June and September 2013.

Vapor

- SSV-2 and SSV-5 were high-purge volume samples.
- Test points indicated that influence area extended to the outside, likely drawing exterior air into the samples.
- Reviewed results with Terry Evanson – request confirmation vapor samples.
- Consultant is proposing installation and operation of 2 radon fans.

> ***"Assuming a building footprint of 30,000 sq. ft., 6" of sub-slab engineered fill materials with 30 percent porosity equating to 9,000 cu. ft. of air volume. Continuous operation of the blower is expected to evacuate the sub-slab air every 30 min."***

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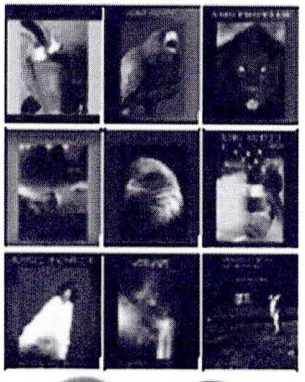

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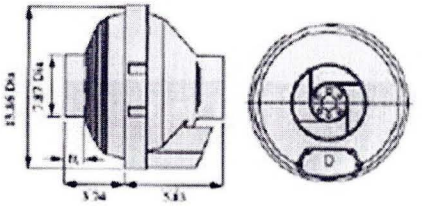
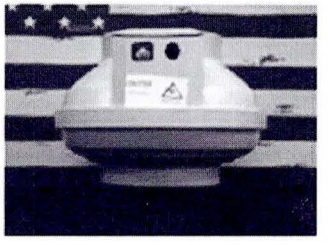
ENERGY STAR

AMG Fury





AMG Fury, Radon Extract Fan Performance Figures

				CFM at STATIC PRESSURE in. w.g.									
Model	*Volts*	*Watts*	*Max. Amps*	*0"*	*0.25"*	*0.5"*	*1.0"*	*1.25"*	*1.5"*	*1.75"*	*2.0"*	*2.25"*	*2.48"*
AMG Fury	120V 60Hz	175	1.46	541	490	437	335	290	244	195	137	76	0
Weight:12.8 lbs. Fan Speed: 2940 rpm							**TYPICAL OPERATING CONDITIONS**						

Performance shown is for installation type D - Ducted inlet, Ducted outlet. Speed (rpm) shown is nominal. Performance is based on actual speed of test. Performance ratings do not include the effects of appurtenances in the airstream. The performance figures shown have been corrected to standard air density.

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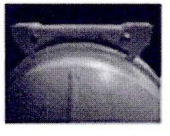

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Summary

Source of CVOCs – unknown

Degree & Extent – not defined

- Request access to railroad property to collect soil & groundwater samples?
- Groundwater concentrations are not stable.
- Depth of soil contamination – more samples?
- Vapor assessment is incomplete. Need for mitigation system has not been determined.

Considerations for Closure?

- Structural impediment
- Soil excavation – narrow access width.
- Cap – impermeable cap not recommended over CVOC "hot spots".
- Long-term management

THE SIGMA GROUP
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May 6, 2013 Project Reference #10724

Ms. Michele Norman
c/o Ms. Victoria Stovall
Wisconsin Dept. of Natural Resources
Remediation & Redevelopment Program
2300 N. Dr. Martin Luther King Jr. Drive
Milwaukee, WI 53212

Subject: Update for Subslab Vapor Testing & Request for Technical Review
Superior Health Linens – 5005 S. Packard Avenue, Cudahy, WI
BRRTS #02-41-532649 FID #241780880

Dear Ms. Norman:

The Sigma Group, Inc. (Sigma) has prepared this letter on behalf of Superior Health Linens to document recent environmental activities completed at the above referenced property (hereinafter the "Site"). The environmental field work was completed in accordance with Sigma's October 2012 submittal[1] (included as **Attachment 1** for reference). Specifically, this letter discusses the field activities and results associated with the following:

- In February 2013, Sigma performed four high purge volume (HPV) subslab vapor sampling tests and one standard sub-slab vapor sample collection at select locations beneath the existing site building to evaluate the presence/degree of chlorinated volatile organic compounds (CVOCs) in the soil vapor beneath the building floor slab.

FACILITY CONDITIONS

Figure 1 illustrates the building footprint and general use areas. The majority of the site building is used as a laundry/processing area for incoming and outgoing health linen materials and is an open warehouse/shop area with high ceilings, overhead doors, laundry washing, drying and pressing equipment and constant air circulation. The existing dryer systems are dual vented, meaning combustion air is brought in from the outside, and very little interior air is used. Considering the testing was completed during the winter the facility was closed (overhead doors are typically open during the summer) and the potential for vapor migration was at its greatest. The office area of the facility is located within a recently constructed addition that includes a thicker (6-inch) concrete slab and plastic vapor barrier.

SUB-SLAB VAPOR SAMPLING ACTIVITIES

On February 8, 2013, Sigma collected five sub-slab vapor samples (SSV-1 through SSV-5) to determine the concentrations of CVOCs in the subslab vapors beneath the building. At four of the five sample locations (SSV-1, SSV-2, SSV-4, and SSV-5), the HPV testing protocol was performed because a larger (more representative) volume of subslab vapor is sampled versus multiple discrete Summa canister testing points. By way of example, based on field measurements, the volume of vapor extracted during the HPV tests ranged between

[1] "Remedial Approach Documentation, Superior Health Linens, Cudahy, Wisconsin" by Sigma (dated October 19, 2012)

approximately 1,600 to 3,500 cubic feet over the course of the Summa canister samples. Following collection of sub-slab vapor samples at three of the four sample locations (SSV-2, SSV-4 and SSV-5), the radius of influence of the applied vacuum was evaluated through installation of communication test points (TP-1 through TP-6). Communication testing was not completed around sample location SSV-1 as SSV-1 was located in a high-traffic area of the site building and additional sampling at this location would have disrupted facility operations.

The vapor testing activities were performed in general accordance with recommendations provided in a WDNR vapor intrusion seminar presentation[2] and technical article[3]. The subslab vapor extraction points (SSV-1, SSV-2, SSV-4 and SSV-5) and communication test points (TP-1 through TP-6), as identified in **Figure 1**, were constructed in the following manner:

- Subslab vapor extraction points
  - Drill a 3-inch diameter hole through the 4 to 6-inch thick concrete floor slab;
  - Remove several additional inches of subslab material;
  - Place several inches of filter pack sand in bottom of void;
  - Place 2-inch Schedule 80 PVC suction point (open end with four ¼-inch diameter holes in side of PVC wrapped with fine gauge stainless steel wire mesh to prevent suction of filter pack sand) at the bottom of the suction point and connect rest of PVC assembly to shop vacuum (which is vented to outdoors (photos of typical setup included in **Attachment 2**);
  - Place additional filter pack around suction point;
  - Place several inches of quick-setting cement in the annulus between the suction point PVC and the core hole through the floor slab and allow to cure to seal off atmospheric air leakage into subsurface;
  - Turn on shop vacuum and smoke-test floor seal and fittings (passed based on visual observations), pressure test fittings (passed based on stable vacuum gauge readings over a 5 minute period), and leak test floor seal with helium gas tracer (passed based on less than 10% leakage);
  - Connect organic vapor monitor to access port on suction point and monitor for 5 minutes (all readings consistently 0.0 to 0.1 ppm at all locations);
  - Measure air velocity in PVC assembly (1,200 feet per minute [ft/min] at SSV-1, 2,800 ft/min at SSV-2, 1,300 ft/min at SSV-4, and 1,200 ft/min at SSV-5) to determine the purged vapor volumes;
  - Connect Summa canister and initiate sample collection; and
  - Disconnect the Summa canister from the extraction point after approximately 1 hour (63 minutes for SSV-1, 63 minutes for SSV-2, 65 minutes for SSV-4 and 62 minutes for SSV-5).

- Communication test points:
  - Drill a ¼-inch diameter hole through the concrete floor slab at each test location;
  - Insert a section of ¼-inch diameter nylon tubing into each hole and seal the tubing with quick-setting cement;
  - Seal the open ends of each tube when not being used for field measurements; and

[2] "High Purge Volume Sub-Slab Sampling, Former Paragon Electric Case Study " presentation by Annette Weissbach, WDNR (March 2011 FET seminar)
[3] "High Purge Volume Sampling – A New Paradigm for Subslab Soil Gas Monitoring" by Todd McAlary, etc. al. (Ground Water Monitoring & Remediation, Vol. 30, No. 2, Spring 2010, pages 73 – 85)

- Measure vacuum pressure at the communication test ports with a micromanometer during each test:
  - During SSV-2 test:
    - TP-1 = 0.020 inches water
    - TP-2 = 0.000 inches water
  - During SSV-4 test:
    - TP-3 = 0.000 inches water
    - TP-4 = 0.008 inches water
  - During SSV-5 test:
    - TP-5 = 0.027 inches water
    - TP-6 = 0.011 inches water

The measured vacuum readings at the communication test points indicate that the HPV tests had a radius of influence of at least 20 to 25 feet. Upon the completion of the HPV tests, the PVC suction point assembly and nylon tubing at the communication test points were removed and the concrete floor slab was patched with concrete. Each six-liter Summa canister sub-slab vapor sample was submitted under chain of custody to the environmental laboratory for analysis of select CVOCs by EPA Method TO-15.

In addition to the HPV samples, a standard sub-slab vapor sample was collected at the location selected for SSV-3 due to space constraints in the vicinity of the sample location. At SSV-3, a 2-inch diameter hole was drilled to a depth of approximately 2 inches into the concrete floor slab. A 3/8 inch diameter drill was used to complete the drill hole through the concrete floor slab. A small amount of filter pack sand was placed at the bottom of the drill hole (beneath the floor slab). An appropriate length of 1/4-inch diameter stainless steel tubing was placed in the drill hole with the tip, covered with fine stainless steel mesh, located in the filter pack sand. The steel tubing was set in the hole using hydrated anchoring cement. The anchoring cement was allowed to set until stiff.

New nylon tubing was connected to the steel sampling point using brass swage-lok fittings. The nylon tubing was connected to a tedlar bag in a lung-box. A shroud was placed around the sub-slab sampling point and helium gas was introduced into the shroud. A vacuum pump was connected to the lung box and a vacuum created within the lung box so that vapors from beneath the slab would be drawn through the sub-slab sampling point into the tedlar bag. An IonScience GasCheck 3000 Helium Detector was used to check the helium concentration within the tedlar bag. At SSV-3, the measured helium levels within the tedlar bag were identical to background concentrations, indicating that the surface seal around the sub-slab sampling point and the nylon tubing connected to the sub-slab sampling point were leak-free.

Following completion of the helium leak test, the sub-slab sampling point was purged using a photo-ionization detector (PID) until at least two volumes of the sampling point were removed. PID readings during purging did not detect concentrations greater than background levels. Following purging, a laboratory certified 6 liter SUMA vacuum canister was connected to the sampling point. The sub-slab sample was collected over a period of approximately 2 hours. Following sampling, the SUMA canister was re-packed for submittal to the analytical laboratory.

SUB-SLAB VAPOR SAMPLING RESULTS

Subslab vapor analytical data are summarized in **Table 1**; a copy of the laboratory analytical report is included as **Attachment 3**. The analytical laboratory was not able to run analysis on the sub-slab sample collected from sampling point SSV-4 due to the low volume of sample collected; although the canister was allowed to collect sample over the 1 hour calibrated

sampling period, an insufficient volume of air was pulled into the canister, possibly due to high moisture levels in the sampled air causing the small diameter tubing in the sampling train to become blocked with condensation.

Vapor risk screening levels are based on Vapor Action Levels modified with a 0.01 subslab vapor-to-ambient air attenuation factor as referenced in the WDNR's vapor intrusion guidance document[4]. All sample concentrations are reported below these risk screening levels.

Therefore, based on the collected data the vapor intrusion pathway is not considered a receptor risk and no additional investigation or remediation work is warranted. The sample locations were spaced to evaluate the majority of the building footprint area and included a sample in the vicinity of the highest reported CVOC concentrations within soil and groundwater samples collected from the site.

RECOMMENDATIONS

Although installation of a sub-slab venting/de-pressurization system was proposed in Sigma's November 2012 submittal, the sub-slab vapor sampling results collected since the November 2012 submittal have demonstrated that the concentrations of CVOCs identified within soil and groundwater beneath the site do not pose a level of risk via vapor intrusion to the site building that would warrant installation/operation of such a system. Sigma requests WDNR concurrence that installation of a sub-slab venting system will not be required as part of the remedial strategy/path to regulatory case closure for the release associated with CVOC contamination at the site.

If you concur with our recommendation, we would appreciate a written response. Please call us at (414) 643-4200 if you have any questions. Thank you for your assistance on this project.

Sincerely,

THE SIGMA GROUP, INC.

Stephen Meer, P.E.
Project Engineer

Kristin Kurzka, P.E.
Senior Engineer

Enclosures: Table 1 - Subslab Vapor Analytical Results
Figure 1 - Subslab Vapor Extraction Points
Attachment 1 - Remedial Approach Documentation
Attachment 2 - September High Purge Volume Testing Photographs
Attachment 3 - Subslab Vapor Analytical Data

cc: William Nicklas – Superior Health Linens

[4] "Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin" PUB-RR-800 by WDNR (dated December 2010)

Table 1
Subslab Vapor Analytical Results
Superior Health Linens - 5005 S. Packard Avenue, Cudahy, Wisconsin
Project Reference #10724

Sample Point:			SSV-1	SSV-2	SSV-3	SSV-5
VOCs (Detects Only)	Unit	Vapor Risk Screening Level [2]	Raw Data	Raw Data	Raw Data	Raw Data
		Industrial Air	Collection Date			
			02/08/13	02/08/13	02/08/13	02/08/13
cis-1,2-Dichloroethene	µg/m^3	NS	<5.5	<1.4	<1.3	<1.6
trans-1,2-Dichloroethene	µg/m^3	26,000	<5.5	<1.4	<1.3	<1.6
1,1-Dichloroethene	µg/m^3	88,000	<5.5	<1.4	<1.3	<1.6
Tetrachloroethene	µg/m^3	18,000	<4.7	<1.2	<1.1	<1.3
1,1,1-Trichloroethane	µg/m^3	2,200,000	<7.5	<1.9	79.1	<2.1
Trichloroethene	µg/m^3	880	<3.7	<0.92	1.1	<1.1
Vinyl chloride	µg/m^3	28,000	<1.8	<0.44	<0.40	<0.50

Notes

1. µg/m^3 = micrograms per cubic meter

2. Vapor Risk Screening Level based on Vapor Action Levels (VALs) described in WDNR publication PUB-RR-800 "Addressing Vapor Intrusion at Remediation & Redevelopment Sites in Wisconsin" (dated December 2010), which in turn references EPA Region 3 Risk-Based Concentrations for industrial air (Regional Screening Level Master Table - **November 2012** [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/index.htm]), and WDNR November 2012 "Indoor Air Vapor Action Levels for Various VOCs Quick Look-Up Table". Vapor Risk Screening Level adjusted to **1-in-100,000 increase in lifetime cancer risk** for carcinogens per WDNR publication PUB-RR-800; VAL is not adjusted for non-carcinogens (i.e., **harzard index = 1**). Furthermore, Vapor Risk Screening Level has been adjusted with an **Attenuation Factor of 0.01** for the subslab to ambient air pathway as provided in WDNR publication PUB-RR-800 for a large commercial/industrial building.

4. Exceedances: [ ] = concentration exceeds Vapor Risk Screening Level