

Joslin, Richard R - DNR

From: Tom Willis <TWillis@chemdesign.com>
Sent: Friday, August 9, 2019 1:11 PM
To: Joslin, Richard R - DNR
Cc: Beyer, Alexander W - DNR
Subject: FW: Follow-Up to ChemDesign Chemical Spill - SERTS # 20190513NE38-1
Attachments: Bldg 52 MCB-Isohexane spill Let to WDNR final 519.pdf; Soil Sample Results Follow-up Collection to Lab 819.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Rick, we had our contractor MJB Industries, remove and dispose of an additional 15 ft by 2 ft of the original soil from each side of the Sample Location A in the Picture below. The soil was placed into 16 open top steel drums for disposal. The two follow-up samples were collected from the original soil and sent to the lab. Both samples revealed concentrations below the limit of detection for chlorobenzene of <25 ppb.

The sample labeled Point D in the attached report was collected from the area identified in the picture as "Sample A", and the sample labeled Point C was collected from the area identified as "Sample B".

I will contact you and discuss the results. Thank you Tom

Tom Willis

Director of HES



O (715)735-8263

M (906)280-8919

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twillis@chemdesign.com

From: Tom Willis
Sent: Tuesday, July 23, 2019 2:47 PM
To: Richard.Joslin@wisconsin.gov
Cc: Beyer, Alexander W - DNR <Alexander.Beyer@wisconsin.gov>
Subject: Follow-Up to Chem Design Chemical Spill - SERTS # 20190513NE38-1

Attached is our final report that was sent to you on June 3, 2019, and the lab report for the follow-up soil samples collected on July 9, 2019. The results of the soil samples are as follows:

Soil Sample A: <25 ppb Monochlorobenzene

Soil Sample B: <25 ppb Monochlorobenzene

Soil Sample C: 47.6 ppb Monochlorobenzene

Soil Sample D: 185 ppb Monochlorobenzene

Please Note: The attached lab sample results were identified in reverse order, such that Sample A location from the picture below (from Bldg 52 amended FINAL MCB-Isohexane spill Let to WDNR 519 Page 5) is in fact the results from Soil Sample D (from the attached lab results) revealing a concentration of 185 ppb, and so on.

If you compare with the concentrations in the report you will see that the results are much lower; however, tomorrow we will remove additional soil for disposal around location Sample A, and take additional samples for analysis. As soon as the results are available we will forward for your review. Thank you for your patience - Tom



Pic 4 - Four soil samples were collected after initial soil was removed from the ground adjacent to asphalt. These sample results are detailed in the report. Similar locations where the TCLP sample was collected.

5

Tom Willis

Director of HES



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From: Tom Willis

Sent: Monday, June 03, 2019 11:56 AM

To: Joslin, Richard R - DNR <Richard.Joslin@wisconsin.gov>

Cc: Beyer, Alexander W - DNR <Alexander.Beyer@wisconsin.gov>

Subject: RE: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Attached you will find the revised report with the additional information you requested. We did not use Veolia Environmental for the clean-up as ChemDesign maintains trained and certified individuals, and the necessary spill response equipment for such an activity. We hope to never use this, but we must be prepared should this type of event occur.

If you would like to see additional information, please let me know – thank you Tom

Tom Willis

Director of HES



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From: Joslin, Richard R - DNR <Richard.Joslin@wisconsin.gov>

Sent: Thursday, May 30, 2019 9:52 AM

To: Tom Willis <TWillis@chemdesign.com>

Cc: Beyer, Alexander W - DNR <Alexander.Beyer@wisconsin.gov>

Subject: RE: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Thanks Tom for the report. The Department did a quick review of the report and came up with the following comments that need to be addressed or included in the final report:

- A discussion of the time the spill actually happened
- What day did the cleanup happen
- Staff involved with this incident
- SDS sheets of chemicals released and in the mixing vessel
- Provide waste determination for this waste
- Disposal manifests
- All lab reports and COC forms
- Was Veolia involved with spill response if so is there a report from Veolia?
- Who excavated soils and how was excavation guided?
- Photos of the vessel (#5228) and the broken sight-glass.
- Photos of the plug valve or a diagram of where this was on the tank
- Did the spilled material make it through the cracked pavement?

Considering that this spill event involved a hazardous waste I think the above items should be added to the report. Please provide that information in a final report to me and Alex Beyer. If you have any question please feel free to contact me or your Waste Management Specialist (Alexander Beyer; 920-662-5428) to discuss.

Thanks

Rick

We are committed to service excellence.

Visit our survey at <http://dnr.wi.gov/customersurvey> to evaluate how I did.

Richard R. Joslin

Hydrogeologist / NER Spills Coordinator – Remediation & Redevelopment Bureau
Wisconsin Department of Natural Resources
625 East County Road Y, Suite 700, Oshkosh, WI 54901-9731
Phone: (920) 424-7077
Cell Phone: (920) 360-4291
Richard.Joslin@Wisconsin.gov



From: Tom Willis <TWillis@chemdesign.com>
Sent: Tuesday, May 28, 2019 10:58 AM
To: Joslin, Richard R - DNR <Richard.Joslin@wisconsin.gov>
Subject: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Attached is the follow-up letter you requested in regards to our NRC call on May 13, 2019. As stated in the report, we have collected additional TCLP samples after remediation and I will forward those once received. We hope to get them back from the lab later this week or early next week.

If you have any questions, or would like to discuss, please give me a call – thank you Tom

Tom Willis
Director of HES



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From: Joslin, Richard R - DNR <Richard.Joslin@wisconsin.gov>
Sent: Tuesday, May 14, 2019 10:15 AM
To: Tom Willis <TWillis@chemdesign.com>
Subject: RE: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Sounds Good.

We are committed to service excellence.

Visit our survey at <http://dnr.wi.gov/customersurvey> to evaluate how I did.

Richard R. Joslin

Hydrogeologist / NER Spills Coordinator – Remediation & Redevelopment Bureau
Wisconsin Department of Natural Resources
625 East County Road Y, Suite 700, Oshkosh, WI 54901-9731
Phone: (920) 424-7077
Cell Phone: (920) 360-4291
Richard.Joslin@Wisconsin.gov



From: Tom Willis <TWillis@chemdesign.com>
Sent: Tuesday, May 14, 2019 10:06 AM
To: Joslin, Richard R - DNR <Richard.Joslin@wisconsin.gov>
Subject: FW: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Good morning Rick, Chris Kanikula forwarded your request to me as I was out of the plant yesterday when the spill occurred. Our folks did an excellent job on response and clean-up, and I should have a detailed report for you by early next week. In the meantime if you have any question or you would like to discuss, please feel free to call me. Thank you Tom

Tom Willis
Director of HES



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From: Christopher Kanikula
Sent: Monday, May 13, 2019 3:42 PM
To: Tom Willis <TWillis@chemdesign.com>
Subject: FW: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Christopher Kanikula
Manager of Waste Operations



O 715-735-8393
F 715-735-5304
C 920-471-8004
www.chemdesign.com
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ckanikula@chemdesign.com

From: Joslin, Richard R - DNR <Richard.Joslin@wisconsin.gov>
Sent: Monday, May 13, 2019 3:01 PM
To: Christopher Kanikula <CKanikula@chemdesign.com>
Subject: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Chris

Per our conversation, please send me a map of the facility that shows where the spill occurred and where it ran to.

Please note that a documentation report will be needed for the spill referenced above. The report should be submitted to me within 45 days of the incident. The report should include information (i.e., what happened, where it happened, how it was fixed, what remedial activities were performed, photo documentation, etc.) to document spill response activities that occurred. Photos of the condition of the asphalt and concrete should also be included.

Please make sure that the report includes **global positioning system (GPS) coordinates** or a **map** that presents an accurate location of the spill. If you need more information related to the spill cleanup documentation report, please do not hesitate to contact me.

The report should be sent to:

Email: richard.joslin@wisconsin.gov (No hard copy of the report is required)

Thank you for your cooperation with this matter!

Rick

We are committed to service excellence.

Visit our survey at <http://dnr.wi.gov/customersurvey> to evaluate how I did.

Richard R. Joslin

Hydrogeologist / NER Spills Coordinator – Remediation & Redevelopment Bureau

Wisconsin Department of Natural Resources

625 East County Road Y, Suite 700, Oshkosh, WI 54901-9731

Phone: (920) 424-7077

Cell Phone: (920) 360-4291

Richard.Joslin@Wisconsin.gov



May 28, 2019

Mr. Rick Joslin
NER Spill Coordinator
WDNR
2984 Shawano Ave.
Green Bay, WI 54313

Dear Mr. Joslin

On May 13, 2019, Christopher Kanikula, ChemDesign's Hazardous Waste Manager reported a spill of monochlorobenzene (CAS# 108-90-7) to the National Response Center at approximately 1:30 PM. The spill involved a site glass failure on a vessel at the start of a transfer to a hazardous waste tanker.

Location: 2 Stanton Street, Marinette, Wisconsin 54143, Parcel 1 – Stanton Street Plant Site, Fractional Section 5, Township 50 North, Range 24 East. Refer to Site Plan Drawing for the spill location and our Stormwater Program Hold and Test Puddle (area where the spill collected) (see Map 1).

At the time of the spill the wind direction was into the NW at approximately 9 mph, and a temperature of 57 Degrees F.

Summary of Incident - Vessel number 5228 is a 2,000-gallon glass-lined reactor containing 838.6 lbs of monochlorobenzene (MCB) and 6,738 lbs of isohexane (CAS# 107-83-5) at a temperature of 35 degrees F, which was being transferred under pressure to a tanker for recycling. The Operator opened the automatic bottom valve of the vessel to release the material that was lined-out to the tanker when the sight-glass immediately adjacent burst open and came apart. This released the contents of vessel 5228 on to the floor and immediately outside the door to the containment puddle where it collected (see Pic 1, 2 & 5).

The investigation revealed that the sight glass was at its end of service life, and when it burst the subsequent pressure misaligned the plug valve and prevented it from closing properly. This allowed material to flow directly from the site glass and onto the floor. The sight glass was rated for 150 psig (1.5" diameter sight glass) and failed at 34.7 psig. The plug valve was also removed from service and replaced with a new automatic ball valve.

Approximately 4,000 gallons of material, including 838.6 lbs (111 gal) of MCB, 6,738 lbs (1,214 gal) of isohexane, clean-up/rinse waters and storm water from a previous rain event were collected in a Veolia Environmental Services, Inc. tanker and transferred to Milwaukee, Wisconsin for disposal. Manifest Number 001540515VES.

We also generated 12, 55-gallon drums of contaminated soil and asphalt barrier as the curbing along the road way on the North side of Bldg 52 was broken up. The drums will be sent out as hazardous waste once profiled. The curbing has since been repaired (see Pic 3).

We tested the remaining soil for MCB after we pulled-up a 1ft x 1ft x 28ft section of soil along the deteriorated curbing. MCB analysis was conducted by ChemDesign's in-house Quality Control and

Research laboratory. The soil samples were analyzed using a Gas Chromatograph (GC) equipped with Flame Ionization Detection. The MCB present in the soil samples was extracted into a solvent and injected into the GC inlet via an automatic liquid sampler.

Four initial one liter samples were collected for analysis (see Pic 4):

Soil Sample A: 29 ppm MCB

Soil Sample B: 51 ppm MCB

Soil Sample C: 6 ppm MCB

Soil Sample D: <5 ppm MCB

After the results came back from initial sampling, an additional 0.8ft x 2ft x 28ft section was removed and disposed in 55-gallon drums. Four additional TCLP soil samples were collected along the trench in the same locations and sent out to Pace Analytical in Green Bay, Wisconsin. We will determine if additional remediation is required based on the results of the TCLP samples once received.

After the TCLP samples were taken, gravel and sand were brought in to fill the void and a new asphalt curb was run along the area to re-establish a barrier to ground (see Pic 3).

In summary, approximately 1,400 gallons of solvent was released from vessel 5228 and drained out of Bldg 52 and into a storm water containment area. All efforts were made to clean-up materials, soils, soap and rinse water for disposal as hazardous waste. The soil was tested and four TCLP samples are still at the lab and we are waiting for results. The roadway barrier has been replaced along with a new site glass and valve on 5228. If you have any questions, please feel free to contact me at the number below.

Sincerely,

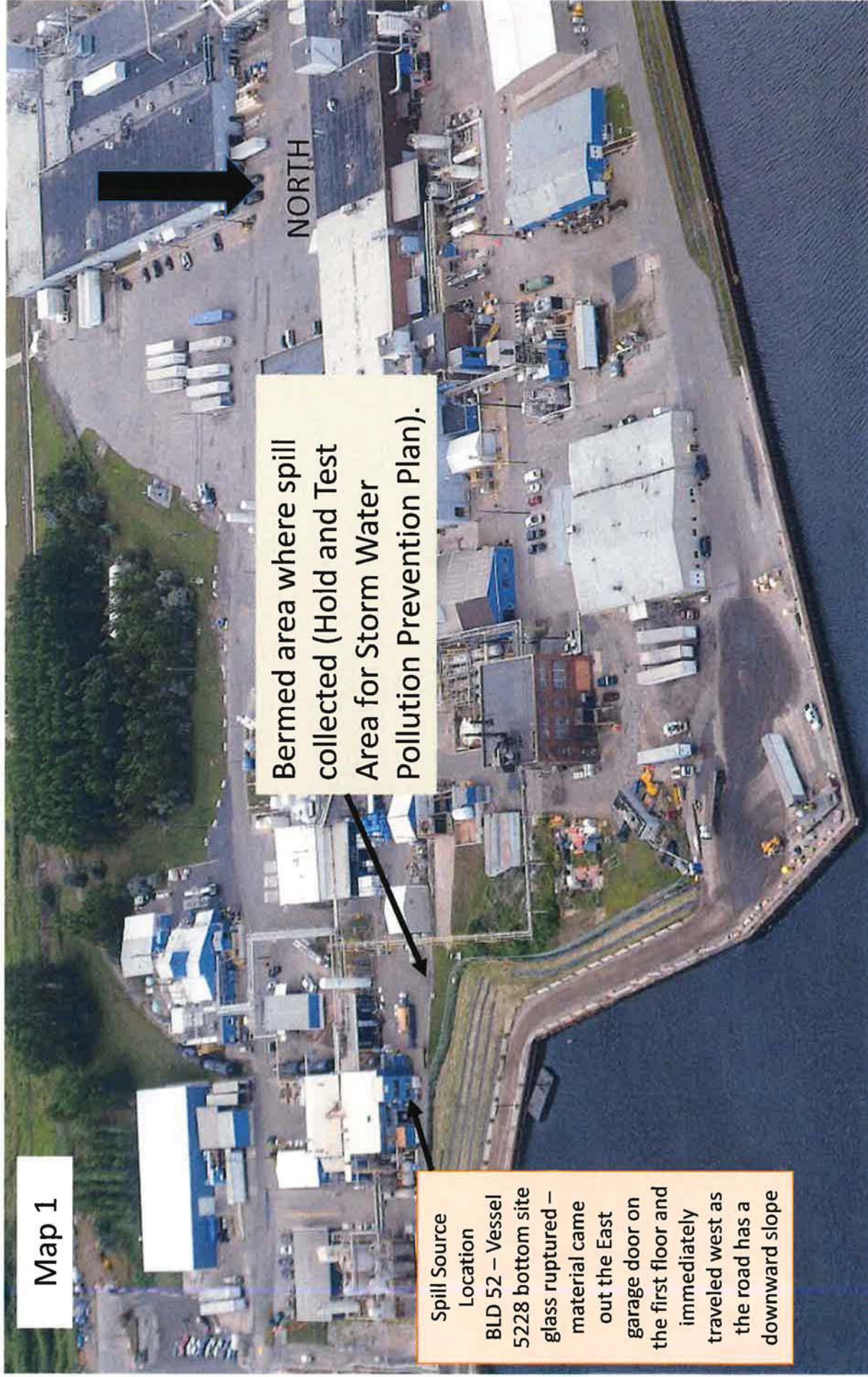


Thomas Willis
Director of HES
ChemDesign Products, Inc.
2 Stanton Street
Marinette, WI 54143
(715)735-8263
twillis@chemdesign.com

Attachments:

1. Map 1 – Site map and location of spill
2. Pics 1 -5 – Detailing incident and clean-up

Map 1



Bermed area where spill collected (Hold and Test Area for Storm Water Pollution Prevention Plan).

Spill Source

Location

BLD 52 – Vessel
5228 bottom site
glass ruptured –
material came
out the East
garage door on
the first floor and
immediately
traveled west as
the road has a
downward slope



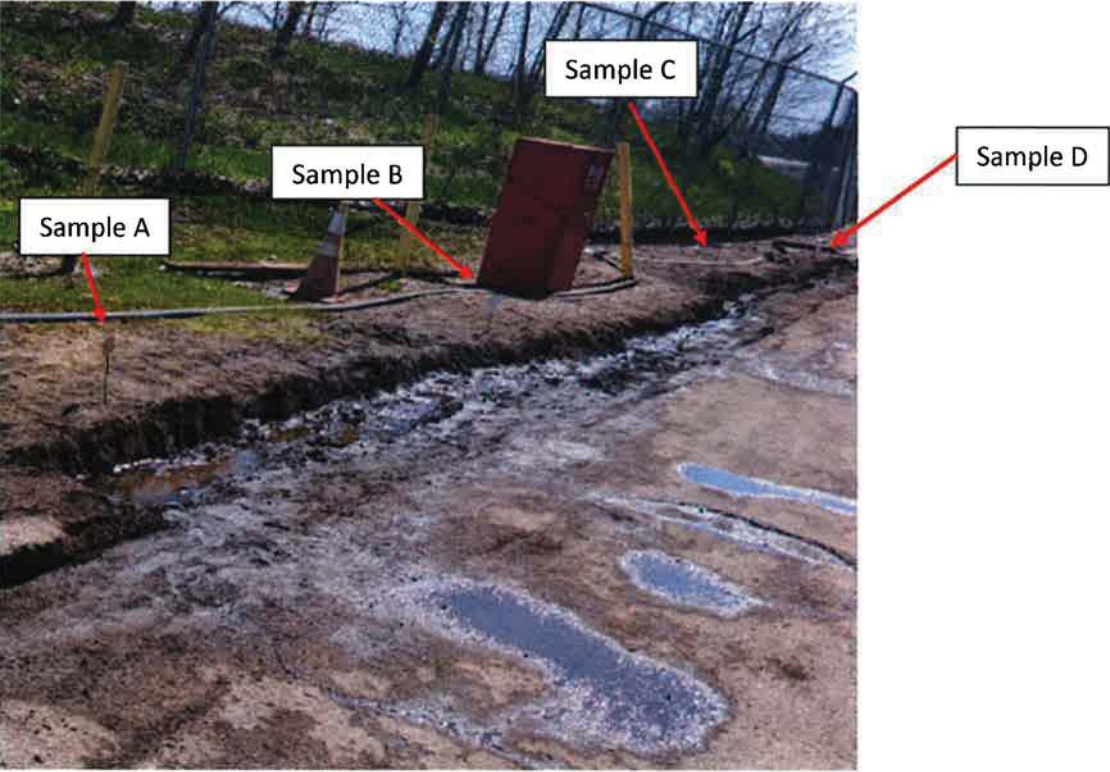
Pic 1 – 5/13/19 3:00 PM drainage plum of the spill to our Hold and Test Containment area for our Storm Water Management Plan



Pic 2 - Bldg 52, 5228's room to the North of the building. The spill drained to the West into our Hold and Test containment area



Pic 3 - View to the East after clean-up and gravel fill



Pic 4 - Four soil samples were collected after initial soil was removed from the ground adjacent to the asphalt. These sample results are detailed in the report.



Pic 5 – Spill containment area\Hold and Test containment area

August 09, 2019

Chris Kanikula
Specialty Chem Products / Chemdesign
2 Stanton St
Marinette, WI 54143

RE: Project: MGT SOIL 8-7-19
Pace Project No.: 40192564

Dear Chris Kanikula:

Enclosed are the analytical results for sample(s) received by the laboratory on August 07, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC 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,



Steven Mleczo
steve.mleczo@pacelabs.com
(920)469-2436
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: MGT SOIL 8-7-19

Pace Project No.: 40192564

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: MGT SOIL 8-7-19
Pace Project No.: 40192564

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40192564001	POINT C	Solid	08/07/19 14:30	08/07/19 16:15
40192564002	POINT D	Solid	08/07/19 14:30	08/07/19 16:15

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SAMPLE ANALYTE COUNT

Project: MGT SOIL 8-7-19
Pace Project No.: 40192564

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40192564001	POINT C	EPA 8260	MDS	4	PASI-G
		ASTM D2974-87	JEV	1	PASI-G
40192564002	POINT D	EPA 8260	MDS	4	PASI-G
		ASTM D2974-87	JEV	1	PASI-G

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ANALYTICAL RESULTS

Project: MGT SOIL 8-7-19

Pace Project No.: 40192564

Sample: POINT C **Lab ID: 40192564001** Collected: 08/07/19 14:30 Received: 08/07/19 16:15 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Chlorobenzene	<25.0	ug/kg	60.0	25.0	1	08/08/19 07:30	08/08/19 14:30	108-90-7	W
Surrogates									
Dibromofluoromethane (S)	81	%	57-146		1	08/08/19 07:30	08/08/19 14:30	1868-53-7	
Toluene-d8 (S)	88	%	64-134		1	08/08/19 07:30	08/08/19 14:30	2037-26-5	
4-Bromofluorobenzene (S)	83	%	54-126		1	08/08/19 07:30	08/08/19 14:30	460-00-4	
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	34.9	%	0.10	0.10	1		08/07/19 18:28		

Sample: POINT D **Lab ID: 40192564002** Collected: 08/07/19 14:30 Received: 08/07/19 16:15 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Chlorobenzene	<25.0	ug/kg	60.0	25.0	1	08/08/19 07:30	08/08/19 14:54	108-90-7	W
Surrogates									
Dibromofluoromethane (S)	91	%	57-146		1	08/08/19 07:30	08/08/19 14:54	1868-53-7	
Toluene-d8 (S)	99	%	64-134		1	08/08/19 07:30	08/08/19 14:54	2037-26-5	
4-Bromofluorobenzene (S)	93	%	54-126		1	08/08/19 07:30	08/08/19 14:54	460-00-4	
Percent Moisture		Analytical Method: ASTM D2974-87							
Percent Moisture	29.5	%	0.10	0.10	1		08/07/19 18:27		

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QUALITY CONTROL DATA

Project: MGT SOIL 8-7-19
Pace Project No.: 40192564

QC Batch: 330003 Analysis Method: EPA 8260
QC Batch Method: EPA 5035/5030B Analysis Description: 8260 MSV Med Level Normal List
Associated Lab Samples: 40192564001, 40192564002

METHOD BLANK: 1914792 Matrix: Solid
Associated Lab Samples: 40192564001, 40192564002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chlorobenzene	ug/kg	<14.8	50.0	08/08/19 09:52	
4-Bromofluorobenzene (S)	%	104	54-126	08/08/19 09:52	
Dibromofluoromethane (S)	%	100	57-146	08/08/19 09:52	
Toluene-d8 (S)	%	104	64-134	08/08/19 09:52	

LABORATORY CONTROL SAMPLE: 1914793

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chlorobenzene	ug/kg	2500	2540	102	70-130	
4-Bromofluorobenzene (S)	%			102	54-126	
Dibromofluoromethane (S)	%			99	57-146	
Toluene-d8 (S)	%			104	64-134	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1914794 1914795

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		40192564002 Result	Spike Conc.	Spike Conc.	Result							Result
Chlorobenzene	ug/kg	<25.0	1770	1770	1590	1600	90	90	70-130	0	20	
4-Bromofluorobenzene (S)	%						93	92	54-126			
Dibromofluoromethane (S)	%						93	90	57-146			
Toluene-d8 (S)	%						93	93	64-134			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MGT SOIL 8-7-19
Pace Project No.: 40192564

QC Batch: 329950 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 40192564001, 40192564002

SAMPLE DUPLICATE: 1914620

Parameter	Units	40192496001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	6.4	6.3	2	10	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: MGT SOIL 8-7-19
Pace Project No.: 40192564

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

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 at or above the adjusted LOD.

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.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

ANALYTE QUALIFIERS

W Non-detect results are reported on a wet weight basis.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MGT SOIL 8-7-19

Pace Project No.: 40192564

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40192564001	POINT C	EPA 5035/5030B	330003	EPA 8260	330013
40192564002	POINT D	EPA 5035/5030B	330003	EPA 8260	330013
40192564001	POINT C	ASTM D2974-87	329950		
40192564002	POINT D	ASTM D2974-87	329950		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields
Billing Information:

Company: ChemDesign Products, Inc
Address: 2 Stantons Street, Marinette, WI 54143

Report To: Christopher Kanikula

Email To:

Site Collection Info/Address:

Customer Project Name/Number: **MGT soil 8-7-19** State: _____ County/City: _____ Time Zone Collected: _____

Phone: 715-735-8393 Site/Facility ID #: _____

Email: **ckanikula@chemdesign.com**

Collected By (print): **Chris Kanikula** Purchase Order #: _____

Quote #: _____

Turnaround Date Required: _____

Sample Disposal: [X] Dispose as appropriate [] Return [] Archive: _____ [] Hold: _____

Rush: [] Same Day [] Next Day [] 2 Day [X] 3 Day [] 4 Day [] 5 Day (Expedite Charges Apply)

Field Filtered (if applicable): [] Yes [X] No

Analysis: _____

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Ground Water (GW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID Matrix * Comp / Grab Matrix * Composite Start Date Composite End Date Res Cl # of Ctns

Point C Soil Grab 7-Aug 14:30 14:30 1 1

Point D Soil Grab 7-Aug 14:30 14:30 1 1

Customer Remarks / Special Conditions / Possible Hazards: 3 Day turn. Rep name is Steve Melzco.

Packing Material Used: _____

Radchem sample(s) screened (<500 cpm): Y N NA

Date/Time: 8/7/19 9:16:15 AM Received by/Company: (Signature) Steve Melzco

Date/Time: _____ Received by/Company: (Signature)

Date/Time: _____ Received by/Company: (Signature)

Date/Time: _____ Received by/Company: (Signature)

LAB USE ONLY - Affix Workorder/Login Label Here or List Pace Workorder Number or MTJL Log-In Number Here

40192564

ALL SHADED AREAS are for LAB USE ONLY

Container Preservative Type **

Lab Project Manager:

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other _____

MSC

Analyses

Lab Profile/Line:

- Custody Seals Present/Intact Y N NA
- Custody Signatures Present Y N NA
- Collector Signature Present Y N NA
- Bottles Intact Y N NA
- Correct Bottles Y N NA
- Sufficient Volume Y N NA
- Samples Received on Ice Y N NA
- VOA - Headspace Acceptable Y N NA
- USDA Regulated Soils Y N NA
- Samples in Holding Time Y N NA
- Residual Chlorine Present Y N NA
- Cl Strips: Y N NA
- Sample pH Acceptable Y N NA
- pH Strips: Y N NA
- Sulfide Present Y N NA
- Lead Acetate Strips: _____

LAB USE ONLY:

Lab Sample # / Comments: _____

Signature

001
002

Chlorobenzene (VOC)

X

X

LAB Sample Temperature Info:

Temp Blank Received: Y N NA

Therm ID#:

Cooler 1 Temp Upon Receipt: ___ °C

Cooler 1 Therm Corr. Factor: ___ °C

Cooler 1 Corrupted Temp: ___ °C

Comments: _____

Signature

SHORT HOLDS PRESENT (<72 hours): Y N N/A

Lab Tracking #:

Samples received via:

FEDEX UPS Client Courier Pace Courier

Date/Time: 8-7-19 10:11 AM

Table #:

Accnum:

Template:

Prelogin:

PM:

PB:

Date/Time:

Date/Time:

Date/Time:

Date/Time:

Date/Time:

Trip Blank Received: Y N NA

HCL MeOH TSP Other

Non Conformance(s):

YES / NO

Page: _____ of: _____

Client Name: Chem Design **Sample Preservation Receipt Form**
Project # 40192564

All containers needing preservation have been checked and noted below: Yes No N/A

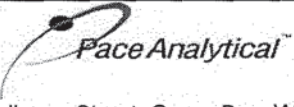
Lab Lot# of pH paper: _____ Lab Std #/ID of preservation (if pH adjusted): _____

Initial when completed: _____ Date/Time: _____

Pace Lab #	AG1U AG1H AG4S AG4U AG5U AG2S BG3U	Glass	BP1U BP2N BP2Z BP3U BP3B BP3N BP3S	Plastic	DG9A DG9T VG9U VG9H VG9M VG9D	Vials	JGFU WGFU JGFU	Jars		General		VOA Vials (>6mm) *	H2SO4 pH ≥	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≥2	pH after adjusted	Volume (mL)
								WPFU	SP5T	ZPLC	GN							
001	AG1U																	2.5 / 5 / 10
002																		2.5 / 5 / 10
003																		2.5 / 5 / 10
004																		2.5 / 5 / 10
005																		2.5 / 5 / 10
006																		2.5 / 5 / 10
007																		2.5 / 5 / 10
008																		2.5 / 5 / 10
009																		2.5 / 5 / 10
010																		2.5 / 5 / 10
011																		2.5 / 5 / 10
012																		2.5 / 5 / 10
013																		2.5 / 5 / 10
014																		2.5 / 5 / 10
015																		2.5 / 5 / 10
016																		2.5 / 5 / 10
017																		2.5 / 5 / 10
018																		2.5 / 5 / 10
019																		2.5 / 5 / 10
020																		2.5 / 5 / 10


Exceptions to preservation check: VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other: _____ Headspace in VOA Vials (>6mm): Yes No N/A *If yes look in headspace column

AG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	BP1U	BP2N	BP2Z	BP3U	BP3B	BP3N	BP3S	DG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JGFU	WGFU	WPFU	SP5T	ZPLC	GN	Volume (mL)
1 liter amber glass	1 liter amber glass HCL	125 mL amber glass H2SO4	120 mL amber glass unpres	100 mL amber glass unpres	500 mL amber glass H2SO4	250 mL clear glass unpres	1 liter plastic unpres	500 mL plastic HNO3	500 mL plastic NaOH, Znact	250 mL plastic unpres	250 mL plastic NaOH	250 mL plastic HNO3	250 mL plastic H2SO4	40 mL amber ascorbic	40 mL amber Na Thio	40 mL clear vial unpres	40 mL clear vial HCL	40 mL clear vial MeOH	40 mL clear vial DI	4 oz amber jar unpres	4 oz clear jar unpres	4 oz plastic jar unpres		I20 mL plastic Na Thiosulfate	ziploc bag	

 1241 Bellevue Street, Green Bay, WI 54302	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: 25Apr2018
	Document No.: F-GB-C-031-Rev.07	Issuing Authority: Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Client Name: Chem Design Project #: _____
Courier: CS Logistics Fed Ex Speedee UPS Walto
 Client Pace Other: _____

WO#: 40192564

 40192564

Tracking #: _____
Custody Seal on Cooler/Box Present: yes no **Seals intact:** yes no
Custody Seal on Samples Present: yes no **Seals intact:** yes no
Packing Material: Bubble Wrap Bubble Bags None Other cardboard
Thermometer Used SR - 9 **Type of Ice:** Wet Blue Dry None Samples on ice, cooling process has begun
Cooler Temperature Uncorr: 11 ICorr: 11.5

Temp Blank Present: yes no **Biological Tissue is Frozen:** yes no
 Temp should be above freezing to 6°C.
 Biota Samples may be received at ≤ 0°C.

Person examining contents:
 Date: 8-7-19
 Initials: Stet

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time:
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	7.
Sufficient Volume:		8.
For Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No MS/MSD: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Correct Containers Used:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	9. <u>No MeOH Vials</u>
-Pace Containers Used:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12. <u>No date + time. No Point in TO's on caps</u>
-Includes date/time/ID/Analysis Matrix: <u>S</u>		
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13.
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution: If checked, see attached form for additional comments
 Person Contacted: _____ Date/Time: _____
 Comments/ Resolution: _____

Project Manager Review: _____ Date: 8/8/19
 Page 2 of 2

Joslin, Richard R - DNR

From: Tom Willis <TWillis@chemdesign.com>
Sent: Tuesday, July 23, 2019 2:47 PM
To: Joslin, Richard R - DNR
Cc: Beyer, Alexander W - DNR
Subject: Follow-Up to Chem Design Chemical Spill - SERTS # 20190513NE38-1
Attachments: Soil Sample Results 2nd Collection to Lab 719.pdf; Bldg 52 MCB-Isohexane spill Let to WDNR final 519.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Attached is our final report that was sent to you on June 3, 2019, and the lab report for the follow-up soil samples collected on July 9, 2019. The results of the soil samples are as follows:

Soil Sample A: <25 ppb Monochlorobenzene

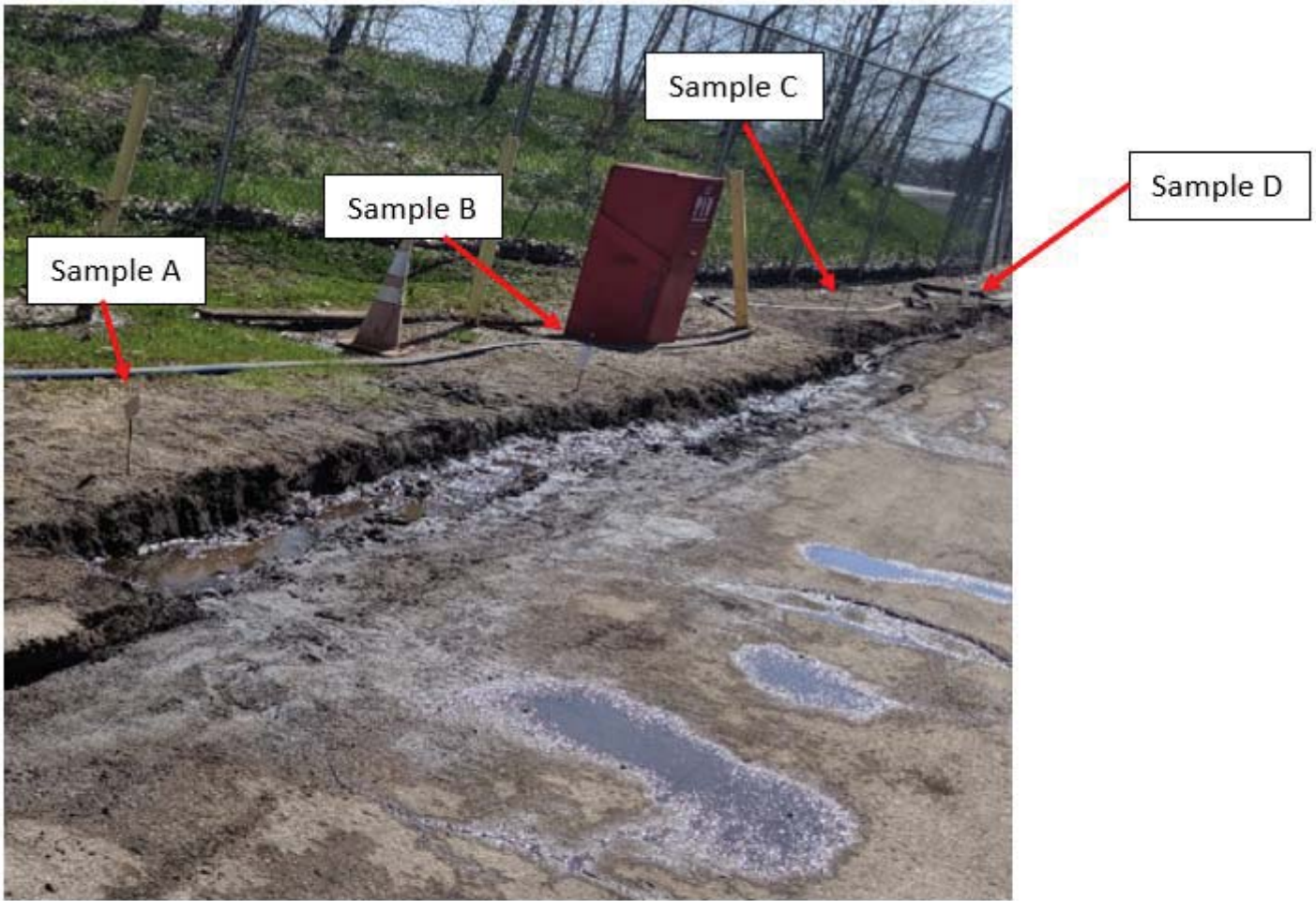
Soil Sample B: <25 ppb Monochlorobenzene

Soil Sample C: 47.6 ppb Monochlorobenzene

Soil Sample D: 185 ppb Monochlorobenzene

Please Note: The attached lab sample results were identified in reverse order, such that Sample A location from the picture below (from [Bldg 52 amended FINAL MCB-Isohexane spill Let to WDNR 519](#) Page 5) is in fact the results from Soil Sample D (from the attached lab results) revealing a concentration of 185 ppb, and so on.

If you compare with the concentrations in the report you will see that the results are much lower; however, tomorrow we will remove additional soil for disposal around location Sample A, and take additional samples for analysis. As soon as the results are available we will forward for your review. Thank you for your patience - Tom



Pic 4 - Four soil samples were collected after initial soil was removed from the ground adjacent to asphalt. These sample results are detailed in the report. Similar locations where the TCLP sample was collected.

5

Tom Willis

Director of HES



O (715)735-8263

M (906)280-8919

www.chemdesign.com

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twillis@chemdesign.com

From: Tom Willis

Sent: Monday, June 03, 2019 11:56 AM

To: Joslin, Richard R - DNR <Richard.Joslin@wisconsin.gov>

Cc: Beyer, Alexander W - DNR <Alexander.Beyer@wisconsin.gov>

Subject: RE: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Attached you will find the revised report with the additional information you requested. We did not use Veolia Environmental for the clean-up as ChemDesign maintains trained and certified individuals, and the necessary spill

response equipment for such an activity. We hope to never use this, but we must be prepared should this type of event occur.

If you would like to see additional information, please let me know – thank you Tom

Tom Willis

Director of HES



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M (906)280-8919

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From: Joslin, Richard R - DNR <Richard.Joslin@wisconsin.gov>
Sent: Thursday, May 30, 2019 9:52 AM
To: Tom Willis <TWillis@chemdesign.com>
Cc: Beyer, Alexander W - DNR <Alexander.Beyer@wisconsin.gov>
Subject: RE: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Thanks Tom for the report. The Department did a quick review of the report and came up with the following comments that need to be addressed or included in the final report:

- A discussion of the time the spill actually happened
- What day did the cleanup happen
- Staff involved with this incident
- SDS sheets of chemicals released and in the mixing vessel
- Provide waste determination for this waste
- Disposal manifests
- All lab reports and COC forms
- Was Veolia involved with spill response if so is there a report from Veolia?
- Who excavated soils and how was excavation guided?
- Photos of the vessel (#5228) and the broken sight-glass.
- Photos of the plug valve or a diagram of where this was on the tank
- Did the spilled material make it through the cracked pavement?

Considering that this spill event involved a hazardous waste I think the above items should be added to the report. Please provide that information in a final report to me and Alex Beyer. If you have any question please feel free to contact me or your Waste Management Specialist (Alexander Beyer; 920-662-5428) to discuss.

Thanks

Rick

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Richard R. Joslin

Hydrogeologist / NER Spills Coordinator – Remediation & Redevelopment Bureau

Wisconsin Department of Natural Resources
625 East County Road Y, Suite 700, Oshkosh, WI 54901-9731
Phone: (920) 424-7077
Cell Phone: (920) 360-4291
Richard.Joslin@Wisconsin.gov



From: Tom Willis <TWillis@chemdesign.com>
Sent: Tuesday, May 28, 2019 10:58 AM
To: Joslin, Richard R - DNR <Richard.Joslin@wisconsin.gov>
Subject: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Attached is the follow-up letter you requested in regards to our NRC call on May 13, 2019. As stated in the report, we have collected additional TCLP samples after remediation and I will forward those once received. We hope to get them back from the lab later this week or early next week.

If you have any questions, or would like to discuss, please give me a call – thank you Tom

Tom Willis
Director of HES

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From: Joslin, Richard R - DNR <Richard.Joslin@wisconsin.gov>
Sent: Tuesday, May 14, 2019 10:15 AM
To: Tom Willis <TWillis@chemdesign.com>
Subject: RE: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Sounds Good.

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Richard R. Joslin
Hydrogeologist / NER Spills Coordinator – Remediation & Redevelopment Bureau
Wisconsin Department of Natural Resources
625 East County Road Y, Suite 700, Oshkosh, WI 54901-9731
Phone: (920) 424-7077
Cell Phone: (920) 360-4291
Richard.Joslin@Wisconsin.gov



From: Tom Willis <TWillis@chemdesign.com>
Sent: Tuesday, May 14, 2019 10:06 AM
To: Joslin, Richard R - DNR <Richard.Joslin@wisconsin.gov>
Subject: FW: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Good morning Rick, Chris Kanikula forwarded your request to me as I was out of the plant yesterday when the spill occurred. Our folks did an excellent job on response and clean-up, and I should have a detailed report for you by early next week. In the meantime if you have any question or you would like to discuss, please feel free to call me. Thank you
Tom

Tom Willis
Director of HES



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twillis@chemdesign.com

From: Christopher Kanikula
Sent: Monday, May 13, 2019 3:42 PM
To: Tom Willis <TWillis@chemdesign.com>
Subject: FW: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Christopher Kanikula
Manager of Waste Operations



O 715-735-8393
F 715-735-5304
C 920-471-8004
www.chemdesign.com
WE MAKE CHEMISTRY WORK
ckanikula@chemdesign.com

From: Joslin, Richard R - DNR <Richard.Joslin@wisconsin.gov>
Sent: Monday, May 13, 2019 3:01 PM
To: Christopher Kanikula <CKanikula@chemdesign.com>
Subject: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Chris

Per our conversation, please send me a map of the facility that shows where the spill occurred and where it ran to.

Please note that a documentation report will be needed for the spill referenced above. The report should be submitted to me within 45 days of the incident. The report should include information (i.e., what happened, where it happened, how it was fixed, what remedial activities were performed, photo documentation, etc.) to document spill response activities that occurred. Photos of the condition of the asphalt and concrete should also be included.

Please make sure that the report includes **global positioning system (GPS) coordinates** or a **map** that presents an accurate location of the spill. If you need more information related to the spill cleanup documentation report, please do not hesitate to contact me.

The report should be sent to:

Email: richard.joslin@wisconsin.gov (No hard copy of the report is required)

Thank you for your cooperation with this matter!

Rick

We are committed to service excellence.

Visit our survey at <http://dnr.wi.gov/customersurvey> to evaluate how I did.

Richard R. Joslin

Hydrogeologist / NER Spills Coordinator – Remediation & Redevelopment Bureau

Wisconsin Department of Natural Resources

625 East County Road Y, Suite 700, Oshkosh, WI 54901-9731

Phone: (920) 424-7077

Cell Phone: (920) 360-4291

Richard.Joslin@Wisconsin.gov



May 28, 2019

Mr. Rick Joslin
NER Spill Coordinator
WDNR
2984 Shawano Ave.
Green Bay, WI 54313

Dear Mr. Joslin

On May 13, 2019, Christopher Kanikula, ChemDesign's Hazardous Waste Manager reported a spill of monochlorobenzene (CAS# 108-90-7) to the National Response Center at approximately 1:30 PM. The spill involved a site glass failure on a vessel at the start of a transfer to a hazardous waste tanker.

Location: 2 Stanton Street, Marinette, Wisconsin 54143, Parcel 1 – Stanton Street Plant Site, Fractional Section 5, Township 50 North, Range 24 East. Refer to Site Plan Drawing for the spill location and our Stormwater Program Hold and Test Puddle (area where the spill collected) (see Map 1).

At the time of the spill the wind direction was into the NW at approximately 9 mph, and a temperature of 57 Degrees F.

Summary of Incident - Vessel number 5228 is a 2,000-gallon glass-lined reactor containing 838.6 lbs of monochlorobenzene (MCB) and 6,738 lbs of isohexane (CAS# 107-83-5) at a temperature of 35 degrees F, which was being transferred under pressure to a tanker for recycling. The Operator opened the automatic bottom valve of the vessel to release the material that was lined-out to the tanker when the sight-glass immediately adjacent burst open and came apart. This released the contents of vessel 5228 on to the floor and immediately outside the door to the containment puddle where it collected (see Pic 1, 2 & 5).

The investigation revealed that the sight glass was at its end of service life, and when it burst the subsequent pressure misaligned the plug valve and prevented it from closing properly. This allowed material to flow directly from the site glass and onto the floor. The sight glass was rated for 150 psig (1.5" diameter sight glass) and failed at 34.7 psig. The plug valve was also removed from service and replaced with a new automatic ball valve.

Approximately 4,000 gallons of material, including 838.6 lbs (111 gal) of MCB, 6,738 lbs (1,214 gal) of isohexane, clean-up/rinse waters and storm water from a previous rain event were collected in a Veolia Environmental Services, Inc. tanker and transferred to Milwaukee, Wisconsin for disposal. Manifest Number 001540515VES.

We also generated 12, 55-gallon drums of contaminated soil and asphalt barrier as the curbing along the road way on the North side of Bldg 52 was broken up. The drums will be sent out as hazardous waste once profiled. The curbing has since been repaired (see Pic 3).

We tested the remaining soil for MCB after we pulled-up a 1ft x 1ft x 28ft section of soil along the deteriorated curbing. MCB analysis was conducted by ChemDesign's in-house Quality Control and

Research laboratory. The soil samples were analyzed using a Gas Chromatograph (GC) equipped with Flame Ionization Detection. The MCB present in the soil samples was extracted into a solvent and injected into the GC inlet via an automatic liquid sampler.

Four initial one liter samples were collected for analysis (see Pic 4):

Soil Sample A: 29 ppm MCB

Soil Sample B: 51 ppm MCB

Soil Sample C: 6 ppm MCB

Soil Sample D: <5 ppm MCB

After the results came back from initial sampling, an additional 0.8ft x 2ft x 28ft section was removed and disposed in 55-gallon drums. Four additional TCLP soil samples were collected along the trench in the same locations and sent out to Pace Analytical in Green Bay, Wisconsin. We will determine if additional remediation is required based on the results of the TCLP samples once received.

After the TCLP samples were taken, gravel and sand were brought in to fill the void and a new asphalt curb was run along the area to re-establish a barrier to ground (see Pic 3).

In summary, approximately 1,400 gallons of solvent was released from vessel 5228 and drained out of Bldg 52 and into a storm water containment area. All efforts were made to clean-up materials, soils, soap and rinse water for disposal as hazardous waste. The soil was tested and four TCLP samples are still at the lab and we are waiting for results. The roadway barrier has been replaced along with a new site glass and valve on 5228. If you have any questions, please feel free to contact me at the number below.

Sincerely,

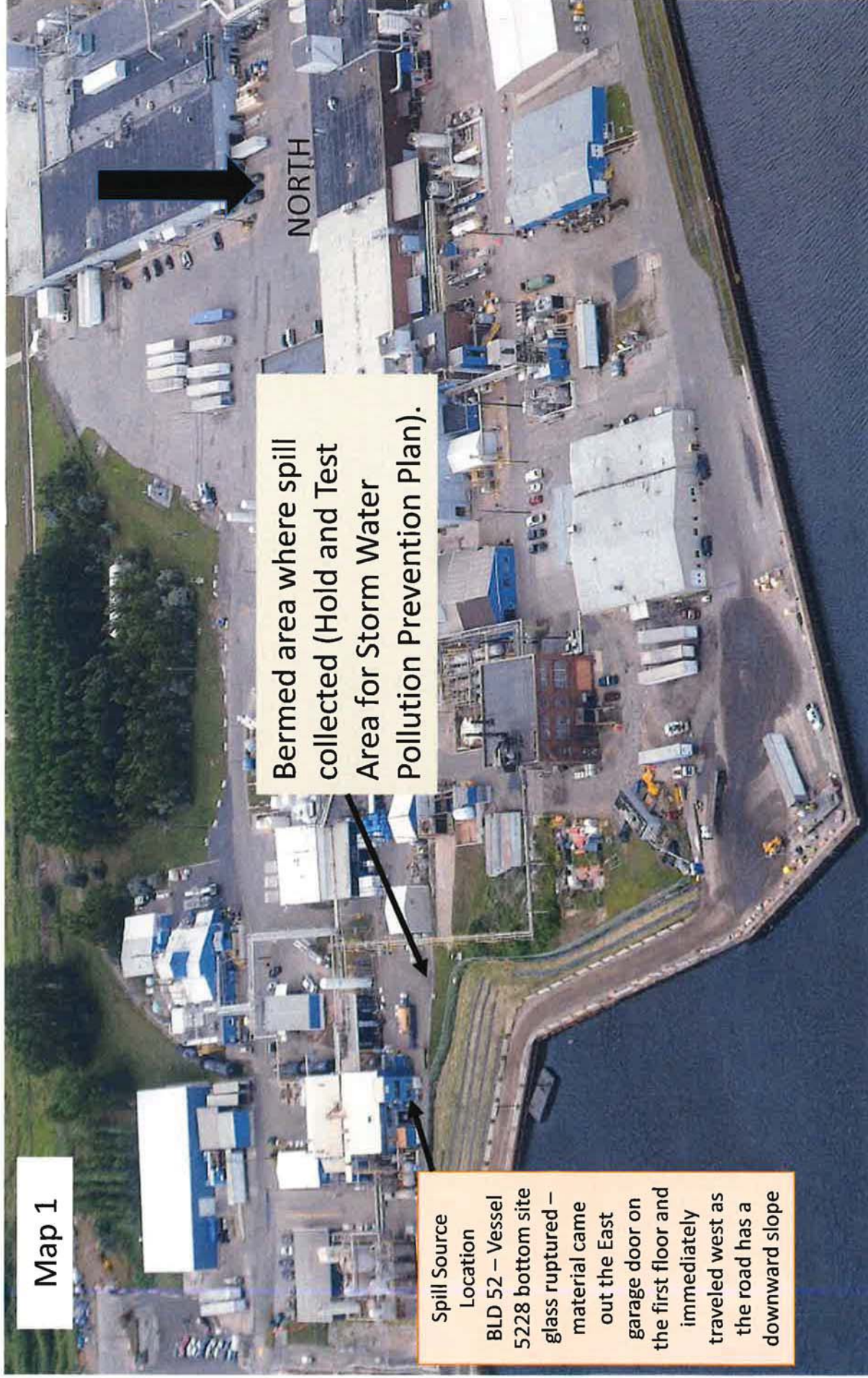


Thomas Willis
Director of HES
ChemDesign Products, Inc.
2 Stanton Street
Marinette, WI 54143
(715)735-8263
twillis@chemdesign.com

Attachments:

1. Map 1 – Site map and location of spill
2. Pics 1 -5 – Detailing incident and clean-up

Map 1



Bermed area where spill collected (Hold and Test Area for Storm Water Pollution Prevention Plan).

Spill Source

Location

BLD 52 – Vessel glass ruptured – material came out the East garage door on the first floor and immediately traveled west as the road has a downward slope



Tanker - material intended to be transferred into

Hood and Test containment

Pic 1 – 5/13/19 3:00 PM drainage plum of the spill to our Hold and Test Containment area for our Storm Water Management Plan

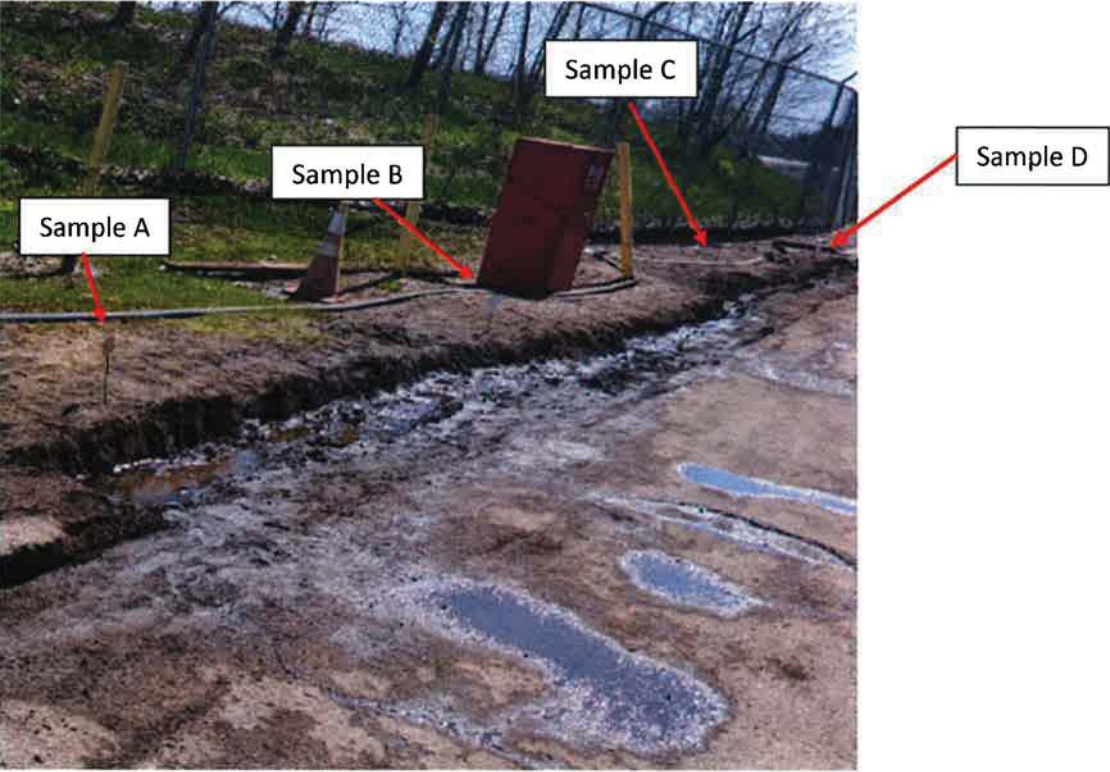


West

Pic 2 - Bldg 52, 5228's room to the North of the building. The spill drained to the West into our Hold and Test containment area



Pic 3 - View to the East after clean-up and gravel fill



Pic 4 - Four soil samples were collected after initial soil was removed from the ground adjacent to the asphalt. These sample results are detailed in the report.



Pic 5 – Spill containment area\Hold and Test containment area

July 19, 2019

Chris Kanikula
Specialty Chem Products / Chemdesign
2 Stanton St
Marinette, WI 54143

RE: Project: MAGTI SOIL
Pace Project No.: 40190860

Dear Chris Kanikula:

Enclosed are the analytical results for sample(s) received by the laboratory on July 09, 2019. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC 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,



Steven Mleczko
steve.mleczko@pacelabs.com
(920)469-2436
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: MAGTI SOIL

Pace Project No.: 40190860

Green Bay Certification IDs

1241 Bellevue Street, Green Bay, WI 54302

Florida/NELAP Certification #: E87948

Illinois Certification #: 200050

Kentucky UST Certification #: 82

Louisiana Certification #: 04168

Minnesota Certification #: 055-999-334

New York Certification #: 12064

North Dakota Certification #: R-150

Virginia VELAP ID: 460263

South Carolina Certification #: 83006001

Texas Certification #: T104704529-14-1

Wisconsin Certification #: 405132750

Wisconsin DATCP Certification #: 105-444

USDA Soil Permit #: P330-16-00157

Federal Fish & Wildlife Permit #: LE51774A-0

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: MAGTI SOIL
Pace Project No.: 40190860

Lab ID	Sample ID	Matrix	Date Collected	Date Received
40190860001	A	Solid	07/09/19 06:30	07/09/19 16:30
40190860002	B	Solid	07/09/19 06:30	07/09/19 16:30
40190860003	C	Solid	07/09/19 06:30	07/09/19 16:30
40190860004	D	Solid	07/09/19 06:30	07/09/19 16:30

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: MAGTI SOIL

Pace Project No.: 40190860

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40190860001	A	EPA 8260	MDS	64	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40190860002	B	EPA 8260	MDS	64	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40190860003	C	EPA 8260	MDS	64	PASI-G
		ASTM D2974-87	AH	1	PASI-G
40190860004	D	EPA 8260	MDS	64	PASI-G
		ASTM D2974-87	AH	1	PASI-G

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: MAGTI SOIL

Pace Project No.: 40190860

Sample: A **Lab ID: 40190860001** Collected: 07/09/19 06:30 Received: 07/09/19 16:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List									
Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B									
Benzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	71-43-2	W
Bromobenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	108-86-1	W
Bromochloromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	74-97-5	W
Bromodichloromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	75-27-4	W
Bromoform	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	75-25-2	W
Bromomethane	<69.9	ug/kg	250	69.9	1	07/10/19 08:30	07/10/19 13:13	74-83-9	W
n-Butylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	104-51-8	W
sec-Butylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	135-98-8	W
tert-Butylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	98-06-6	W
Carbon tetrachloride	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	56-23-5	W
Chlorobenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	108-90-7	W
Chloroethane	<67.0	ug/kg	250	67.0	1	07/10/19 08:30	07/10/19 13:13	75-00-3	W
Chloroform	<46.4	ug/kg	250	46.4	1	07/10/19 08:30	07/10/19 13:13	67-66-3	W
Chloromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	74-87-3	W
2-Chlorotoluene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	95-49-8	W
4-Chlorotoluene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	106-43-4	W
1,2-Dibromo-3-chloropropane	<91.2	ug/kg	250	91.2	1	07/10/19 08:30	07/10/19 13:13	96-12-8	W
Dibromochloromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	124-48-1	W
1,2-Dibromoethane (EDB)	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	106-93-4	W
Dibromomethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	74-95-3	W
1,2-Dichlorobenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	95-50-1	W
1,3-Dichlorobenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	541-73-1	W
1,4-Dichlorobenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	106-46-7	W
Dichlorodifluoromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	75-71-8	W
1,1-Dichloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	75-34-3	W
1,2-Dichloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	107-06-2	W
1,1-Dichloroethene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	75-35-4	W
cis-1,2-Dichloroethene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	156-59-2	W
trans-1,2-Dichloroethene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	156-60-5	W
1,2-Dichloropropane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	78-87-5	W
1,3-Dichloropropane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	142-28-9	W
2,2-Dichloropropane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	594-20-7	W
1,1-Dichloropropene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	563-58-6	W
cis-1,3-Dichloropropene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	10061-01-5	W
trans-1,3-Dichloropropene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	10061-02-6	W
Diisopropyl ether	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	108-20-3	W
Ethylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	100-41-4	W
Hexachloro-1,3-butadiene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	87-68-3	W
Isopropylbenzene (Cumene)	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	98-82-8	W
p-Isopropyltoluene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	99-87-6	W
Methylene Chloride	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	75-09-2	W
Methyl-tert-butyl ether	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	1634-04-4	W
Naphthalene	<40.0	ug/kg	250	40.0	1	07/10/19 08:30	07/10/19 13:13	91-20-3	W
n-Propylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	103-65-1	W
Styrene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	100-42-5	W

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: MAGTI SOIL
Pace Project No.: 40190860

Sample: A Lab ID: **40190860001** Collected: 07/09/19 06:30 Received: 07/09/19 16:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B									
1,1,1,2-Tetrachloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	630-20-6	W
1,1,2,2-Tetrachloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	79-34-5	W
Tetrachloroethene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	127-18-4	W
Toluene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	108-88-3	W
1,2,3-Trichlorobenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	87-61-6	W
1,2,4-Trichlorobenzene	<47.6	ug/kg	250	47.6	1	07/10/19 08:30	07/10/19 13:13	120-82-1	W
1,1,1-Trichloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	71-55-6	W
1,1,2-Trichloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	79-00-5	W
Trichloroethene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	79-01-6	W
Trichlorofluoromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	75-69-4	W
1,2,3-Trichloropropane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	96-18-4	W
1,2,4-Trimethylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	95-63-6	W
1,3,5-Trimethylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	108-67-8	W
Vinyl chloride	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	75-01-4	W
m&p-Xylene	<50.0	ug/kg	120	50.0	1	07/10/19 08:30	07/10/19 13:13	179601-23-1	W
o-Xylene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 13:13	95-47-6	W
Surrogates									
Dibromofluoromethane (S)	105	%	57-146		1	07/10/19 08:30	07/10/19 13:13	1868-53-7	
Toluene-d8 (S)	97	%	64-134		1	07/10/19 08:30	07/10/19 13:13	2037-26-5	
4-Bromofluorobenzene (S)	102	%	54-126		1	07/10/19 08:30	07/10/19 13:13	460-00-4	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture **12.0** % 0.10 0.10 1 07/19/19 08:10

Sample: B Lab ID: **40190860002** Collected: 07/09/19 06:30 Received: 07/09/19 16:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B									
Benzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	71-43-2	W
Bromobenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	108-86-1	W
Bromochloromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	74-97-5	W
Bromodichloromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	75-27-4	W
Bromoform	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	75-25-2	W
Bromomethane	<69.9	ug/kg	250	69.9	1	07/10/19 08:30	07/10/19 18:36	74-83-9	W
n-Butylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	104-51-8	W
sec-Butylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	135-98-8	W
tert-Butylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	98-06-6	W
Carbon tetrachloride	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	56-23-5	W
Chlorobenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	108-90-7	W
Chloroethane	<67.0	ug/kg	250	67.0	1	07/10/19 08:30	07/10/19 18:36	75-00-3	W
Chloroform	<46.4	ug/kg	250	46.4	1	07/10/19 08:30	07/10/19 18:36	67-66-3	W

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ANALYTICAL RESULTS

Project: MAGTI SOIL
Pace Project No.: 40190860

Sample: B **Lab ID: 40190860002** Collected: 07/09/19 06:30 Received: 07/09/19 16:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List									
Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B									
Chloromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	74-87-3	W
2-Chlorotoluene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	95-49-8	W
4-Chlorotoluene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	106-43-4	W
1,2-Dibromo-3-chloropropane	<91.2	ug/kg	250	91.2	1	07/10/19 08:30	07/10/19 18:36	96-12-8	W
Dibromochloromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	124-48-1	W
1,2-Dibromoethane (EDB)	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	106-93-4	W
Dibromomethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	74-95-3	W
1,2-Dichlorobenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	95-50-1	W
1,3-Dichlorobenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	541-73-1	W
1,4-Dichlorobenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	106-46-7	W
Dichlorodifluoromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	75-71-8	W
1,1-Dichloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	75-34-3	W
1,2-Dichloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	107-06-2	W
1,1-Dichloroethene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	75-35-4	W
cis-1,2-Dichloroethene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	156-59-2	W
trans-1,2-Dichloroethene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	156-60-5	W
1,2-Dichloropropane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	78-87-5	W
1,3-Dichloropropane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	142-28-9	W
2,2-Dichloropropane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	594-20-7	W
1,1-Dichloropropene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	563-58-6	W
cis-1,3-Dichloropropene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	10061-01-5	W
trans-1,3-Dichloropropene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	10061-02-6	W
Diisopropyl ether	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	108-20-3	W
Ethylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	100-41-4	W
Hexachloro-1,3-butadiene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	87-68-3	W
Isopropylbenzene (Cumene)	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	98-82-8	W
p-Isopropyltoluene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	99-87-6	W
Methylene Chloride	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	75-09-2	W
Methyl-tert-butyl ether	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	1634-04-4	W
Naphthalene	<40.0	ug/kg	250	40.0	1	07/10/19 08:30	07/10/19 18:36	91-20-3	W
n-Propylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	103-65-1	W
Styrene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	100-42-5	W
1,1,1,2-Tetrachloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	630-20-6	W
1,1,2,2-Tetrachloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	79-34-5	W
Tetrachloroethene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	127-18-4	W
Toluene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	108-88-3	W
1,2,3-Trichlorobenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	87-61-6	W
1,2,4-Trichlorobenzene	<47.6	ug/kg	250	47.6	1	07/10/19 08:30	07/10/19 18:36	120-82-1	W
1,1,1-Trichloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	71-55-6	W
1,1,2-Trichloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	79-00-5	W
Trichloroethene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	79-01-6	W
Trichlorofluoromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	75-69-4	W
1,2,3-Trichloropropane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	96-18-4	W
1,2,4-Trimethylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	95-63-6	W
1,3,5-Trimethylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	108-67-8	W

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ANALYTICAL RESULTS

Project: MAGTI SOIL
Pace Project No.: 40190860

Sample: B Lab ID: 40190860002 Collected: 07/09/19 06:30 Received: 07/09/19 16:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B									
Vinyl chloride	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	75-01-4	W
m&p-Xylene	<50.0	ug/kg	120	50.0	1	07/10/19 08:30	07/10/19 18:36	179601-23-1	W
o-Xylene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:36	95-47-6	W
Surrogates									
Dibromofluoromethane (S)	106	%	57-146		1	07/10/19 08:30	07/10/19 18:36	1868-53-7	
Toluene-d8 (S)	96	%	64-134		1	07/10/19 08:30	07/10/19 18:36	2037-26-5	
4-Bromofluorobenzene (S)	97	%	54-126		1	07/10/19 08:30	07/10/19 18:36	460-00-4	
Percent Moisture Analytical Method: ASTM D2974-87									
Percent Moisture	20.6	%	0.10	0.10	1		07/19/19 08:10		

Sample: C Lab ID: 40190860003 Collected: 07/09/19 06:30 Received: 07/09/19 16:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B									
Benzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	71-43-2	W
Bromobenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	108-86-1	W
Bromochloromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	74-97-5	W
Bromodichloromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	75-27-4	W
Bromoform	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	75-25-2	W
Bromomethane	<69.9	ug/kg	250	69.9	1	07/10/19 08:30	07/10/19 18:59	74-83-9	W
n-Butylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	104-51-8	W
sec-Butylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	135-98-8	W
tert-Butylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	98-06-6	W
Carbon tetrachloride	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	56-23-5	W
Chlorobenzene	47.6J	ug/kg	69.8	29.1	1	07/10/19 08:30	07/10/19 18:59	108-90-7	
Chloroethane	<67.0	ug/kg	250	67.0	1	07/10/19 08:30	07/10/19 18:59	75-00-3	W
Chloroform	<46.4	ug/kg	250	46.4	1	07/10/19 08:30	07/10/19 18:59	67-66-3	W
Chloromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	74-87-3	W
2-Chlorotoluene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	95-49-8	W
4-Chlorotoluene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	106-43-4	W
1,2-Dibromo-3-chloropropane	<91.2	ug/kg	250	91.2	1	07/10/19 08:30	07/10/19 18:59	96-12-8	W
Dibromochloromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	124-48-1	W
1,2-Dibromoethane (EDB)	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	106-93-4	W
Dibromomethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	74-95-3	W
1,2-Dichlorobenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	95-50-1	W
1,3-Dichlorobenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	541-73-1	W
1,4-Dichlorobenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	106-46-7	W
Dichlorodifluoromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	75-71-8	W
1,1-Dichloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	75-34-3	W
1,2-Dichloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	107-06-2	W

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: MAGTI SOIL
Pace Project No.: 40190860

Sample: C **Lab ID: 40190860003** Collected: 07/09/19 06:30 Received: 07/09/19 16:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List									
Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B									
1,1-Dichloroethene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	75-35-4	W
cis-1,2-Dichloroethene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	156-59-2	W
trans-1,2-Dichloroethene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	156-60-5	W
1,2-Dichloropropane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	78-87-5	W
1,3-Dichloropropane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	142-28-9	W
2,2-Dichloropropane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	594-20-7	W
1,1-Dichloropropene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	563-58-6	W
cis-1,3-Dichloropropene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	10061-01-5	W
trans-1,3-Dichloropropene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	10061-02-6	W
Diisopropyl ether	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	108-20-3	W
Ethylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	100-41-4	W
Hexachloro-1,3-butadiene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	87-68-3	W
Isopropylbenzene (Cumene)	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	98-82-8	W
p-Isopropyltoluene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	99-87-6	W
Methylene Chloride	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	75-09-2	W
Methyl-tert-butyl ether	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	1634-04-4	W
Naphthalene	<40.0	ug/kg	250	40.0	1	07/10/19 08:30	07/10/19 18:59	91-20-3	W
n-Propylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	103-65-1	W
Styrene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	100-42-5	W
1,1,1,2-Tetrachloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	630-20-6	W
1,1,1,2,2-Tetrachloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	79-34-5	W
Tetrachloroethene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	127-18-4	W
Toluene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	108-88-3	W
1,2,3-Trichlorobenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	87-61-6	W
1,2,4-Trichlorobenzene	<47.6	ug/kg	250	47.6	1	07/10/19 08:30	07/10/19 18:59	120-82-1	W
1,1,1-Trichloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	71-55-6	W
1,1,2-Trichloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	79-00-5	W
Trichloroethene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	79-01-6	W
Trichlorofluoromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	75-69-4	W
1,2,3-Trichloropropane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	96-18-4	W
1,2,4-Trimethylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	95-63-6	W
1,3,5-Trimethylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	108-67-8	W
Vinyl chloride	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	75-01-4	W
m&p-Xylene	<50.0	ug/kg	120	50.0	1	07/10/19 08:30	07/10/19 18:59	179601-23-1	W
o-Xylene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 18:59	95-47-6	W

Surrogates

Dibromofluoromethane (S)	103	%	57-146		1	07/10/19 08:30	07/10/19 18:59	1868-53-7	
Toluene-d8 (S)	94	%	64-134		1	07/10/19 08:30	07/10/19 18:59	2037-26-5	
4-Bromofluorobenzene (S)	96	%	54-126		1	07/10/19 08:30	07/10/19 18:59	460-00-4	

Percent Moisture

Analytical Method: ASTM D2974-87

Percent Moisture	14.0	%	0.10	0.10	1		07/19/19 08:10		
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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: MAGTI SOIL

Pace Project No.: 40190860

Sample: D **Lab ID: 40190860004** Collected: 07/09/19 06:30 Received: 07/09/19 16:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List									
Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B									
Benzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	71-43-2	W
Bromobenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	108-86-1	W
Bromochloromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	74-97-5	W
Bromodichloromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	75-27-4	W
Bromoform	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	75-25-2	W
Bromomethane	<69.9	ug/kg	250	69.9	1	07/10/19 08:30	07/10/19 19:22	74-83-9	W
n-Butylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	104-51-8	W
sec-Butylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	135-98-8	W
tert-Butylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	98-06-6	W
Carbon tetrachloride	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	56-23-5	W
Chlorobenzene	185	ug/kg	83.9	34.9	1	07/10/19 08:30	07/10/19 19:22	108-90-7	
Chloroethane	<67.0	ug/kg	250	67.0	1	07/10/19 08:30	07/10/19 19:22	75-00-3	W
Chloroform	<46.4	ug/kg	250	46.4	1	07/10/19 08:30	07/10/19 19:22	67-66-3	W
Chloromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	74-87-3	W
2-Chlorotoluene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	95-49-8	W
4-Chlorotoluene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	106-43-4	W
1,2-Dibromo-3-chloropropane	<91.2	ug/kg	250	91.2	1	07/10/19 08:30	07/10/19 19:22	96-12-8	W
Dibromochloromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	124-48-1	W
1,2-Dibromoethane (EDB)	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	106-93-4	W
Dibromomethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	74-95-3	W
1,2-Dichlorobenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	95-50-1	W
1,3-Dichlorobenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	541-73-1	W
1,4-Dichlorobenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	106-46-7	W
Dichlorodifluoromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	75-71-8	W
1,1-Dichloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	75-34-3	W
1,2-Dichloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	107-06-2	W
1,1-Dichloroethene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	75-35-4	W
cis-1,2-Dichloroethene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	156-59-2	W
trans-1,2-Dichloroethene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	156-60-5	W
1,2-Dichloropropane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	78-87-5	W
1,3-Dichloropropane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	142-28-9	W
2,2-Dichloropropane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	594-20-7	W
1,1-Dichloropropene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	563-58-6	W
cis-1,3-Dichloropropene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	10061-01-5	W
trans-1,3-Dichloropropene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	10061-02-6	W
Diisopropyl ether	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	108-20-3	W
Ethylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	100-41-4	W
Hexachloro-1,3-butadiene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	87-68-3	W
Isopropylbenzene (Cumene)	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	98-82-8	W
p-Isopropyltoluene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	99-87-6	W
Methylene Chloride	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	75-09-2	W
Methyl-tert-butyl ether	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	1634-04-4	W
Naphthalene	<40.0	ug/kg	250	40.0	1	07/10/19 08:30	07/10/19 19:22	91-20-3	W
n-Propylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	103-65-1	W
Styrene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	100-42-5	W

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: MAGTI SOIL
Pace Project No.: 40190860

Sample: D **Lab ID: 40190860004** Collected: 07/09/19 06:30 Received: 07/09/19 16:30 Matrix: Solid

Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV Med Level Normal List									
Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B									
1,1,1,2-Tetrachloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	630-20-6	W
1,1,2,2-Tetrachloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	79-34-5	W
Tetrachloroethene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	127-18-4	W
Toluene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	108-88-3	W
1,2,3-Trichlorobenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	87-61-6	W
1,2,4-Trichlorobenzene	<47.6	ug/kg	250	47.6	1	07/10/19 08:30	07/10/19 19:22	120-82-1	W
1,1,1-Trichloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	71-55-6	W
1,1,2-Trichloroethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	79-00-5	W
Trichloroethene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	79-01-6	W
Trichlorofluoromethane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	75-69-4	W
1,2,3-Trichloropropane	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	96-18-4	W
1,2,4-Trimethylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	95-63-6	W
1,3,5-Trimethylbenzene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	108-67-8	W
Vinyl chloride	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	75-01-4	W
m&p-Xylene	<50.0	ug/kg	120	50.0	1	07/10/19 08:30	07/10/19 19:22	179601-23-1	W
o-Xylene	<25.0	ug/kg	60.0	25.0	1	07/10/19 08:30	07/10/19 19:22	95-47-6	W
Surrogates									
Dibromofluoromethane (S)	102	%	57-146		1	07/10/19 08:30	07/10/19 19:22	1868-53-7	
Toluene-d8 (S)	92	%	64-134		1	07/10/19 08:30	07/10/19 19:22	2037-26-5	
4-Bromofluorobenzene (S)	93	%	54-126		1	07/10/19 08:30	07/10/19 19:22	460-00-4	
Percent Moisture									
Analytical Method: ASTM D2974-87									
Percent Moisture	28.5	%	0.10	0.10	1		07/19/19 08:10		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MAGTI SOIL
Pace Project No.: 40190860

QC Batch: 327064 Analysis Method: EPA 8260
QC Batch Method: EPA 5035/5030B Analysis Description: 8260 MSV Med Level Normal List
Associated Lab Samples: 40190860001, 40190860002, 40190860003, 40190860004

METHOD BLANK: 1898946 Matrix: Solid
Associated Lab Samples: 40190860001, 40190860002, 40190860003, 40190860004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	<13.7	50.0	07/10/19 10:08	
1,1,1-Trichloroethane	ug/kg	<14.4	50.0	07/10/19 10:08	
1,1,2,2-Tetrachloroethane	ug/kg	<17.5	50.0	07/10/19 10:08	
1,1,2-Trichloroethane	ug/kg	<20.2	50.0	07/10/19 10:08	
1,1-Dichloroethane	ug/kg	<17.6	50.0	07/10/19 10:08	
1,1-Dichloroethene	ug/kg	<17.6	50.0	07/10/19 10:08	
1,1-Dichloropropene	ug/kg	<14.0	50.0	07/10/19 10:08	
1,2,3-Trichlorobenzene	ug/kg	<17.0	50.0	07/10/19 10:08	
1,2,3-Trichloropropane	ug/kg	<22.3	50.0	07/10/19 10:08	
1,2,4-Trichlorobenzene	ug/kg	<47.6	250	07/10/19 10:08	
1,2,4-Trimethylbenzene	ug/kg	<12.2	50.0	07/10/19 10:08	
1,2-Dibromo-3-chloropropane	ug/kg	<91.2	250	07/10/19 10:08	
1,2-Dibromoethane (EDB)	ug/kg	<14.7	50.0	07/10/19 10:08	
1,2-Dichlorobenzene	ug/kg	<16.2	50.0	07/10/19 10:08	
1,2-Dichloroethane	ug/kg	<15.0	50.0	07/10/19 10:08	
1,2-Dichloropropane	ug/kg	<16.8	50.0	07/10/19 10:08	
1,3,5-Trimethylbenzene	ug/kg	<14.5	50.0	07/10/19 10:08	
1,3-Dichlorobenzene	ug/kg	<13.2	50.0	07/10/19 10:08	
1,3-Dichloropropane	ug/kg	<12.0	50.0	07/10/19 10:08	
1,4-Dichlorobenzene	ug/kg	<15.9	50.0	07/10/19 10:08	
2,2-Dichloropropane	ug/kg	<12.6	50.0	07/10/19 10:08	
2-Chlorotoluene	ug/kg	<15.8	50.0	07/10/19 10:08	
4-Chlorotoluene	ug/kg	<13.0	50.0	07/10/19 10:08	
Benzene	ug/kg	<9.2	20.0	07/10/19 10:08	
Bromobenzene	ug/kg	<20.6	50.0	07/10/19 10:08	
Bromochloromethane	ug/kg	<21.4	50.0	07/10/19 10:08	
Bromodichloromethane	ug/kg	<9.8	50.0	07/10/19 10:08	
Bromoform	ug/kg	<19.8	50.0	07/10/19 10:08	
Bromomethane	ug/kg	<69.9	250	07/10/19 10:08	
Carbon tetrachloride	ug/kg	<12.1	50.0	07/10/19 10:08	
Chlorobenzene	ug/kg	<14.8	50.0	07/10/19 10:08	
Chloroethane	ug/kg	<67.0	250	07/10/19 10:08	
Chloroform	ug/kg	<46.4	250	07/10/19 10:08	
Chloromethane	ug/kg	<20.4	50.0	07/10/19 10:08	
cis-1,2-Dichloroethene	ug/kg	<16.6	50.0	07/10/19 10:08	
cis-1,3-Dichloropropene	ug/kg	<16.6	50.0	07/10/19 10:08	
Dibromochloromethane	ug/kg	<17.9	50.0	07/10/19 10:08	
Dibromomethane	ug/kg	<19.3	50.0	07/10/19 10:08	
Dichlorodifluoromethane	ug/kg	<12.3	50.0	07/10/19 10:08	
Diisopropyl ether	ug/kg	<17.7	50.0	07/10/19 10:08	
Ethylbenzene	ug/kg	<12.4	50.0	07/10/19 10:08	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MAGTI SOIL
Pace Project No.: 40190860

METHOD BLANK: 1898946 Matrix: Solid
Associated Lab Samples: 40190860001, 40190860002, 40190860003, 40190860004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Hexachloro-1,3-butadiene	ug/kg	<24.5	50.0	07/10/19 10:08	
Isopropylbenzene (Cumene)	ug/kg	<12.6	50.0	07/10/19 10:08	
m&p-Xylene	ug/kg	<34.4	100	07/10/19 10:08	
Methyl-tert-butyl ether	ug/kg	<12.7	50.0	07/10/19 10:08	
Methylene Chloride	ug/kg	<16.2	50.0	07/10/19 10:08	
n-Butylbenzene	ug/kg	<10.5	50.0	07/10/19 10:08	
n-Propylbenzene	ug/kg	<11.6	50.0	07/10/19 10:08	
Naphthalene	ug/kg	<40.0	250	07/10/19 10:08	
o-Xylene	ug/kg	<14.0	50.0	07/10/19 10:08	
p-Isopropyltoluene	ug/kg	<12.0	50.0	07/10/19 10:08	
sec-Butylbenzene	ug/kg	<11.9	50.0	07/10/19 10:08	
Styrene	ug/kg	<9.0	50.0	07/10/19 10:08	
tert-Butylbenzene	ug/kg	<9.5	50.0	07/10/19 10:08	
Tetrachloroethene	ug/kg	<12.9	50.0	07/10/19 10:08	
Toluene	ug/kg	<11.2	50.0	07/10/19 10:08	
trans-1,2-Dichloroethene	ug/kg	<16.5	50.0	07/10/19 10:08	
trans-1,3-Dichloropropene	ug/kg	<14.4	50.0	07/10/19 10:08	
Trichloroethene	ug/kg	<23.6	50.0	07/10/19 10:08	
Trichlorofluoromethane	ug/kg	<24.7	50.0	07/10/19 10:08	
Vinyl chloride	ug/kg	<21.1	50.0	07/10/19 10:08	
4-Bromofluorobenzene (S)	%	107	54-126	07/10/19 10:08	
Dibromofluoromethane (S)	%	106	57-146	07/10/19 10:08	
Toluene-d8 (S)	%	100	64-134	07/10/19 10:08	

LABORATORY CONTROL SAMPLE: 1898947

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/kg	2500	2520	101	70-132	
1,1,2,2-Tetrachloroethane	ug/kg	2500	3010	120	70-130	
1,1,2-Trichloroethane	ug/kg	2500	2580	103	70-130	
1,1-Dichloroethane	ug/kg	2500	2510	100	70-130	
1,1-Dichloroethene	ug/kg	2500	2700	108	77-126	
1,2,4-Trichlorobenzene	ug/kg	2500	2150	86	66-130	
1,2-Dibromo-3-chloropropane	ug/kg	2500	2300	92	54-129	
1,2-Dibromoethane (EDB)	ug/kg	2500	2540	102	70-130	
1,2-Dichlorobenzene	ug/kg	2500	2570	103	70-130	
1,2-Dichloroethane	ug/kg	2500	2860	115	70-134	
1,2-Dichloropropane	ug/kg	2500	2520	101	74-124	
1,3-Dichlorobenzene	ug/kg	2500	2550	102	70-130	
1,4-Dichlorobenzene	ug/kg	2500	2470	99	70-130	
Benzene	ug/kg	2500	2780	111	70-130	
Bromodichloromethane	ug/kg	2500	2580	103	70-130	
Bromoform	ug/kg	2500	2650	106	47-115	
Bromomethane	ug/kg	2500	2670	107	64-165	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MAGTI SOIL

Pace Project No.: 40190860

LABORATORY CONTROL SAMPLE: 1898947

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Carbon tetrachloride	ug/kg	2500	2240	90	70-131	
Chlorobenzene	ug/kg	2500	2560	102	70-130	
Chloroethane	ug/kg	2500	2840	114	28-197	
Chloroform	ug/kg	2500	2680	107	80-131	
Chloromethane	ug/kg	2500	1990	80	45-118	
cis-1,2-Dichloroethene	ug/kg	2500	2620	105	70-130	
cis-1,3-Dichloropropene	ug/kg	2500	2490	100	70-130	
Dibromochloromethane	ug/kg	2500	2390	96	70-130	
Dichlorodifluoromethane	ug/kg	2500	1690	68	38-108	
Ethylbenzene	ug/kg	2500	2510	100	82-122	
Isopropylbenzene (Cumene)	ug/kg	2500	2500	100	70-130	
m&p-Xylene	ug/kg	5000	4980	100	70-130	
Methyl-tert-butyl ether	ug/kg	2500	2880	115	70-130	
Methylene Chloride	ug/kg	2500	2920	117	70-130	
o-Xylene	ug/kg	2500	2470	99	70-130	
Styrene	ug/kg	2500	2730	109	70-130	
Tetrachloroethene	ug/kg	2500	2030	81	70-130	
Toluene	ug/kg	2500	2430	97	80-121	
trans-1,2-Dichloroethene	ug/kg	2500	2650	106	70-130	
trans-1,3-Dichloropropene	ug/kg	2500	2390	96	70-130	
Trichloroethene	ug/kg	2500	2490	100	70-130	
Trichlorofluoromethane	ug/kg	2500	2620	105	81-141	
Vinyl chloride	ug/kg	2500	2290	92	68-121	
4-Bromofluorobenzene (S)	%			116	54-126	
Dibromofluoromethane (S)	%			111	57-146	
Toluene-d8 (S)	%			102	64-134	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1898948 1898949

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		40190860001 Result	Spike Conc.	Spike Conc.	Conc.								
1,1,1-Trichloroethane	ug/kg	<25.0	1420	1420	1420	1340	100	94	64-132	6	20		
1,1,2,2-Tetrachloroethane	ug/kg	<25.0	1420	1420	1770	1630	125	115	70-132	8	20		
1,1,2-Trichloroethane	ug/kg	<25.0	1420	1420	1540	1500	108	106	70-130	2	20		
1,1-Dichloroethane	ug/kg	<25.0	1420	1420	1440	1380	101	97	70-130	4	20		
1,1-Dichloroethene	ug/kg	<25.0	1420	1420	1470	1420	104	100	65-126	3	21		
1,2,4-Trichlorobenzene	ug/kg	<47.6	1420	1420	1400	1160	99	82	66-139	18	20		
1,2-Dibromo-3-chloropropane	ug/kg	<91.2	1420	1420	1410	1300	99	92	47-146	8	23		
1,2-Dibromoethane (EDB)	ug/kg	<25.0	1420	1420	1470	1410	103	99	70-130	4	20		
1,2-Dichlorobenzene	ug/kg	<25.0	1420	1420	1500	1350	104	93	70-130	11	20		
1,2-Dichloroethane	ug/kg	<25.0	1420	1420	1660	1600	117	112	70-136	4	20		
1,2-Dichloropropane	ug/kg	<25.0	1420	1420	1450	1380	102	97	74-124	5	20		
1,3-Dichlorobenzene	ug/kg	<25.0	1420	1420	1500	1320	105	93	70-130	13	20		
1,4-Dichlorobenzene	ug/kg	<25.0	1420	1420	1560	1360	110	96	70-130	13	20		

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MAGTI SOIL

Pace Project No.: 40190860

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1898948 1898949												
Parameter	Units	40190860001		MS	MSD	MS		MSD		% Rec Limits	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec			
Benzene	ug/kg	<25.0	1420	1420	1560	1510	110	106	70-130	3	20	
Bromodichloromethane	ug/kg	<25.0	1420	1420	1440	1390	102	98	70-130	4	20	
Bromoform	ug/kg	<25.0	1420	1420	1410	1460	99	103	47-129	3	20	
Bromomethane	ug/kg	<69.9	1420	1420	1530	1490	107	105	41-180	2	20	
Carbon tetrachloride	ug/kg	<25.0	1420	1420	1290	1190	91	84	58-133	8	20	
Chlorobenzene	ug/kg	<25.0	1420	1420	1510	1430	106	101	70-130	5	20	
Chloroethane	ug/kg	<67.0	1420	1420	1550	1530	109	108	28-197	1	20	
Chloroform	ug/kg	<46.4	1420	1420	1540	1470	109	104	80-131	5	20	
Chloromethane	ug/kg	<25.0	1420	1420	1100	1040	77	73	26-118	5	20	
cis-1,2-Dichloroethene	ug/kg	<25.0	1420	1420	1460	1420	103	100	70-130	2	20	
cis-1,3-Dichloropropene	ug/kg	<25.0	1420	1420	1330	1300	94	92	70-130	2	20	
Dibromochloromethane	ug/kg	<25.0	1420	1420	1390	1330	98	93	67-130	5	20	
Dichlorodifluoromethane	ug/kg	<25.0	1420	1420	787	721	55	51	12-108	9	29	
Ethylbenzene	ug/kg	<25.0	1420	1420	1440	1370	101	96	80-122	5	20	
Isopropylbenzene (Cumene)	ug/kg	<25.0	1420	1420	1430	1380	101	97	70-130	4	20	
m&p-Xylene	ug/kg	<50.0	2840	2840	2820	2690	99	95	70-130	5	20	
Methyl-tert-butyl ether	ug/kg	<25.0	1420	1420	1670	1630	117	115	70-130	2	20	
Methylene Chloride	ug/kg	<25.0	1420	1420	1690	1630	119	115	70-130	4	20	
o-Xylene	ug/kg	<25.0	1420	1420	1410	1390	97	96	70-130	1	20	
Styrene	ug/kg	<25.0	1420	1420	1510	1460	106	103	70-130	3	20	
Tetrachloroethene	ug/kg	<25.0	1420	1420	1230	1160	87	82	70-130	6	20	
Toluene	ug/kg	<25.0	1420	1420	1420	1380	99	97	80-121	3	20	
trans-1,2-Dichloroethene	ug/kg	<25.0	1420	1420	1500	1440	105	101	70-130	4	20	
trans-1,3-Dichloropropene	ug/kg	<25.0	1420	1420	1350	1310	95	92	70-130	3	20	
Trichloroethene	ug/kg	<25.0	1420	1420	1400	1370	98	97	70-130	2	20	
Trichlorofluoromethane	ug/kg	<25.0	1420	1420	1450	1350	102	95	60-141	7	26	
Vinyl chloride	ug/kg	<25.0	1420	1420	1240	1180	88	83	46-121	5	20	
4-Bromofluorobenzene (S)	%						117	109	54-126			
Dibromofluoromethane (S)	%						109	103	57-146			
Toluene-d8 (S)	%						103	97	64-134			

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: MAGTI SOIL

Pace Project No.: 40190860

QC Batch: 328035

Analysis Method: ASTM D2974-87

QC Batch Method: ASTM D2974-87

Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 40190860001, 40190860002, 40190860003, 40190860004

SAMPLE DUPLICATE: 1904761

Parameter	Units	40191224004 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	22.5	23.0	2	10	

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REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: MAGTI SOIL
Pace Project No.: 40190860

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

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 at or above the adjusted LOD.

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.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

ANALYTE QUALIFIERS

W Non-detect results are reported on a wet weight basis.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MAGTI SOIL
Pace Project No.: 40190860

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40190860001	A	EPA 5035/5030B	327064	EPA 8260	327069
40190860002	B	EPA 5035/5030B	327064	EPA 8260	327069
40190860003	C	EPA 5035/5030B	327064	EPA 8260	327069
40190860004	D	EPA 5035/5030B	327064	EPA 8260	327069
40190860001	A	ASTM D2974-87	328035		
40190860002	B	ASTM D2974-87	328035		
40190860003	C	ASTM D2974-87	328035		
40190860004	D	ASTM D2974-87	328035		

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CHAIN-OF-CUSTODY Analytical Request Document

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Company: ChemDesign Products, Inc

Address: 2 Stantons Street, Marinette, WI 54143

Report To: Christopher Kanikula

Email To: Same

Copy To: Site Collection Info/Address: Same

Customer Project Name/Number: MagTI Soil

State: WI / County/City: Time Zone Collected: [] PT [] MT [] CT [] ET

Phone: (715) 735-8393 Email: ckanikula@chemdesign.com

Site/Facility ID #: Compliance Monitoring? [] Yes [X] No

Collected By (print): Chris Kanikula

Purchase Order #: DW PWS ID #: [] No [X] Yes

Quote #: DW Location Code: Immediately Packed on Ice: [] Yes [X] No

Turnaround Date Required: [] Yes [X] No

Sample Disposal: [] Same Day [] Next Day [] 2 Day [] 3 Day [] 4 Day [X] 5 Day

[] Archive: [] Hold: (Expedite Charges Apply)

Analysis: [] Yes [X] No

Field Filtered (if applicable): [] Yes [X] No

* Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Wastewater (WW),

Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Composite End Date	Res Cl	# of Ctns
			Date	Time			
A	SL	✓					
B	SL	✓					
C	SL	✓					
D	SL	✓					

Customer Remarks / Special Conditions / Possible Hazards: Type of Ice Used: Wet Blue Dry None

Packing Material Used: None

Raddchem sample(s) screened (<500 ppm): Y N NA

Relinquished by/Company: (Signature)
 Date/Time: 7-9-19 / 16:30

Relinquished by/Company: (Signature)
 Date/Time: 7-9-19 / 16:30

Relinquished by/Company: (Signature)
 Date/Time: [] [] [] []

SHORT HOLDS PRESENT (<72 hours): Y N NA

Lab Tracking #: 7/9/2019

Samples received via: Client Courier Pace Courier

FEDEX UPS

Date/Time: 7/9/17 1630

Date/Time: [] [] [] []

Date/Time: [] [] [] []

Date/Time: [] [] [] []

Table #: [] [] [] []

Acctnum: [] [] [] []

Template: [] [] [] []

Prelogin: [] [] [] []

PM: [] [] [] []

PB: [] [] [] []

LAB Sample Temperature Info: Y N NA

Temp Blank Received: Y N NA

Therm ID#: 80

Cooler 1 Temp Upon Receipt: 65.5

Cooler 1 Therm Corr. Factor: 0C

Cooler 1 Corrected Temp: 0C

Comments:

Trip Blank Received: Y N NA

HCL MeOH TSP Other

Non Conformance(s): YES / NO

Page: / of: /

ALL SHADED AREAS are for LAB USE ONLY

Container Preservative Type **

Lab Project Manager:

** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses

Lab Profile/line:

Iab Sample Receipt Checklist:

Custody Seals Present/Intact Y N NA

Custody Signatures Present Y N NA

Collector Signature Present Y N NA

Bottles Intact Y N NA

Correct Bottles Y N NA

Sufficient Volume Y N NA

Samples Received on Ice Y N NA

VOA - Headspace Acceptable Y N NA

USDA Regulated Soils Y N NA

Samples in Holding Time Y N NA

Residual Chlorine Present Y N NA

Cl Strips: Y N NA

Sample pH Acceptable Y N NA

pH Strips: Y N NA

Sulfide Present Y N NA

Lead Acetate Strips: Y N NA

LAB USE ONLY:

Lab Sample # / Comments:

TOTAL VOCs

X
X
X
X

Sample Preservation Receipt Form

Pace Analytical Services, LLC
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Client Name: Chem Design Project # 40190860

Lab Lot# of pH paper: X N/A
All containers needing preservation have been checked and noted below: Yes No

Initial when completed: _____ Date/ Time: _____


Lab Std #/ID of preservation (if pH adjusted): _____

Pace Lab #	Glass			Plastic			Vials					Jars		General		VOA Vials (>6mm) *	H2SO4 pH ≤	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≥	pH after adjusted	Volume (mL)									
	AG1U	AG1H	AG4S	AG4U	AG5U	AG2S	AG3U	BP1U	BP2N	BP2Z	BP3U	BP3B	BP3N	BP3S	DG9A								DG9T	VG9U	VG9H	VG9M	VG9D	JG9U	WG9U	WPFU	SP5T
001																															2.5/5/10
002																															2.5/5/10
003																															2.5/5/10
004																															2.5/5/10
005																															2.5/5/10
006																															2.5/5/10
007																															2.5/5/10
008																															2.5/5/10
009																															2.5/5/10
010																															2.5/5/10
011																															2.5/5/10
012																															2.5/5/10
013																															2.5/5/10
014																															2.5/5/10
015																															2.5/5/10
016																															2.5/5/10
017																															2.5/5/10
018																															2.5/5/10
019																															2.5/5/10
020																															2.5/5/10

Handwritten: 7/19/2019
AS

Exceptions to preservation check: VOA, Coliform, TOC, TOX, TOH, O&G, WIDRO, Phenolics, Other: _____ Headspace in VOA Vials (>6mm) : Yes No N/A *If yes look in headspace column

AG1U	1 liter amber glass	BP1U	1 liter plastic unpres	DG9A	40 mL amber ascorbic	JG9U	4 oz amber jar unpres
AG1H	1 liter amber glass HCL	BP2N	500 mL plastic unpres HNO3	DG9T	40 mL amber Na Thio	WG9U	4 oz clear jar unpres
AG4S	125 mL amber glass H2SO4	BP2Z	500 mL plastic NaOH, Znact	VG9U	40 mL clear vial unpres	WPFU	4 oz plastic jar unpres
AG4U	120 mL amber glass unpres	BP3U	250 mL plastic unpres	VG9H	40 mL clear vial HCL		
AG5U	100 mL amber glass unpres	BP3B	250 mL plastic NaOH	VG9M	40 mL clear vial MeOH		
AG2S	500 mL amber glass H2SO4	BP3N	250 mL plastic HNO3	VG9D	40 mL clear vial DI		
AG3U	250 mL clear glass unpres	BP3S	250 mL plastic H2SO4			SP5T	120 mL plastic Na Thiosulfate
ZPLC ziploc bag <i>liter</i> GN: 4002 <u>Clear glass</u> <i>unpress evord jar Page 1 of 2</i>							

 1241 Bellevue Street, Green Bay, WI 54302	Document Name: Sample Condition Upon Receipt (SCUR)	Document Revised: 25Apr2018
	Document No.: F-GB-C-031-Rev.07	Issuing Authority: Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Client Name: Chem Design
Courier: CS Logistics Fed Ex Speedee UPS Walto
 Client Pace Other: _____

Project #: _____

WO#: 40190860



40190860

Tracking #: _____
Custody Seal on Cooler/Box Present: yes no **Seals intact:** yes no
Custody Seal on Samples Present: yes no **Seals intact:** yes no
Packing Material: Bubble Wrap Bubble Bags None Other _____
Thermometer Used SR - 80 **Type of Ice:** Wet Blue Dry None Samples on ice, cooling process has begun
Cooler Temperature Uncorr: 24 / ICorr: 24.5
Temp Blank Present: yes no **Biological Tissue is Frozen:** yes no

Person examining contents:
 Date: 7/9/2019
 Initials: JU

Temp should be above freezing to 6°C.
 Biota Samples may be received at ≤ 0°C.

Chain of Custody Present:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out: <u>7/9/2019</u>	<input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	2. <u>No Date or Time 7/9/2019</u>
Chain of Custody Relinquished:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name & Signature on COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	5.
- VOA Samples frozen upon receipt	<input type="checkbox"/> Yes <input type="checkbox"/> No	Date/Time: _____
Short Hold Time Analysis (<72hr):	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	6.
Rush Turn Around Time Requested:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	7.
Sufficient Volume:		8.
For Analysis: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No MS/MSD: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A		
Correct Containers Used:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	9. <u>Orange tape over lids</u>
-Pace Containers Used:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	<u>wrote ID on caps 7/9/2019</u>
-Pace IR Containers Used:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<u>JU</u>
Containers Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	10.
Filtered volume received for Dissolved tests	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels match COC:	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	12. <u>Time / Date on Samples</u>
-Includes date/time/ID/Analysis Matrix: <u>SL</u>		<u>but not on chain</u>
Trip Blank Present:	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <u>001 Date 7/9/19 6:30am 7/9/2019</u>
Trip Blank Custody Seals Present	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	<u>002 Date 7/9/19 6:30am</u>
Pace Trip Blank Lot # (if purchased): _____		<u>003 Date 7/9/19 6:30am</u>
		<u>004 Date 7/9/19 6:30am</u>

Client Notification/ Resolution:
 Person Contacted: _____ Date/Time: _____
 Comments/ Resolution: _____

Project Manager Review: _____ **Date:** 7/10/19
 Page 2 of 21

Joslin, Richard R - DNR

From: Beyer, Alexander W - DNR
Sent: Thursday, June 20, 2019 12:54 PM
To: Joslin, Richard R - DNR
Subject: FW: ChemDesign - TCLP Soil Sample Results from MCB Spill
Attachments: TCLP Results for four soil samples N of B52 619.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Rick,

Regarding Chem Design Chemical Spill - SERTS # 20190513NE38-1.

We are committed to service excellence.

Visit our survey at <http://dnr.wi.gov/customersurvey> to evaluate how I did.

Alexander Beyer

Phone: (920) 662-5428

alexander.beyer@wisconsin.gov

From: Tom Willis <TWillis@chemdesign.com>
Sent: Thursday, June 20, 2019 11:52 AM
To: Beyer, Alexander W - DNR <Alexander.Beyer@wisconsin.gov>
Subject: ChemDesign - TCLP Soil Sample Results from MCB Spill

Alex, attached you will find the TCLP soil sample results from our reportable spill from May 13, 2019. All TCLP results are below the limit of detection for chlorobenzene. If you have any questions, just let me know- -thank you Tom

Tom Willis

Director of HES



O (715)735-8263

M (906)280-8919

www.chemdesign.com

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twillis@chemdesign.com

From: Christopher Kanikula
Sent: Thursday, June 20, 2019 11:19 AM
To: Tom Willis <TWillis@chemdesign.com>
Subject: Soil Sample Results

Christopher Kanikula

Manager of Waste Operations



O 715-735-8393

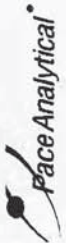
F 715-735-5304

C 920-471-8004

www.chemdesign.com

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ckanikula@chemdesign.com



CHAIN-OF-CUSTODY ANALYTICAL REQUEST DOCUMENT

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Company: ChemDesign Products, Inc
Address: 2 Stanton Street
Email To: ckanikula@chemdesign.com
Site Collection Info/Address: 2 Stanton Street

Customer Project Name/Number: Oil Samples May - 2019
State: WI /Marinette/ Marinette
Time Zone Collected: PT [] MT [] CT [] ET []
Compliance Monitoring? [] Yes [x] No
DW PWS ID #:
DW Location Code:
Immediately Packed on Ice: [] Yes [x] No
Field Filtered (if applicable): [] Yes [x] No
Analysis:
Rush: [] Same Day [] Next Day
[] 2 Day [] 3 Day [] 4 Day [] 5 Day
(Expedite Charges Apply)

Table with columns: Sample ID, Matrix, Comp/Grab, Collected (or Composite) Start Date, Time, Composite End Date, Time, Res Cl, # of Ctns. Includes samples A, B, C, D.

Customer Remarks / Special Conditions / Possible Hazards: Steve Melzko is Our REP.
Inquired by/Company: (Signature) Steve Melzko / Chem Design
Received by/Company: (Signature) [Signature]

Page 12 of 15
MTJL Log-In Number Here
ALL SHADED AREAS are for LAB USE ONLY
Lab Project Manager:

Container Preservative Type: U
Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other.

Lab Profile/Line:
Lab Sample Receipt Checklist:
Custody Seals Present/Intact Y N NA
Custody Signatures Present Y N NA
Collector Signatures Present Y N NA
Bottles Intact Y N NA
Correct Bottles Y N NA
Sufficient Volume Y N NA
Samples Received on Ice Y N NA
VOA - Headspace Acceptable Y N NA
USDA Regulated Soils Y N NA
Samples in Holding Time Y N NA
Residual Chlorine Present Y N NA
Cl Strips: Y N NA
Sample pH Acceptable Y N NA
pH Strips: Y N NA
Sulfide Present Y N NA
Lead Acetate Strips: Y N NA
LAB USE ONLY:
Lab Sample # / Comments:

Table with columns: Lab Sample #, Comments. Includes samples 001, 002, 003, 004.

SHORT HOLDS PRESENT (<72 hours): Y N N/A
Lab Tracking #:
Samples received via: FEDEX UPS Client Courier Pace Courier
Date/Time: 06/19/15 15:00
Table #:
Accnum:
Template:
Prelogin:
PM:
Lab Sample Temperature Info:
Temp Blank Received: Y N NA
Therm ID#:
Cooler 1 Temp Upon Receipt: 105.0C
Cooler 1 Therm Corr. Factor:
Cooler 1 Corrected Temp:
Comments:
Thp Blank Received: Y N NA
HCL MeOH TSP Other
Non Conformance(s):
Page:

Sample Preservation Receipt Form

Project # 0189252

Client Name: Chem Design Products

All containers needing preservation have been checked and noted below: Yes No N/A

Lab Lot# of pH paper:

Lab Std #ID of preservation (if pH adjusted):

Initial when completed:

Date/Time:

Pace Lab #	Glass			Plastic			Vials			Jars			General			VOA Vials (>6mm)			H2SO4 pH ≥	NaOH+Zn Act pH ≥9	NaOH pH ≥12	HNO3 pH ≥	pH after adjusted	Volume (mL)										
	AG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BP3U	BP2N	BP2Z	BP3U	BP3B	BP3N	BP3S	DG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JG9U	WG9U	WP9U	SP5T		ZPLC	GN								
001																											2.5 / 5 / 10							
002																											2.5 / 5 / 10							
003																											2.5 / 5 / 10							
004																											2.5 / 5 / 10							
005																											2.5 / 5 / 10							
006																											2.5 / 5 / 10							
007																											2.5 / 5 / 10							
008																											2.5 / 5 / 10							
009																											2.5 / 5 / 10							
010																											2.5 / 5 / 10							
011																											2.5 / 5 / 10							
012																											2.5 / 5 / 10							
013																											2.5 / 5 / 10							
014																											2.5 / 5 / 10							
015																											2.5 / 5 / 10							
016																											2.5 / 5 / 10							
017																											2.5 / 5 / 10							
018																											2.5 / 5 / 10							
019																											2.5 / 5 / 10							
020																											2.5 / 5 / 10							

Exceptions to preservation check: VOA, Coliform, TOC, TOX, TOH, O&G, WI DRO, Phenolics, Other: _____ Headspace in VOA Vials (>6mm): Yes No N/A *If yes look in headspace column

AG1U	AG1H	AG4S	AG4U	AG5U	AG2S	BG3U	BP1U	BP2N	BP2Z	BP3U	BP3B	BP3N	BP3S	DG9A	DG9T	VG9U	VG9H	VG9M	VG9D	JG9U	WG9U	WP9U	SP5T	ZPLC	GN:
1 liter amber glass	1 liter amber glass HCL	125 mL amber glass H2SO4	120 mL amber glass unpres	100 mL amber glass unpres	500 mL amber glass H2SO4	250 mL clear glass unpres	1 liter plastic unpres	500 mL plastic HNO3	500 mL plastic NaOH, Znact	250 mL plastic unpres	250 mL plastic NaOH	250 mL plastic HNO3	250 mL plastic H2SO4	40 mL amber ascorbic	40 mL amber Na Thio	40 mL clear vial unpres	40 mL clear vial HCL	40 mL clear vial MeOH	40 mL clear vial DI	4 oz amber jar unpres	4 oz clear jar unpres	4 oz plastic jar unpres	120 mL plastic Na Thiosulfate	ziploc bag	Liter Clear glass



Document Name: Sample Condition Upon Receipt (SCUR)
Document No.: F-GB-C-031-Rev.07

Document Revised: 25Apr2018
Issuing Authority: Pace Green Bay Quality Office

Sample Condition Upon Receipt Form (SCUR)

Project #:

Client Name: Chem Design Products

Courier: CS Logistics Fed Ex Speedee UPS Walco
Client Pace Other:

WO#: 40189252
Barcode
40189252

Tracking #:

Custody Seal on Cooler/Box Present: yes no Seals intact: yes no

Custody Seal on Samples Present: yes no Seals intact: yes no

Packing Material: Bubble Wrap Bubble Bags None Other

Thermometer Used SR - N/A Type of Ice: Wet Blue Dry None Samples on Ice, cooling process has begun

Cooler Temperature Uncorr: ROI /Corr:

Temp Blank Present: yes no

Biological Tissue is Frozen: yes no

Person examining contents:
Date: 06/11/19
Initials: MSC

Temp should be above freezing to 6°C.
Biota Samples may be received at ≤ 0°C.

Table with 13 rows of checklist items and checkboxes. Items include Chain of Custody Present, Chain of Custody Filled Out, Chain of Custody Relinquished, Sampler Name & Signature on COC, Samples Arrived within Hold Time, Short Hold Time Analysis (<72hr), Rush Turn Around Time Requested, Sufficient Volume, Correct Containers Used, Containers Intact, Filtered volume received for Dissolved tests, Sample Labels match COC, Trip Blank Present, Trip Blank Custody Seals Present.

Client Notification/ Resolution: If checked, see attached form for additional comments
Person Contacted: Date/Time:
Comments/ Resolution:

Project Manager Review: [Signature] Date: 6/12/19
Page 2 of 2
Page 14 of 14

SAMPLE ANALYTE COUNT

Project: SOIL SAMPLES MAY - 2019
Pace Project No.: 40189252

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
40189252001	SAMPLE A	EPA 8260	SMT	13	PASI-G
40189252002	SAMPLE B	EPA 8260	SMT	13	PASI-G
40189252003	SAMPLE C	EPA 8260	SMT	13	PASI-G
40189252004	SAMPLE D	EPA 8260	SMT	13	PASI-G

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: SOIL SAMPLES MAY - 2019
Pace Project No.: 40189252

Sample: SAMPLE A Lab ID: 40189252001 Collected: 05/20/19 15:00 Received: 06/11/19 15:10 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV TCLP Analytical Method: EPA 8260 Leachate Method/Date: EPA 1311; 06/17/19 14:34									
Benzene	<5.0	ug/L	10.0	5.0	10		06/18/19 16:41	71-43-2	H2
2-Butanone (MEK)	<29.8	ug/L	200	29.8	10		06/18/19 16:41	78-93-3	H2
Carbon tetrachloride	<5.0	ug/L	10.0	5.0	10		06/18/19 16:41	56-23-5	H2
Chlorobenzene	<5.0	ug/L	10.0	5.0	10		06/18/19 16:41	108-90-7	H2
Chloroform	<25.0	ug/L	50.0	25.0	10		06/18/19 16:41	67-66-3	H2
1,2-Dichloroethane	<1.7	ug/L	10.0	1.7	10		06/18/19 16:41	107-06-2	H2
1,1-Dichloroethene	<4.1	ug/L	10.0	4.1	10		06/18/19 16:41	75-35-4	H2
Tetrachloroethene	<5.0	ug/L	10.0	5.0	10		06/18/19 16:41	127-18-4	H2
Trichloroethene	<3.3	ug/L	10.0	3.3	10		06/18/19 16:41	79-01-6	H2
Vinyl chloride	<1.8	ug/L	10.0	1.8	10		06/18/19 16:41	75-01-4	H2
Surrogates									
Toluene-d8 (S)	96	%	70-130		10		06/18/19 16:41	2037-26-5	
4-Bromofluorobenzene (S)	91	%	70-130		10		06/18/19 16:41	460-00-4	
Dibromofluoromethane (S)	116	%	70-130		10		06/18/19 16:41	1868-53-7	

Sample: SAMPLE B Lab ID: 40189252002 Collected: 05/20/19 15:00 Received: 06/11/19 15:10 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV TCLP Analytical Method: EPA 8260 Leachate Method/Date: EPA 1311; 06/17/19 14:34									
Benzene	<5.0	ug/L	10.0	5.0	10		06/18/19 17:04	71-43-2	H2
2-Butanone (MEK)	<29.8	ug/L	200	29.8	10		06/18/19 17:04	78-93-3	H2
Carbon tetrachloride	<5.0	ug/L	10.0	5.0	10		06/18/19 17:04	56-23-5	H2
Chlorobenzene	<5.0	ug/L	10.0	5.0	10		06/18/19 17:04	108-90-7	H2
Chloroform	<25.0	ug/L	50.0	25.0	10		06/18/19 17:04	67-66-3	H2
1,2-Dichloroethane	<1.7	ug/L	10.0	1.7	10		06/18/19 17:04	107-06-2	H2
1,1-Dichloroethene	<4.1	ug/L	10.0	4.1	10		06/18/19 17:04	75-35-4	H2
Tetrachloroethene	<5.0	ug/L	10.0	5.0	10		06/18/19 17:04	127-18-4	H2
Trichloroethene	<3.3	ug/L	10.0	3.3	10		06/18/19 17:04	79-01-6	H2
Vinyl chloride	<1.8	ug/L	10.0	1.8	10		06/18/19 17:04	75-01-4	H2
Surrogates									
Toluene-d8 (S)	96	%	70-130		10		06/18/19 17:04	2037-26-5	
4-Bromofluorobenzene (S)	93	%	70-130		10		06/18/19 17:04	460-00-4	
Dibromofluoromethane (S)	118	%	70-130		10		06/18/19 17:04	1868-53-7	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: SOIL SAMPLES MAY - 2019
Pace Project No.: 40189252

Sample: SAMPLE C **Lab ID: 40189252003** Collected: 05/20/19 15:00 Received: 06/11/19 15:10 Matrix: Solid
Results reported on a "wet-weight" basis

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV TCLP Analytical Method: EPA 8260 Leachate Method/Date: EPA 1311; 06/17/19 14:34									
Benzene	<5.0	ug/L	10.0	5.0	10		06/18/19 17:28	71-43-2	H2
2-Butanone (MEK)	<29.8	ug/L	200	29.8	10		06/18/19 17:28	78-93-3	H2
Carbon tetrachloride	<5.0	ug/L	10.0	5.0	10		06/18/19 17:28	56-23-5	H2
Chlorobenzene	<5.0	ug/L	10.0	5.0	10		06/18/19 17:28	108-90-7	H2
Chloroform	<25.0	ug/L	50.0	25.0	10		06/18/19 17:28	67-66-3	H2
1,2-Dichloroethane	<1.7	ug/L	10.0	1.7	10		06/18/19 17:28	107-06-2	H2
1,1-Dichloroethene	<4.1	ug/L	10.0	4.1	10		06/18/19 17:28	75-35-4	H2
Tetrachloroethene	<5.0	ug/L	10.0	5.0	10		06/18/19 17:28	127-18-4	H2
Trichloroethene	<3.3	ug/L	10.0	3.3	10		06/18/19 17:28	79-01-6	H2
Vinyl chloride	<1.8	ug/L	10.0	1.8	10		06/18/19 17:28	75-01-4	H2
Surrogates									
Toluene-d8 (S)	97	%	70-130		10		06/18/19 17:28	2037-26-5	
4-Bromofluorobenzene (S)	91	%	70-130		10		06/18/19 17:28	460-00-4	
Dibromofluoromethane (S)	119	%	70-130		10		06/18/19 17:28	1868-53-7	

Sample: SAMPLE D **Lab ID: 40189252004** Collected: 05/20/19 15:00 Received: 06/11/19 15:10 Matrix: Solid
Results reported on a "wet-weight" basis

Parameters	Results	Units	LOQ	LOD	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV TCLP Analytical Method: EPA 8260 Leachate Method/Date: EPA 1311; 06/17/19 14:34									
Benzene	<5.0	ug/L	10.0	5.0	10		06/18/19 17:51	71-43-2	H2
2-Butanone (MEK)	<29.8	ug/L	200	29.8	10		06/18/19 17:51	78-93-3	H2
Carbon tetrachloride	<5.0	ug/L	10.0	5.0	10		06/18/19 17:51	56-23-5	H2
Chlorobenzene	<5.0	ug/L	10.0	5.0	10		06/18/19 17:51	108-90-7	H2
Chloroform	<25.0	ug/L	50.0	25.0	10		06/18/19 17:51	67-66-3	H2
1,2-Dichloroethane	<1.7	ug/L	10.0	1.7	10		06/18/19 17:51	107-06-2	H2
1,1-Dichloroethene	<4.1	ug/L	10.0	4.1	10		06/18/19 17:51	75-35-4	H2
Tetrachloroethene	<5.0	ug/L	10.0	5.0	10		06/18/19 17:51	127-18-4	H2
Trichloroethene	<3.3	ug/L	10.0	3.3	10		06/18/19 17:51	79-01-6	H2
Vinyl chloride	<1.8	ug/L	10.0	1.8	10		06/18/19 17:51	75-01-4	H2
Surrogates									
Toluene-d8 (S)	98	%	70-130		10		06/18/19 17:51	2037-26-5	
4-Bromofluorobenzene (S)	94	%	70-130		10		06/18/19 17:51	460-00-4	
Dibromofluoromethane (S)	113	%	70-130		10		06/18/19 17:51	1868-53-7	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: SOIL SAMPLES MAY - 2019
Pace Project No.: 40189252

QC Batch: 324811 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV TCLP
Associated Lab Samples: 40189252001, 40189252002, 40189252003, 40189252004

METHOD BLANK: 1885341 Matrix: Water
Associated Lab Samples: 40189252001, 40189252002, 40189252003, 40189252004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1-Dichloroethene	ug/L	<0.41	1.0	06/18/19 11:12	
1,2-Dichloroethane	ug/L	<0.17	1.0	06/18/19 11:12	
2-Butanone (MEK)	ug/L	<3.0	20.0	06/18/19 11:12	
Benzene	ug/L	<0.50	1.0	06/18/19 11:12	
Carbon tetrachloride	ug/L	<0.50	1.0	06/18/19 11:12	
Chlorobenzene	ug/L	<0.50	1.0	06/18/19 11:12	
Chloroform	ug/L	<2.5	5.0	06/18/19 11:12	
Tetrachloroethene	ug/L	<0.50	1.0	06/18/19 11:12	
Trichloroethene	ug/L	<0.33	1.0	06/18/19 11:12	
Vinyl chloride	ug/L	<0.18	1.0	06/18/19 11:12	
4-Bromofluorobenzene (S)	%	89	70-130	06/18/19 11:12	
Dibromofluoromethane (S)	%	115	70-130	06/18/19 11:12	
Toluene-d8 (S)	%	97	70-130	06/18/19 11:12	

METHOD BLANK: 1884752 Matrix: Solid
Associated Lab Samples: 40189252001, 40189252002, 40189252003, 40189252004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1-Dichloroethene	ug/L	<4.1	10.0	06/18/19 19:49	
1,2-Dichloroethane	ug/L	<1.7	10.0	06/18/19 19:49	
2-Butanone (MEK)	ug/L	<29.8	200	06/18/19 19:49	
Benzene	ug/L	<5.0	10.0	06/18/19 19:49	
Carbon tetrachloride	ug/L	<5.0	10.0	06/18/19 19:49	
Chlorobenzene	ug/L	<5.0	10.0	06/18/19 19:49	
Chloroform	ug/L	<25.0	50.0	06/18/19 19:49	
Tetrachloroethene	ug/L	<5.0	10.0	06/18/19 19:49	
Trichloroethene	ug/L	<3.3	10.0	06/18/19 19:49	
Vinyl chloride	ug/L	<1.8	10.0	06/18/19 19:49	
4-Bromofluorobenzene (S)	%	91	70-130	06/18/19 19:49	
Dibromofluoromethane (S)	%	114	70-130	06/18/19 19:49	
Toluene-d8 (S)	%	99	70-130	06/18/19 19:49	

METHOD BLANK: 1884753 Matrix: Solid
Associated Lab Samples: 40189252001, 40189252002, 40189252003, 40189252004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1-Dichloroethene	ug/L	<4.1	10.0	06/18/19 20:12	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: SOIL SAMPLES MAY - 2019
Pace Project No.: 40189252

METHOD BLANK: 1884753 Matrix: Solid
Associated Lab Samples: 40189252001, 40189252002, 40189252003, 40189252004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2-Dichloroethane	ug/L	<1.7	10.0	06/18/19 20:12	
2-Butanone (MEK)	ug/L	<29.8	200	06/18/19 20:12	
Benzene	ug/L	<5.0	10.0	06/18/19 20:12	
Carbon tetrachloride	ug/L	<5.0	10.0	06/18/19 20:12	
Chlorobenzene	ug/L	<5.0	10.0	06/18/19 20:12	
Chloroform	ug/L	<25.0	50.0	06/18/19 20:12	
Tetrachloroethene	ug/L	<5.0	10.0	06/18/19 20:12	
Trichloroethene	ug/L	<3.3	10.0	06/18/19 20:12	
Vinyl chloride	ug/L	<1.8	10.0	06/18/19 20:12	
4-Bromofluorobenzene (S)	%	90	70-130	06/18/19 20:12	
Dibromofluoromethane (S)	%	115	70-130	06/18/19 20:12	
Toluene-d8 (S)	%	100	70-130	06/18/19 20:12	

LABORATORY CONTROL SAMPLE: 1885342

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1-Dichloroethene	ug/L	50	63.3	127	73-150	
1,2-Dichloroethane	ug/L	50	54.3	109	75-140	
Benzene	ug/L	50	58.2	116	70-130	
Carbon tetrachloride	ug/L	50	52.0	104	70-130	
Chlorobenzene	ug/L	50	52.8	106	70-130	
Chloroform	ug/L	50	56.2	112	74-136	
Tetrachloroethene	ug/L	50	54.5	109	70-130	
Trichloroethene	ug/L	50	54.5	109	70-130	
Vinyl chloride	ug/L	50	55.8	112	51-120	
4-Bromofluorobenzene (S)	%			102	70-130	
Dibromofluoromethane (S)	%			109	70-130	
Toluene-d8 (S)	%			99	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1885358 1885359

Parameter	Units	40189445001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
1,1-Dichloroethene	ug/L	<0.0041 mg/L	500	500	636	635	127	127	73-153	0	20	
1,2-Dichloroethane	ug/L	<0.0017 mg/L	500	500	558	601	112	120	75-140	7	20	
Benzene	ug/L	<0.0050 mg/L	500	500	596	592	119	118	70-130	1	20	
Carbon tetrachloride	ug/L	<0.0050 mg/L	500	500	520	534	104	107	70-130	3	20	
Chlorobenzene	ug/L	<0.0050 mg/L	500	500	526	514	105	103	70-130	2	20	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: SOIL SAMPLES MAY - 2019
Pace Project No.: 40189252

Parameter	Units	1885358			1885359			% Rec	% Rec	% Rec	RPD	Max RPD	Qual
		40189445001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec						
Chloroform	ug/L	<0.025 mg/L	500	500	576	595	115	119	74-136	3	20		
Tetrachloroethene	ug/L	<0.0050 mg/L	500	500	546	558	109	112	70-130	2	20		
Trichloroethene	ug/L	<0.0033 mg/L	500	500	549	552	110	110	70-130	1	20		
Vinyl chloride	ug/L	<0.0018 mg/L	500	500	558	559	112	112	41-129	0	20		
4-Bromofluorobenzene (S)	%						98	99	70-130				
Dibromofluoromethane (S)	%						112	111	70-130				
Toluene-d8 (S)	%						98	99	70-130				

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: SOIL SAMPLES MAY - 2019
Pace Project No.: 40189252

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above LOD.
J - Estimated concentration at or above the LOD and below the LOQ.
LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.
LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
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 at or above the adjusted LOD.
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.

LABORATORIES

PASI-G Pace Analytical Services - Green Bay

ANALYTE QUALIFIERS

H2 Extraction or preparation was conducted outside of the recognized method holding time.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: SOIL SAMPLES MAY - 2019
Pace Project No.: 40189252

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
40189252001	SAMPLE A	EPA 8260	324811		
40189252002	SAMPLE B	EPA 8260	324811		
40189252003	SAMPLE C	EPA 8260	324811		
40189252004	SAMPLE D	EPA 8260	324811		

REPORT OF LABORATORY ANALYSIS

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Joslin, Richard R - DNR

From: Tom Willis <TWillis@chemdesign.com>
Sent: Monday, June 3, 2019 11:56 AM
To: Joslin, Richard R - DNR
Cc: Beyer, Alexander W - DNR
Subject: RE: Chem Design Chemical Spill - SERTS # 20190513NE38-1
Attachments: Bldg 52 amended FINAL MCB-Isohexane spill Let to WDNR 519.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Attached you will find the revised report with the additional information you requested. We did not use Veolia Environmental for the clean-up as ChemDesign maintains trained and certified individuals, and the necessary spill response equipment for such an activity. We hope to never use this, but we must be prepared should this type of event occur.

If you would like to see additional information, please let me know – thank you Tom

Tom Willis

Director of HES



O (715)735-8263

M (906)280-8919

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twillis@chemdesign.com

From: Joslin, Richard R - DNR <Richard.Joslin@wisconsin.gov>
Sent: Thursday, May 30, 2019 9:52 AM
To: Tom Willis <TWillis@chemdesign.com>
Cc: Beyer, Alexander W - DNR <Alexander.Beyer@wisconsin.gov>
Subject: RE: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Thanks Tom for the report. The Department did a quick review of the report and came up with the following comments that need to be addressed or included in the final report:

- A discussion of the time the spill actually happened
- What day did the cleanup happen
- Staff involved with this incident
- SDS sheets of chemicals released and in the mixing vessel
- Provide waste determination for this waste
- Disposal manifests
- All lab reports and COC forms
- Was Veolia involved with spill response if so is there a report from Veolia?
- Who excavated soils and how was excavation guided?
- Photos of the vessel (#5228) and the broken sight-glass.
- Photos of the plug valve or a diagram of where this was on the tank
- Did the spilled material make it through the cracked pavement?

Considering that this spill event involved a hazardous waste I think the above items should be added to the report. Please provide that information in a final report to me and Alex Beyer. If you have any question please feel free to contact me or your Waste Management Specialist (Alexander Beyer; 920-662-5428) to discuss.

Thanks

Rick

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Visit our survey at <http://dnr.wi.gov/customersurvey> to evaluate how I did.

Richard R. Joslin

Hydrogeologist / NER Spills Coordinator – Remediation & Redevelopment Bureau

Wisconsin Department of Natural Resources

625 East County Road Y, Suite 700, Oshkosh, WI 54901-9731

Phone: (920) 424-7077

Cell Phone: (920) 360-4291

Richard.Joslin@Wisconsin.gov



From: Tom Willis <TWillis@chemdesign.com>

Sent: Tuesday, May 28, 2019 10:58 AM

To: Joslin, Richard R - DNR <Richard.Joslin@wisconsin.gov>

Subject: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Attached is the follow-up letter you requested in regards to our NRC call on May 13, 2019. As stated in the report, we have collected additional TCLP samples after remediation and I will forward those once received. We hope to get them back from the lab later this week or early next week.

If you have any questions, or would like to discuss, please give me a call – thank you Tom

Tom Willis

Director of HES



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M (906)280-8919

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twillis@chemdesign.com

From: Joslin, Richard R - DNR <Richard.Joslin@wisconsin.gov>

Sent: Tuesday, May 14, 2019 10:15 AM

To: Tom Willis <TWillis@chemdesign.com>

Subject: RE: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Sounds Good.

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Visit our survey at <http://dnr.wi.gov/customersurvey> to evaluate how I did.

Richard R. Joslin

Hydrogeologist / NER Spills Coordinator – Remediation & Redevelopment Bureau

Wisconsin Department of Natural Resources

625 East County Road Y, Suite 700, Oshkosh, WI 54901-9731

Phone: (920) 424-7077

Cell Phone: (920) 360-4291

Richard.Joslin@Wisconsin.gov



From: Tom Willis <TWillis@chemdesign.com>

Sent: Tuesday, May 14, 2019 10:06 AM

To: Joslin, Richard R - DNR <Richard.Joslin@wisconsin.gov>

Subject: FW: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Good morning Rick, Chris Kanikula forwarded your request to me as I was out of the plant yesterday when the spill occurred. Our folks did an excellent job on response and clean-up, and I should have a detailed report for you by early next week. In the meantime if you have any question or you would like to discuss, please feel free to call me. Thank you Tom

Tom Willis

Director of HES



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M (906)280-8919

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twillis@chemdesign.com

From: Christopher Kanikula

Sent: Monday, May 13, 2019 3:42 PM

To: Tom Willis <TWillis@chemdesign.com>

Subject: FW: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Christopher Kanikula

Manager of Waste Operations



O 715-735-8393

F 715-735-5304

C 920-471-8004

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ckanikula@chemdesign.com

From: Joslin, Richard R - DNR <Richard.Joslin@wisconsin.gov>
Sent: Monday, May 13, 2019 3:01 PM
To: Christopher Kanikula <CKanikula@chemdesign.com>
Subject: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Chris

Per our conversation, please send me a map of the facility that shows where the spill occurred and where it ran to.

Please note that a documentation report will be needed for the spill referenced above. The report should be submitted to me within 45 days of the incident. The report should include information (i.e., what happened, where it happened, how it was fixed, what remedial activities were performed, photo documentation, etc.) to document spill response activities that occurred. Photos of the condition of the asphalt and concrete should also be included.

Please make sure that the report includes **global positioning system (GPS) coordinates** or a **map** that presents an accurate location of the spill. If you need more information related to the spill cleanup documentation report, please do not hesitate to contact me.

The report should be sent to:

Email: richard.joslin@wisconsin.gov (No hard copy of the report is required)

Thank you for your cooperation with this matter!

Rick

We are committed to service excellence.

Visit our survey at <http://dnr.wi.gov/customersurvey> to evaluate how I did.

Richard R. Joslin

Hydrogeologist / NER Spills Coordinator – Remediation & Redevelopment Bureau

Wisconsin Department of Natural Resources

625 East County Road Y, Suite 700, Oshkosh, WI 54901-9731

Phone: (920) 424-7077

Cell Phone: (920) 360-4291

Richard.Joslin@Wisconsin.gov



June 3, 2019

Mr. Rick Joslin
NER Spill Coordinator
WDNR
2984 Shawano Ave.
Green Bay, WI 54313

Dear Mr. Joslin

On May 13, 2019, Christopher Kanikula, ChemDesign's Hazardous Waste Manager reported a spill of monochlorobenzene (CAS# 108-90-7) to the National Response Center at approximately 1:30 PM. The spill involved a site glass failure on a vessel at the start of a transfer to a hazardous waste tanker. **You requested additional information and it is provided in this report in BOLD type print below and in the attachments and pictures. The site glass failure occurred at 1:06 pm.**

Location: 2 Stanton Street, Marinette, Wisconsin 54143, Parcel 1 – Stanton Street Plant Site, Fractional Section 5, Township 50 North, Range 24 East. Refer to Site Plan Drawing for the spill location and our Stormwater Program Hold and Test Puddle (area where the spill collected) (see Map 1).

At the time of the spill the wind direction was into the NW at approximately 9 mph, and a temperature of 57 Degrees F.

Summary of Incident - Vessel number 5228 is a 2,000-gallon glass-lined reactor containing 838.6 lbs of monochlorobenzene (MCB) and 6,738 lbs of isohexane (CAS# 107-83-5) at a temperature of 35 degrees F, which was being transferred under pressure to a tanker for recycling. The Operator opened the automatic bottom valve of the vessel to release the material that was lined-out to the tanker when the sight-glass immediately adjacent burst open and came apart. This released the contents of vessel 5228 on to the floor and immediately outside the door to the containment puddle where it collected (see Pic 1, 2, 5, 6, 7 & 8).

The investigation revealed that the sight glass was at its end of service life, and when it burst the subsequent pressure misaligned the plug valve and prevented it from closing properly. This allowed material to flow directly from the site glass and onto the floor. The sight glass was rated for 150 psig (1.5" diameter sight glass) and failed at 34.7 psig. The plug valve was also removed from service and replaced with a new automatic ball valve.

Containment of the spill began within five minutes of the release as soon as employees realized the mixture was spreading to the West along the containment curbing. ChemDesign Chemical Operators applied oil-dry along the curbing to help prevent material from reaching the soil. An empty Veolia tanker was on-site and was repurposed for the clean-up. At about 3:00 PM, K&K Logistics out of Menominee, MI, moved the tanker over to the site of the spill.

Once the tanker was spotted, our Chemical Operators used an air operated diaphragm pump and chemical hoses and began to clean-up the spilled material. The clean-up lasted until about 10:00 AM on May 14, 2019, with multiple transfers to the tanker of rinse waters and soap.

Operators finished clean-up with the use of an air driven 55-gallon drum top vacuum system, and by scrubbing the asphalt with soap and brooms.

On May 14, 2019, ChemDesign Chemical Operators, using proper personal protection equipment, including rubber gloves and rubber boots, at the direction of our Hazardous Waste Manager transferred a 1ft x 1ft x 28ft section of soil to 55-gallon metal open-top drums which will be sent out as hazardous waste. They are still on-site in our Hazardous Waste Accumulation Pad.

Approximately 4,000 gallons of material, including 838.6 lbs (111 gal) of MCB, 6,738 lbs (1,214 gal) of isohexane, clean-up/rinse waters and storm water from a previous rain event were collected in a Veolia Environmental Services, Inc. tanker and transferred to Milwaukee, Wisconsin for disposal. Manifest Number 001540515VES (attached).

We also generated 12, 55-gallon drums of contaminated soil and asphalt barrier as the curbing along the road way on the North side of Bldg 52 was broken up. The drums will be sent out as hazardous waste once profiled. The curbing has since been repaired (see Pic 3).

We tested the remaining soil for MCB after we pulled-up a 1ft x 1ft x 28ft section of soil along the deteriorated curbing. MCB analysis was conducted by ChemDesign's in-house Quality Control and Research laboratory. The soil samples were analyzed using a Gas Chromatograph (GC) equipped with Flame Ionization Detection. The MCB present in the soil samples was extracted into a solvent and injected into the GC inlet via an automatic liquid sampler.

Four initial one-liter samples were collected for analysis, no COCs for the on-site analysis (see Pic 4):

Soil Sample A: 29 ppm MCB

Soil Sample B: 51 ppm MCB

Soil Sample C: 6 ppm MCB

Soil Sample D: <5 ppm MCB

After the results came back from initial sampling, an additional 0.8ft x 2ft x 28ft section was removed and disposed in 55-gallon metal drums. **This soil removal was conducted by MJB Industries on May 17, 2019, involving two employees utilizing a small back-hoe. MJB followed the guidance given by ChemDesign's Hazardous Waste Manager.**

After the additional soil removal four additional TCLP soil samples were collected along the trench in the same locations and sent out to Pace Analytical in Green Bay, Wisconsin (COC attached). We will determine if additional remediation is required based on the results of the TCLP samples once received.

After the TCLP samples were taken, gravel and sand were brought in by MJB Industries to fill the void and a new asphalt curb was run along the area to re-establish a barrier to ground (see Pic 3).

The employees involved in the response and clean-up: Hazardous Waste Manager (Hazardous Waste Operations and Emergency Response OSHA 29 CFR 1910.120 Certified), our Environmental Technician, a Chemical Engineer and 11 ChemDesign Chemical Operators within three shifts.

The roadway to the North and West of building 52 is concrete covered with asphalt. While there are visible cracks in the asphalt, and that the major portion of the spill plume was cleaned-up within three hours of the release, we do not believe core samples for the determination of contamination under the concrete/asphalt roadway will be necessary at this time.

In summary, approximately 1,400 gallons of solvent was released from vessel 5228 and drained out of Bldg 52 and into a storm water containment area. All efforts were made to clean-up materials, soils, soap and rinse water for disposal as hazardous waste. The soil was tested and four TCLP samples are still at the lab and we are waiting for results. The roadway barrier has been

replaced along with a new site glass and valve on 5228. If you have any questions, please feel free to contact me at the number below.

Sincerely,

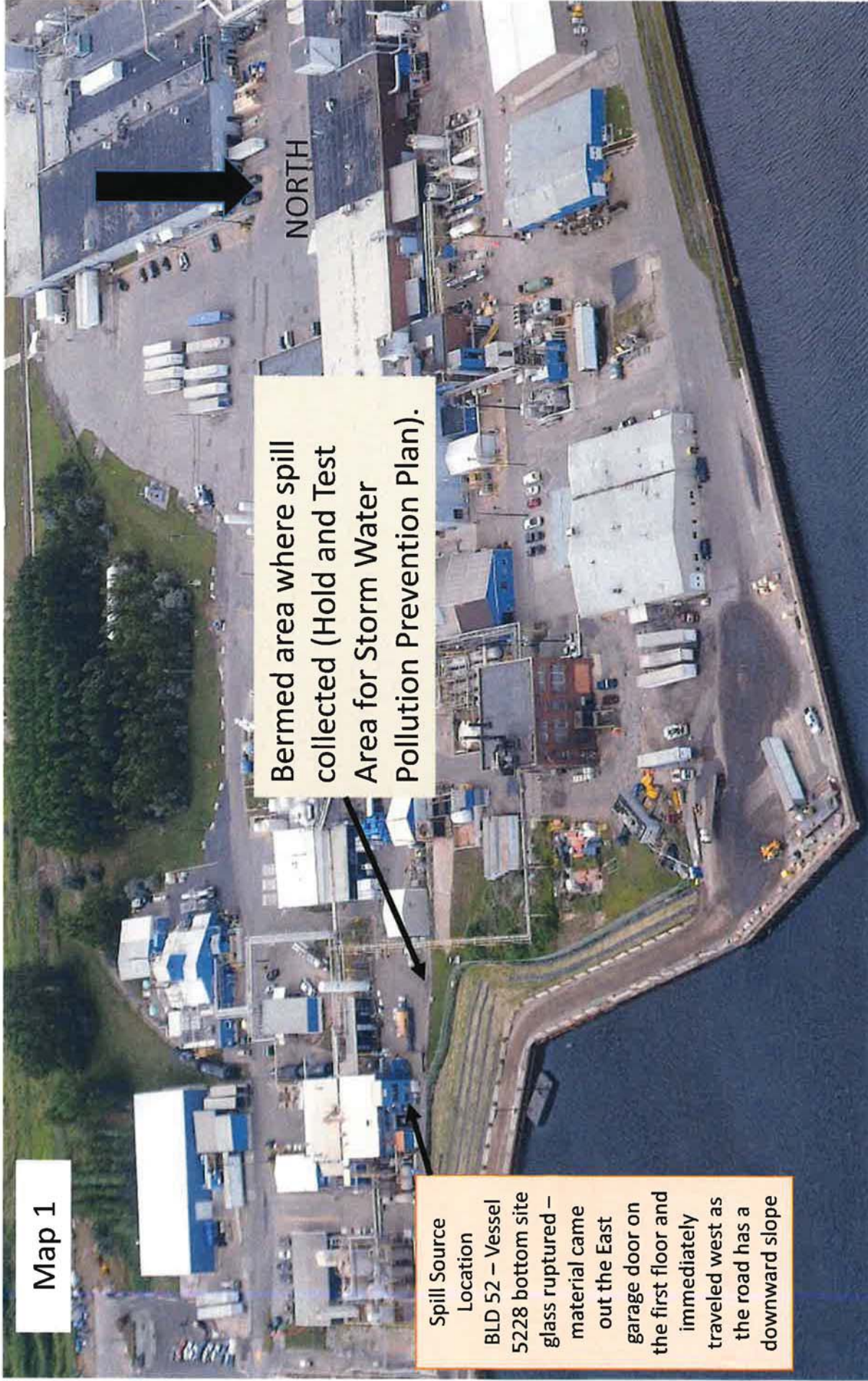


Thomas Willis
Director of HES
ChemDesign Products, Inc.
2 Stanton Street
Marinette, WI 54143
(715)735-8263
twillis@chemdesign.com

Attachments:

1. Map 1 – Site map and location of spill
2. Pics 1-8 – Detailing incident and clean-up
3. ChemDesign In-House Quality Control and Research laboratory results of soil samples
4. COC for TCLP samples
5. Hazardous Waste Manifest to Veolia
6. ChemDesign Waste Determination Form
7. Safety Data Sheets

Map 1

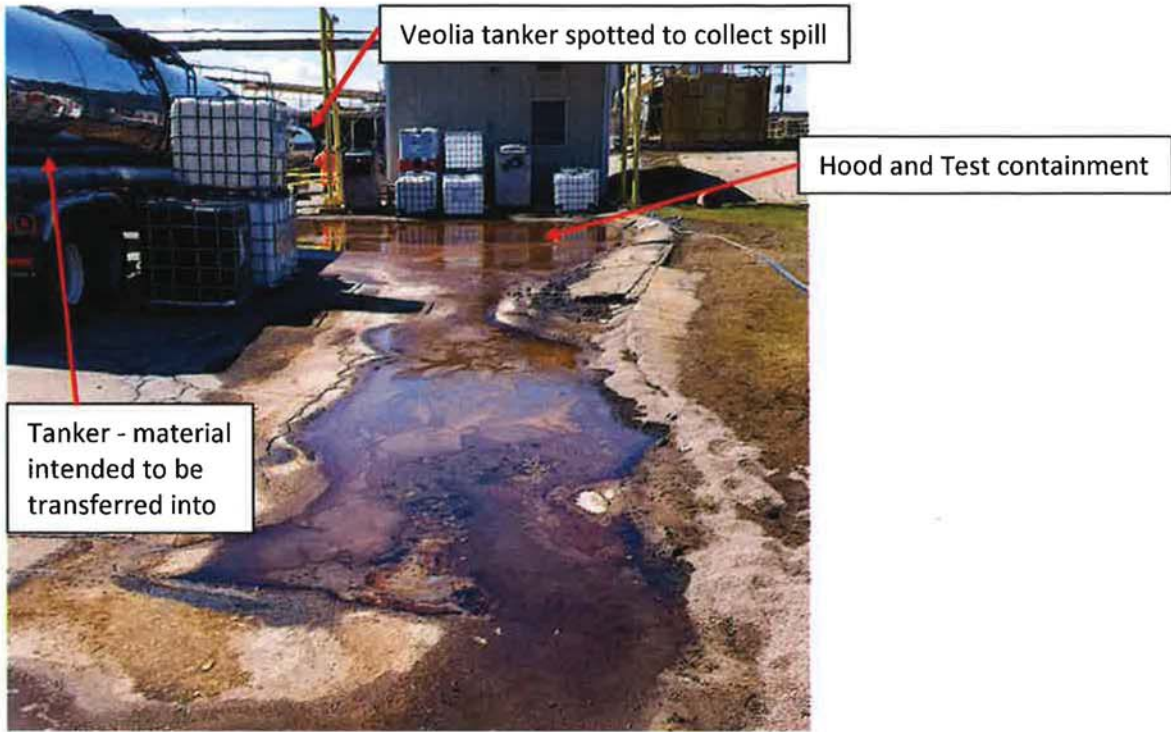


Spill Source

Location

BLD 52 – Vessel
5228 bottom site
glass ruptured –
material came
out the East
garage door on
the first floor and
immediately
traveled west as
the road has a
downward slope

Bermed area where spill
collected (Hold and Test
Area for Storm Water
Pollution Prevention Plan).



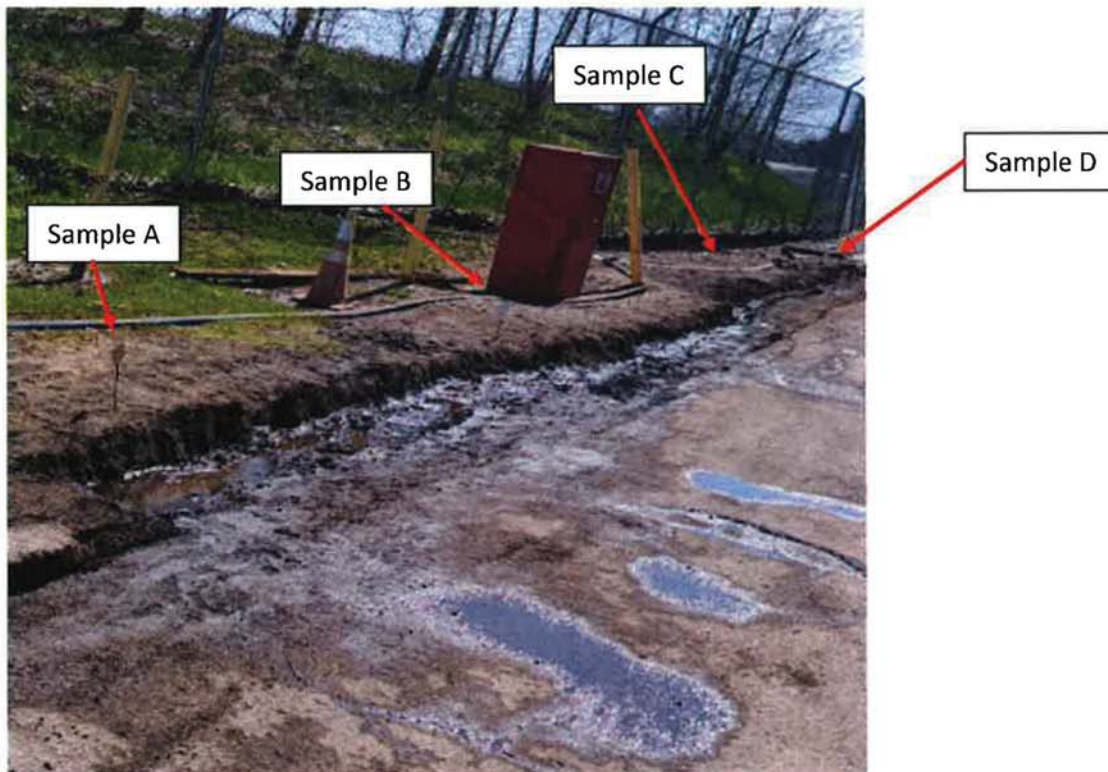
Pic 1 – 5/13/19 3:00 PM, drainage plum of the spill to our Hold and Test Containment area for our Storm Water Management Plan



Pic 2 - Bldg 52, 5228's room to the North of the building. The spill drained to the West into our Hold and Test containment area



Pic 3 - View to the East after clean-up and gravel fill



Pic 4 - Four soil samples were collected after initial soil was removed from the ground adjacent to the asphalt. These sample results are detailed in the report. Similar locations where the TCLP samples were collected.



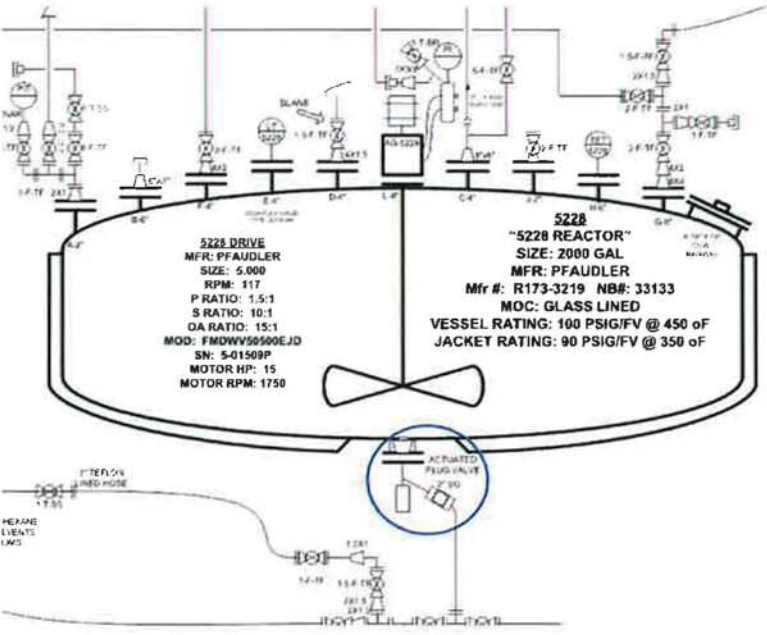
Pic 5 – Spill containment area\Hold and Test containment area



Pic 6 – Base of Vessel 5228, inside 5228's Room



Pic 7 - Sight glass and Plug Valve



Pic 8 – P&ID of Vessel 5228, Plug Valve and Sight Glass (SG)

Tom Willis

From: Christopher Kanikula
Sent: Wednesday, May 22, 2019 1:20 PM
To: Tom Willis
Subject: FW: Soil Results

Christopher Kanikula
Manager of Waste Operations



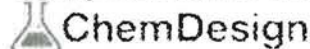
O 715-735-8393
F 715-735-5304
C 920-471-8004
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ckanikula@chemdesign.com

From: Mindy Doubek <mdoubek@chemdesign.com>
Sent: Wednesday, May 15, 2019 3:28 PM
To: Christopher Kanikula <CKanikula@chemdesign.com>; Tom Willis <TWillis@chemdesign.com>
Cc: Paul Zizelman <PZizelman@chemdesign.com>
Subject: RE: Soil Results

Soil Sample C: 6 ppm
Soil Sample D: Non Detected

Thanks,

Mindy Doubek
Quality Control Lab Manager



O 715-735-8388
M 715-938-5474
F 715-735-5304
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mdoubek@chemdesign.com

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From: Mindy Doubek
Sent: Wednesday, May 15, 2019 2:31 PM
To: Christopher Kanikula <CKanikula@chemdesign.com>; Tom Willis <TWillis@chemdesign.com>
Cc: Paul Zizelman <PZizelman@chemdesign.com>
Subject: Soil Results

We have some results on 2 of the 4 soil samples and will have results on the other two shortly, but just wanted to get this data out as soon as possible.

Soil Sample A: 29 ppm MCB

Soil Sample B: 51 ppm MCB

Thank you,

Mindy Doubek

Quality Control Lab Manager



O 715-735-8388

M 715-938-5474

F 715-735-5304

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mdoubek@chemdesign.com

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Tom Willis

From: Mindy Doubek
Sent: Thursday, May 23, 2019 8:58 AM
To: Tom Willis
Subject: RE: please forward lab results for MCB as soon as you can

Tom,

The soil samples were analyzed using a Gas Chromatograph equipped with Flame Ionization Detection. The present MCB in the soil samples was extracted into a solvent and injected into the GC inlet via an automatic liquid sampler.

Let me know if this summary is sufficient or if you would like more detail.

Thanks,

Mindy Doubek
Quality Control Lab Manager



O 715-735-8388

M 715-938-5474

F 715-735-5304

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mdoubek@chemdesign.com

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From: Tom Willis <TWillis@chemdesign.com>
Sent: Wednesday, May 22, 2019 12:58 PM
To: Mindy Doubek <mdoubek@chemdesign.com>
Subject: please forward lab results for MCB as soon as you can

Tying to get the letter out tomorrow – thank you

Tom Willis
Director of HES



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M (906)280-8919

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twillis@chemdesign.com



CHAIN-OF-CUSTODY ANALYTICAL REQUEST DOCUMENT

Chain-of-Custody is a LEGAL DOCUMENT - Complete all relevant fields

Company: **ChemDesign Products, Inc**
 Billing Information: **same**

Address: **2 Stanton Street**

Port To: **Chris Kanikula**
 Email To: **ckanikula@chemdesign.com**
 Site Collection Info/Address: **2 Stanton Street**

Customer Project Name/Number: **oil Samples May - 2019**
 State: **WI** / Marinette/ Marinette [] PT [] MT [] CT [] ET

Site/Facility ID #: _____
 County/City: _____
 Compliance Monitoring? [] Yes No

Purchase Order #: _____
 DW PWS ID #: _____
 DW Location Code: _____

Turnaround Date Required: _____
 Immediately Packed on Ice: [] Yes No

Rush: [] Same Day [] Next Day [] 2 Day [] 3 Day [] 4 Day [] 5 Day (Expedite Charges Apply)
 Field Filtered (if applicable): [] Yes No

Analysis: _____
 Matrix Codes (Insert in Matrix box below): Drinking Water (DW), Wastewater (WW), Product (P), Soil/Solid (SL), Oil (OL), Wipe (WP), Air (AR), Tissue (TS), Bioassay (B), Vapor (V), Other (OT)

Customer Sample ID	Matrix *	Comp / Grab	Collected (or Composite Start)		Res Cl	# of Ctns
			Date	Time		
Sample A	SL	grab	5/20/19	15:00		1
Sample B	SL	grab	5/20/19	15:00		1
Sample C	SL	grab	5/20/19	15:00		1
Sample D	SL	grab	5/20/19	15:00		1

Customer Remarks / Special Conditions / Possible Hazards: _____
 Type of Ice Used: Wet Blue Dry None
 Packing Material Used: _____

Acquired by/Company: (Signature) *Steve Melzgo*
 Date/Time: _____
 Received by/Company: (Signature) *Chris Kanikula*
 Date/Time: _____

ALL SHADED AREAS are for LAB USE ONLY

Container Preservative Type **: _____
 Lab Project Manager: _____
 ** Preservative Types: (1) nitric acid, (2) sulfuric acid, (3) hydrochloric acid, (4) sodium hydroxide, (5) zinc acetate, (6) methanol, (7) sodium bisulfate, (8) sodium thiosulfate, (9) hexane, (A) ascorbic acid, (B) ammonium sulfate, (C) ammonium hydroxide, (D) TSP, (U) Unpreserved, (O) Other

Analyses	Y	N	N/A
Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:	Y	N	NA
Sample pH Acceptable	Y	N	NA
pH Strips:	Y	N	NA
Sulfide Present	Y	N	NA
Lead Acetate Strips:	Y	N	NA

Lab Profile/Line:	Y	N	N/A
Custody Seals Present/Intact	Y	N	NA
Custody Signatures Present	Y	N	NA
Collector Signature Present	Y	N	NA
Bottles Intact	Y	N	NA
Correct Bottles	Y	N	NA
Sufficient Volume	Y	N	NA
Samples Received on Ice	Y	N	NA
VOA - Headspace Acceptable	Y	N	NA
USDA Regulated Soils	Y	N	NA
Samples in Holding Time	Y	N	NA
Residual Chlorine Present	Y	N	NA
Cl Strips:	Y	N	NA
Sample pH Acceptable	Y	N	NA
pH Strips:	Y	N	NA
Sulfide Present	Y	N	NA
Lead Acetate Strips:	Y	N	NA

LAB USE ONLY:
 Lab Sample # / Comments: _____
 Lab Sample Temperature Info:
 Temp Blank Received: Y N NA
 Therm ID#: _____
 Cooler 1 Temp Upon Receipt: _____
 Cooler 1 Therm Corr. Factor: _____
 Cooler 1 Corrected Temp: _____
 Comments: _____

SHORT HOLDS PRESENT (<72 hours): Y N N/A
 Lab Tracking #: _____
 Samples received via:
 FEDEX UPS Client Courier Pace Courier
 Date/Time: _____
 Date/Time: _____
 Date/Time: _____
 Date/Time: _____



Please print or type.

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number W I D 9 8 0 8 9 8 2 6 6		2 Page 1 of 1		3. Emergency Response Phone (877) 818-0087		4. Manifest Tracking Number 001540515 VES				
5. Generator's Name and Mailing Address CHEMDESIGN PRODUCTS, INC. 2 STANTON ST MARINETTE, WI 54143-2543 Generator's Phone 715 735-8393						Generator's Site Address (if different than mailing address) SAME						
6. Transporter 1 Company Name VEOLIA HS TECHNICAL SOLUTIONS						U.S. EPA ID Number N J D 0 8 0 6 3 1 3 6 9						
7. Transporter 2 Company Name						U.S. EPA ID Number						
8. Designated Facility Name and Site Address VEOLIA HS TECHNICAL SOLUTIONS 7 MOBILE AVENUE SAUKET, IL 62201-1069						U.S. EPA ID Number I L D 0 9 8 6 4 2 4 2 4						
Facility's Phone 618 271-2804												
GENERATOR	9a HM	9b U.S. DOT Description (Including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))				10 Containers No. Type		11 Total Quantity	12 Unit Wt./Vol	13 Waste Codes		
	X	1. UN1993, WASTE FLAMMABLE LIQUIDS, n.o.s. (METHANOL, ACETONE), 3, II, RQ (F003, D001) SS-2064				1 T T		4,760	G	F002	F005	D021
		2.								F003	D001	
		3.										
		4.										
14 Special Handling Instructions and Additional Information ER Service Contracted by VESTS - ER SERVICES CONTRACTED BY VESTS. VEOLIA SUPPLIES PLACARDS AND ERG BOOK O/U 36210 - Contract retained by generator confers agency authority on initial transporter to add or substitute additional transporters on generator's behalf. - 1) ERG:128 W:342737 A:TW1342737 222034 4600 gal pumped 5/21/19												
15. GENERATOR/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.												
Generator's/Officer's Printed/Typed Name Derek Sylvester						Signature <i>[Signature]</i>			Month Day Year 05/21/19			
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of embarkment: Date leaving U.S.:												
TRANSPORTER	17. Transporter Acknowledgment of Receipt of Materials											
	Transporter 1 Printed/Typed Name Brandon O'Brien						Signature <i>[Signature]</i>			Month Day Year 05/21/19		
Transporter 2 Printed/Typed Name						Signature			Month Day Year			
DESIGNATED FACILITY	18. Discrepancy											
	18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection											
	18b. Alternate Facility (or Generator) Manifest Reference Number: U.S. EPA ID Number:											
	Facility's Phone: 18c. Signature of Alternate Facility (or Generator): Month Day Year											
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)												
20. Designated Facility Owner or Operator Certification of receipt of hazardous materials covered by the manifest except as noted in item 18a												
Printed/Typed Name Cynthia Williams						Signature <i>[Signature]</i>			Month Day Year 5/23/19			

ChemDesign Waste Determination Form

Waste Name: Waste Isohexane

Process Generated: MagTi

Amount Generated (in pounds): Approximately 3,000,000-lbs estimated for 2019

Does this waste meet the definition of a Solid Waste? Yes

Is this waste exempt from the definition of a solid or hazardous waste? No

Was a laboratory used to make this determination? No

(If, Yes: Attach Lab Report)

Was process knowledge used to make this determination? Yes

If YES, Describe the process and provide and attach documentation (SOP, Process flow diagram, if available): The waste Isohexane from the MagTi Process is generated from product solvent washes using Isohexane. The product being washed is wet with Chlorobenzene (MCB). The spent Isohexane does contain residual MCB and trace levels of product and water. This material is then sent off-site for recycle and return. This waste stream will contain 95% or greater of Isohexane, less than 5% of chlorobenzene and trace amounts of water and product.

Is this waste Hazardous, Yes or No? Yes

Is this waste process coded? If yes, List the process codes: Yes, F002

Is this waste a characteristic hazardous waste? Yes

If Yes, List characteristic codes: D001,

List Name and title of Person making this determination: Chris Kanikula, Manager of Waste Operations

List Date of this Determination: 8/1/2018

COMPANY IDENTITY: Univar
PRODUCT IDENTITY: MONOCHLOROBENZENE

SDS DATE: 03/21/2014
ORIGINAL: 03/21/2014

SAFETY DATA SHEET

This Safety Data Sheet conforms to ANSI Z400.5, and to the format requirements of the Global Harmonizing System.
THIS SDS COMPLIES WITH 29 CFR 1910.1200 (HAZARD COMMUNICATION STANDARD)
IMPORTANT: Read this SDS before handling & disposing of this product.
Pass this information on to employees, customers, & users of this product.

SECTION 1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

PRODUCT IDENTITY: MONOCHLOROBENZENE
PRODUCT USES: Solvent

SDS NUMBER: CDS-2305
COMPANY IDENTITY: Univar
COMPANY ADDRESS: 17425 NE Union Hill Road
COMPANY CITY: Redmond, WA 98052
COMPANY PHONE: 1-425-889-3400
EMERGENCY PHONES: CHEMTREC: 1-800-424-9300 (USA)
CANUTEC: 1-613-996-6666 (CANADA)

SECTION 2. HAZARDS IDENTIFICATION

DANGER!!



2.1 HAZARD STATEMENTS: (CAT = Hazard Category)

- (H200s) PHYSICAL: Flammable Liquids:
H226 FLAMMABLE LIQUID & VAPOR.(CAT:3)
- (H300s) HEALTH: Aspiration Hazard:
H304 MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.(CAT:1)
- (H300s) HEALTH: Skin Corrosion/Irritation:
H315 CAUSES SKIN IRRITATION.(CAT:2)
- (H300s) HEALTH: Serious Eye Damage/Eye Irritation:
H320 CAUSES EYE IRRITATION.(CAT:2)
- (H300s) HEALTH: Acute Toxicity, Inhalation:
H332 HARMFUL IF INHALED.(CAT:4)
- (H300s) HEALTH: Target Organ Toxicity, Single Exposure:
H335 MAY CAUSE RESPIRATORY IRRITATION.(CAT:3)
H336 MAY CAUSE DROWSINESS OR DIZZINESS.(CAT:3)
H371 MAY CAUSE DAMAGE TO ORGANS.(CAT:2)
- (H400s) ENVIRONMENT: Hazardous to Aquatic Environment, Acute:
H402 HARMFUL TO AQUATIC LIFE.(CAT:3)
- (H400s) ENVIRONMENT: Hazardous to Aquatic Environment, Long-Term:
H411 TOXIC TO AQUATIC LIFE WITH LONG LASTING EFFECTS.(CAT:2)

2.2 PRECAUTIONARY STATEMENTS:

EXPOSURE PREVENTION:

P100s = General, P200s = Prevention, P300s = Response, P400s = Storage, P500s = Disposal

- P264 Wash with soap & water thoroughly after handling.
- P270 Do not eat, drink or smoke when using this product.
- P271 Use only outdoors or in a well-ventilated area.
- P280 Wear protective gloves/protective clothing/eye protection/face protection.
- P302+352 IF ON SKIN: Wash with soap & water.
- P304+340 IF INHALED: Remove victim to fresh air & keep at rest in a position comfortable for breathing.
- P305+351+338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses if present & easy to do - Continue rinsing.
- P309+311 If exposed or you feel unwell: Call a POISON CENTER or doctor/physician.
- P332+313 If skin irritation occurs: Get medical advice/attention.
- P337+313 If eye irritation persists, get medical advice/attention.
- P361 Remove/Take off immediately all contaminated clothing.
- P363 Wash contaminated clothing before reuse.
- P405 Store locked up.
- P501 Dispose of contents/container to an approved waste disposal plant.

SEE SECTIONS 8, 11 & 12 FOR TOXICOLOGICAL INFORMATION.

COMPANY IDENTITY: Univar
PRODUCT IDENTITY: MONOCHLOROBENZENE

SDS DATE: 03/21/2014
ORIGINAL: 03/21/2014

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MATERIAL	CAS#	EINECS#	WT %
Monochlorobenzene	108-90-7	203-628-5	100

TRACE COMPONENTS: Trace ingredients (if any) are present in < 1% concentration, (< 0.1% for potential carcinogens, reproductive toxins, respiratory tract mutagens, and sensitizers). None of the trace ingredients contribute significant additional hazards at the concentrations that may be present in this product. All pertinent hazard information has been provided in this document, per the requirements of the Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalents, and Canadian Hazardous Materials Identification System Standard (CPR 4).

SECTION 4. FIRST AID MEASURES

- 4.1 MOST IMPORTANT SYMPTOMS/EFFECTS, ACUTE & CHRONIC:
See Section 11 for symptoms/effects, acute & chronic.
- 4.2 GENERAL ADVICE:
First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists, refer to Section 8 for specific personal protective equipment.
- 4.3 EYE CONTACT:
If this product enters the eyes, check for and remove any contact lenses. Open eyes while under gently running water. Use sufficient force to open eyelids. "Roll" eyes to expose more surface. Minimum flushing is for 15 minutes. Seek immediate medical attention.
- 4.4 SKIN CONTACT:
If the product contaminates the skin, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Remove contaminated clothing, taking care not to contaminate eyes. If skin becomes irritated and irritation persists, medical attention may be necessary. Wash contaminated clothing before reuse, discard contaminated shoes.
- 4.5 INHALATION:
After high vapor exposure, remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, trained personnel should immediately begin artificial respiration. If the heart has stopped, trained personnel should immediately begin cardiopulmonary resuscitation (CPR). Seek immediate medical attention.
- 4.6 SWALLOWING:
If swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, give two glasses of water to drink. DO NOT INDUCE VOMITING. Never induce vomiting or give liquids to someone who is unconscious, having convulsions, or unable to swallow. Seek immediate medical attention.
- 4.7 NOTES TO PHYSICIAN:
There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient. Any material aspirated during vomiting may cause lung injury. Therefore, emesis should not be induced mechanically or pharmacologically. If it is considered necessary to evacuate the stomach contents, this should be done by means least likely to cause aspiration (such as: Gastric lavage after endotracheal intubation).

SECTION 5. FIRE FIGHTING MEASURES

- 5.1 FIRE & EXPLOSION PREVENTIVE MEASURES:
NO open flames, NO sparks, & NO smoking. Above flash point, use a closed system, ventilation, explosion-proof electrical equipment, lighting.
- 5.2 SUITABLE (& UNSUITABLE) EXTINGUISHING MEDIA:
Use dry powder, foam, water spray, carbon dioxide.
- 5.3 SPECIAL PROTECTIVE EQUIPMENT & PRECAUTIONS FOR FIRE FIGHTERS:
Water spray may be ineffective on fire but can protect fire-fighters & cool closed containers. Use fog nozzles if water is used.
Do not enter confined fire-space without full bunker gear.
(Helmet with face shield, bunker coats, gloves & rubber boots).

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SECTION 5. FIRE FIGHTING MEASURES (CONTINUED)

- 5.4 SPECIFIC HAZARDS OF CHEMICAL & HAZARDOUS COMBUSTION PRODUCTS:
FLAMMABLE!! VAPORS CAN CAUSE FLASH FIRE
Isolate from oxidizers, heat, sparks, electric equipment & open flame.
Closed containers may explode if exposed to extreme heat.
Applying to hot surfaces requires special precautions.
Empty container very hazardous! Continue all label precautions!

SECTION 6. ACCIDENTAL RELEASE MEASURES

- 6.1 SPILL AND LEAK RESPONSE AND ENVIRONMENTAL PRECAUTIONS:
Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a spill, clear the affected area, protect people, and respond with trained personnel. ELIMINATE all ignition sources (no smoking, flares, sparks, or flames in immediate area).
- 6.2 PERSONAL PRECAUTIONS, PROTECTIVE EQUIPMENT, EMERGENCY PROCEDURES:
The proper personal protective equipment for incidental releases (such as: 1 Liter of the product released in a well-ventilated area), use impermeable gloves, they should be Level B: triple-gloves (rubber gloves and nitrile gloves over latex gloves), chemical resistant suit and boots, hard-hat, and Self-Contained Breathing Apparatus specific for the material handled, goggles, face shield, and appropriate body protection. In the event of a large release, use impermeable gloves, specific for the material handled, chemically resistant suit and boots, and hard hat. Self-Contained Breathing Apparatus or respirator may be required where engineering controls are not adequate or conditions for potential exposure exist. When respirators are required, select NIOSH/MSHA approved based on actual or potential airborne concentrations in accordance with latest OSHA and/or ANSI recommendations.
- 6.3 ENVIRONMENTAL PRECAUTIONS:
Stop spill at source. Construct temporary dikes of dirt, sand, or any appropriate readily available material to prevent spreading of the material. Close or cap valves and/or block or plug hole in leaking container and transfer to another container. Keep from entering storm sewers and ditches which lead to waterways, and if necessary, call the local fire or police department for immediate emergency assistance.
- 6.4 METHODS AND MATERIAL FOR CONTAINMENT & CLEAN-UP:
Absorb spilled liquid with polypads or other suitable absorbent materials. If necessary, neutralize using suitable buffering material, (acid with soda ash or base with phosphoric acid), and test area with litmus paper to confirm neutralization. Clean up with non-combustible absorbent (such as: sand, soil, and so on). Shovel up and place all spill residue in suitable containers. dispose of at an appropriate waste disposal facility according to current applicable laws and regulations and product characteristics at time of disposal (see Section 13 - Disposal Considerations).

SECTION 7. HANDLING AND STORAGE

- 7.1 PRECAUTIONS FOR SAFE HANDLING:
Isolate from oxidizers, heat, sparks, electric equipment & open flame.
Use only with adequate ventilation. Avoid breathing of vapor or spray mist.
Do not get in eyes, on skin or clothing. Wear OSHA Standard goggles or face shield.
Consult Safety Equipment Supplier. Wear goggles, face shield, gloves, apron & footwear impervious to material. Wash clothing before reuse.
Avoid free fall of liquid. Ground containers when transferring. Do not flame cut, saw, drill, braze, or weld. Empty container very hazardous! Continue all label precautions!
Drinking alcohol shortly before, during or after use can cause unwanted effects.
Do NOT use in the vicinity of a fire, a hot surface, or during welding.
- 7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:
Keep in fireproof surroundings. Keep separated from strong oxidants. Do not store above 49 C/120 F. Contact with hot surfaces can produce toxic gases.
Keep container tightly closed & upright when not in use to prevent leakage.

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PRODUCT IDENTITY: MONOCHLOROBENZENE

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SECTION 7. HANDLING AND STORAGE (CONTINUED)

7.3 NONBULK: CONTAINERS:

Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Empty containers should be handled with care. Never store food, feed, or drinking water in containers which held this product.

7.4 BULK CONTAINERS:

All tanks and pipelines which contain this material must be labeled. Perform routine maintenance on tanks or pipelines which contain this product. Report all leaks immediately to the proper personnel.

7.5 TANK CAR SHIPMENTS:

Tank cars carrying this product should be loaded and unloaded in strict accordance with tank-car manufacturer's recommendation and all established on-site safety procedures. Appropriate personal protective equipment must be used (see Section 8, Engineering Controls and Personal Protective Equipment.). All loading and unloading equipment must be inspected, prior to each use. Loading and unloading operations must be attended, at all times. Tank cars must be level, brakes must be set or wheels must be locked or blocked prior to loading or unloading. Tank car (for loading) or storage tanks (for unloading) must be verified to be correct for receiving this product and be properly prepared, prior to starting the transfer operations. Hoses must be verified to be in the correct positions, before starting transfer operations. A sample (if required) must be taken and verified (if required) prior to starting transfer operations. All lines must be blown-down and purged before disconnecting them from the tank car or vessel.

7.6 PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:

Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Collect all rinsates and dispose of according to applicable Federal, State, Provincial, or local procedures.

7.7 EMPTY CONTAINER WARNING:

Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. **DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY BURST AND CAUSE INJURY OR DEATH.**

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1 EXPOSURE LIMITS:

MATERIAL	CAS#	EINECS#	TWA (OSHA)	TLV (ACGIH)
Monochlorobenzene	108-90-7	203-628-5	75 ppm	10 ppm A3
MATERIAL	CAS#	EINECS#	CEILING STEL (OSHA/ACGIH)	HAP
Monochlorobenzene	108-90-7	203-628-5	None Known	None Known Yes

Each component showing 'Yes' under "HAP" is an EPA Hazardous Air Pollutant.

8.2 APPROPRIATE ENGINEERING CONTROLS:

RESPIRATORY EXPOSURE CONTROLS

Maintain airborne contaminant concentrations below exposure limits given above. If respiratory protection is needed, use only protection authorized in 29 CFR 1910.134, European Standard EN 149, or applicable State regulations. If adequate ventilation is not available or there is potential for airborne exposure above the exposure limits, a respirator may be worn up to the respirator exposure limitations, check with respirator equipment manufacturer's recommendations/limitations. For a higher level of protection, use positive pressure supplied air respiration protection or Self-Contained Breathing Apparatus or if oxygen levels are below 19.5% or are unknown.

EMERGENCY OR PLANNED ENTRY INTO UNKNOWN CONCENTRATIONS OR IDLH CONDITIONS

Positive pressure, full-face piece Self-Contained Breathing Apparatus; or positive pressure, full-face piece Self-Contained Breathing Apparatus with an auxiliary positive pressure Self-Contained Breathing Apparatus.

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SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONTINUED)

VENTILATION

LOCAL EXHAUST: Necessary MECHANICAL (GENERAL): Necessary
SPECIAL: None OTHER: None
Please refer to ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

8.3 INDIVIDUAL PROTECTION MEASURES, SUCH AS PERSONAL PROTECTIVE EQUIPMENT:

EYE PROTECTION:

Splash goggles or safety glasses. Face-shields are recommended when the operation can generate splashes, sprays or mists.

HAND PROTECTION:

Use gloves chemically resistant to this material. Preferred examples: Butyl rubber, Chlorinated Polyethylene, Polyethylene, Ethyl vinyl alcohol laminate ("EVAL"), Polyvinyl alcohol ("PVA"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"), Neoprene, Nitrile/butadiene rubber ("nitril" or "NBR"), Polyvinyl chloride ("PVC") or "vinyl", Viton. NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

BODY PROTECTION:

Use body protection appropriate for task. Cover-all, rubber aprons, or chemical protective clothing made from impervious materials are generally acceptable, depending on the task.

WORK & HYGIENIC PRACTICES:

Provide readily accessible eye wash stations & safety showers. Wash at end of each shift & before eating, smoking or using the toilet. Remove clothing that becomes contaminated. Destroy contaminated leather articles. Launder or discard contaminated clothing.

SECTION 9. PHYSICAL & CHEMICAL PROPERTIES

APPEARANCE:	Liquid, Water-White
ODOR:	Chlorinated
ODOR THRESHOLD:	Not Available
pH (Neutrality):	Not Available
MELTING POINT/FREEZING POINT:	Not Available
BOILING RANGE (IBP,50%,Dry Point):	130 131 132 C / 266 269 270 F
FLASH POINT (TEST METHOD):	29 C / 85 F (TCC)
EVAPORATION RATE (n-Butyl Acetate=1):	0.957
FLAMMABILITY CLASSIFICATION:	Class I C
LOWER FLAMMABLE LIMIT IN AIR (% by vol):	1.3
UPPER FLAMMABLE LIMIT IN AIR (% by vol):	7.1
VAPOR PRESSURE (mm of Hg)@20 C	9.2
VAPOR DENSITY (air=1):	3.9
GRAVITY @ 68/68 F / 20/20 C:	
DENSITY:	1.098
SPECIFIC GRAVITY (Water=1):	1.100
POUNDS/GALLON:	9.163
WATER SOLUBILITY:	Negligible
PARTITION COEFFICIENT (n-Octane/Water):	Not Available
AUTO IGNITION TEMPERATURE:	637 C / 1180 F
DECOMPOSITION TEMPERATURE:	Not Available
REFRACTIVE INDEX:	1.525
MIXED ANILINE POINT (Acid Insol):	5 C / 41 F
VOCs (>0.044 Lbs/Sq In) :	100.0 Vol% / 1100.0 g/L / 9.1 Lbs/Gal
TOTAL VOC'S (TVOC)*:	100.0 Vol% / 1100.0 g/L / 9.1 Lbs/Gal
NONEXEMPT VOC'S (CVOC)*:	100.0 Vol% / 1100.0 g/L / 9.1 Lbs/Gal
HAZARDOUS AIR POLLUTANTS (HAPS):	100.0 Wt% / 1100.0 g/L / 9.1 Lbs/Gal
NONEXEMPT VOC PARTIAL PRESSURE (mm of Hg @ 20 C)	0.0
VISCOSITY @ 20 C (ASTM D445):	Not Available

* Using CARB (California Air Resources Board Rules).

COMPANY IDENTITY: Univar
PRODUCT IDENTITY: MONOCHLOROBENZENE

SDS DATE: 03/21/2014
ORIGINAL: 03/21/2014

SECTION 10. STABILITY & REACTIVITY

10.1 REACTIVITY & CHEMICAL STABILITY:

Stable under normal conditions.

10.2 POSSIBILITY OF HAZARDOUS REACTIONS & CONDITIONS TO AVOID:

Isolate from oxidizers, heat, sparks, electric equipment & open flame.

10.3 INCOMPATIBLE MATERIALS:

Decomposes on heating on contact with hot surfaces or flames producing, toxic & corrosive fumes including, chlorine, phosgene, & hydrogen chloride. Reacts violently with strong oxidants, causing fire & explosion hazard. Attacks many plastics, rubber.

10.4 HAZARDOUS DECOMPOSITION PRODUCTS:

Carbon Monoxide, Carbon Dioxide,
Hydrogen Chloride, Phosgene from burning.

10.5 HAZARDOUS POLYMERIZATION:

Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 ACUTE HAZARDS

11.11 EYE & SKIN CONTACT:

Primary irritation to skin, defatting, dermatitis.
Primary irritation to eyes, redness, tearing, blurred vision.
Liquid can cause eye irritation. Wash thoroughly after handling.

11.12 INHALATION:

Anesthetic. Irritates respiratory tract. Acute overexposure can cause serious nervous system depression which can cause death. Vapor harmful. Concentrated vapor in confined areas may be fatal.

11.13 SWALLOWING:

Swallowing can cause abdominal irritation, nausea, vomiting & diarrhea. The symptoms of chemical pneumonitis may not show up for a few days.

11.2 SUBCHRONIC HAZARDS/CONDITIONS AGGRAVATED

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

Pre-existing disorders of any target organs mentioned in this SDS can be aggravated by over-exposure by routes of entry to components of this product. Persons with these disorders should avoid use of this product.

11.3 CHRONIC HAZARDS

11.31 CANCER, REPRODUCTIVE & OTHER CHRONIC HAZARDS:

Potential Cancer Hazard based on tests with laboratory animals using Monochlorobenzene. Overexposure may create cancer risk.

11.32 TARGET ORGANS: May cause damage to target organs, based on animal data.

11.33 IRRITANCY: Irritating to contaminated tissue.

11.34 SENSITIZATION: No component is known as a sensitizer.

11.35 MUTAGENICITY: No known reports of mutagenic effects in humans.

11.36 EMBRYOTOXICITY: No known reports of embryotoxic effects in humans.

11.37 TERATOGENICITY: No known reports of teratogenic effects in humans.

11.38 REPRODUCTIVE TOXICITY: No known reports of reproductive effects in humans.

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PRODUCT IDENTITY: MONOCHLOROBENZENE

SDS DATE: 03/21/2014
ORIGINAL: 03/21/2014

SECTION 11. TOXICOLOGICAL INFORMATION (CONTINUED)

A MUTAGEN is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate across generational lines. An EMBRYOTOXIN is a chemical which causes damage to a developing embryo (such as: within the first 8 weeks of pregnancy in humans), but the damage does not propagate across generational lines. A TERATOGEN is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A REPRODUCTIVE TOXIN is any substance which interferes in any way with the reproductive process.

11.4 MAMMALIAN TOXICITY INFORMATION

LD50 (Oral): 1580 mg/kg (Rat)
LC50 (Inhalation): 22000 ppm (Rat)

SECTION 12. ECOLOGICAL INFORMATION

12.1 ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

12.2 EFFECT OF MATERIAL ON PLANTS AND ANIMALS:

This product may be harmful or fatal to plant and animal life if released into the environment. Refer to Section 11 (Toxicological Information) for further data on the effects of this product's components on test animals.

12.3 EFFECT OF MATERIAL ON AQUATIC LIFE:

No aquatic environmental information is available on this product. The substance is harmful to aquatic organisms. It is strongly advised that this substance does not enter the environment.

12.4 MOBILITY IN SOIL

This material is a mobile liquid.

12.5 DEGRADABILITY

This product is nonbiodegradable.

12.6 ACCUMULATION

This product does not accumulate or biomagnify in the environment.

SECTION 13. DISPOSAL CONSIDERATIONS

The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers and liners may retain some product residues. Vapor from some product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Processing, use or contamination may change the waste disposal requirements. Do not dispose of on land, in surface waters, or in storm drains. Waste should be recycled or disposed of in accordance with regulations. Large amounts should be collected for reuse or consigned to licensed hazardous waste haulers for disposal. **ALL DISPOSAL MUST BE IN ACCORDANCE WITH ALL FEDERAL, STATE, PROVINCIAL, AND LOCAL REGULATIONS. IF IN DOUBT, CONTACT PROPER AGENCIES. EPA CHARACTERISTIC: D001, D021**

SECTION 14. TRANSPORT INFORMATION

IF > 100 LB / 45 KG OF THIS PRODUCT IS IN 1 CONTAINER, IT EXCEEDS THE RQ OF MONOCHLOROBENZENE. "RQ" MUST BE PUT BEFORE THE DOT SHIPPING NAME.

MARINE POLLUTANT: No
DOT/TDG SHIP NAME: UN1134, Chlorobenzene, 3, PG-III
DRUM LABEL: (FLAMMABLE LIQUID)
IATA / ICAO: UN1134, Chlorobenzene, 3, PG-III
IMO / IMDG: UN1134, Chlorobenzene, 3, PG-III
EMERGENCY RESPONSE GUIDEBOOK NUMBER: 130



COMPANY IDENTITY: Univar
PRODUCT IDENTITY: MONOCHLOROBENZENE

SDS DATE: 03/21/2014
ORIGINAL: 03/21/2014

SECTION 15. REGULATORY INFORMATION

15.1 EPA REGULATION:

SARA SECTION 311/312 HAZARDS: Acute Health, Chronic Health, Fire

All components of this product are on the TSCA list.

SARA Title III Section 313 Supplier Notification

This product contains the indicated <*> toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning & Community Right-To-Know Act of 1986 & of 40 CFR 372. This information must be included in all MSDSs that are copied and distributed for this material.

SARA TITLE III INGREDIENTS	CAS#	EINECS#	WT%	(REG.SECTION)	RQ(LBS)
*Monochlorobenzene	108-90-7	203-628-5	95-100	(311,312,313,RCRA)	100

Any release equal to or exceeding the RQ must be reported to the National Response Center (800-424-8802) and appropriate state and local regulatory agencies as described in 40 CFR 302.6 and 40 CFR 355.40 respectively. Failure to report may result in substantial civil and criminal penalties. State & local regulations may be more restrictive than federal regulations.

15.2 STATE REGULATIONS:

THIS PRODUCT MEETS REQUIREMENTS OF SOUTHERN CALIFORNIA AQMD RULE 443.1 & SIMILAR REGULATIONS

CALIFORNIA SAFE DRINKING WATER & TOXIC ENFORCEMENT ACT (PROPOSITION 65):

This product contains the following chemical known to the State of California to cause cancer: Monochlorobenzene

15.3 INTERNATIONAL REGULATIONS

The identified components of this product are listed on the chemical inventories of the following countries:

Australia (AICS), Canada (DSL or NDSL), China (IECSC), Europe (EINECS, ELINCS), Japan (METI/CSCL, MHLW/ISHL), South Korea (KECI), New Zealand (NZIoC), Philippines (PICCS), Switzerland (SWISS), Taiwan (NECSI), USA (TSCA).

15.4 CANADA: WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)

B2: Flammable Liquid.
D2B: Irritating to skin / eyes.

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all information required by the CPR.

SECTION 16. OTHER INFORMATION

16.1 HAZARD RATINGS:

HEALTH (NFPA): 2, HEALTH (HMIS): 2, FLAMMABILITY: 3, PHYSICAL HAZARD: 0
(Personal Protection Rating to be supplied by user based on use conditions.)
This information is intended solely for the use of individuals trained in the NFPA & HMIS hazard rating systems.

16.2 EMPLOYEE TRAINING

See Section 2 for Risk & Safety Statements. Employees should be made aware of all hazards of this material (as stated in this SDS) before handling it.

16.3 SDS DATE: 03/21/2014

Univar USA Inc Safety Data Sheet

For Additional Information contact SDS Coordinator during business hours, Pacific time: (425) 889-3400

Notice

Univar USA Inc. ("Univar") expressly disclaims all express or implied warranties of merchantability and fitness for a particular purpose, with respect to the product or information provided herein, and shall under no circumstances be liable for incidental or consequential damages.

Do not use ingredient information and/or ingredient percentages in this SDS as a product specification. For product specification information refer to a product specification sheet and/or a certificate of analysis. These can be obtained from your local Univar sales office.

All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate, Univar makes no representations as to its accuracy or sufficiency. Conditions of use are beyond Univar's control and therefore users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling, and disposal of the product, or from the publication or use of, or reliance upon, information contained herein.

This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process

Calumet HP Isohexane

Section 1. Identification

GHS product identifier : Calumet HP Isohexane
Product code : 0131-00-V
Other means of identification : Not available.
Product type : Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Identified uses	
Petrochemical industry: Petroleum refining. Solvent.	
Uses advised against	Reason
Not available.	

Supplier's details : Calumet Specialty Products Partners, L.P.
 2780 Waterfront Pkwy E. Dr.
 Suite 200
 Indianapolis, Indiana 46214 USA
 Technical Services: 317-328-5660

24hr. CHEMTREC : 24 hr. CHEMTREC 1-800-424-9300 / International 1-703-527-3887
 1-800-424-9300 /
 International 1-703-527-3887

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : **FLAMMABLE LIQUIDS - Category 2**
SKIN IRRITATION - Category 2
EYE IRRITATION - Category 2B
TOXIC TO REPRODUCTION (Fertility) - Category 2
TOXIC TO REPRODUCTION (Unborn child) - Category 2
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Narcotic effects) - Category 3
ASPIRATION HAZARD - Category 1
AQUATIC HAZARD (ACUTE) - Category 2
AQUATIC HAZARD (LONG-TERM) - Category 2
 Percentage of the mixture consisting of ingredient(s) of unknown toxicity: 53.7%

GHS label elements

Hazard pictograms :



Signal word : Danger

Section 2. Hazards identification

- Hazard statements** : Highly flammable liquid and vapor.
Causes skin and eye irritation.
Suspected of damaging fertility or the unborn child.
May be fatal if swallowed and enters airways.
May cause drowsiness and dizziness.
Toxic to aquatic life with long lasting effects.
- Precautionary statements**
- General** : Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand.
- Prevention** : Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear protective gloves. Wear eye or face protection. Wear protective clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Use explosion-proof electrical, ventilating, lighting and all material-handling equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Avoid release to the environment. Avoid breathing vapor. Wash hands thoroughly after handling.
- Response** : Collect spillage. IF exposed or concerned: Get medical attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. IF ON SKIN: Wash with plenty of soap and water. Take off contaminated clothing and wash it before reuse. If skin irritation occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
- Storage** : Store locked up. Store in a well-ventilated place. Keep cool.
- Disposal** : Dispose of contents and container in accordance with all local, regional, national and international regulations.
- Hazards not otherwise classified** : None known.

Section 3. Composition/information on ingredients

- Substance/mixture** : Mixture
- Other means of identification** : Not available.

CAS number/other identifiers

- CAS number** : Not applicable.

Ingredient name	%	CAS number
Hexane	≥50 - <75	107-83-5
Naphtha (petroleum), hydrotreated light	≥25 - <50	64742-49-0
n-hexane	≥3 - <5	110-54-3
benzene	<0.1	71-43-2

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

- Eye contact** : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
- Inhalation** : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.
- Skin contact** : Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Continue to rinse for at least 10 minutes. Get medical attention. Wash clothing before reuse. Clean shoes thoroughly before reuse.
- Ingestion** : Get medical attention immediately. Call a poison center or physician. Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Aspiration hazard if swallowed. Can enter lungs and cause damage. Do not induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

- Eye contact** : Causes eye irritation.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness.
- Skin contact** : Causes skin irritation.
- Ingestion** : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Over-exposure signs/symptoms

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness
- Inhalation** : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations

Section 4. First aid measures

- Ingestion** : Adverse symptoms may include the following:
nausea or vomiting
reduced fetal weight
increase in fetal deaths
skeletal malformations

Indication of immediate medical attention and special treatment needed, if necessary

- Notes to physician** : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
- Specific treatments** : No specific treatment.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

- Suitable extinguishing media** : Use dry chemical, CO₂, water spray (fog) or foam.

- Unsuitable extinguishing media** : Do not use water jet.

- Specific hazards arising from the chemical** : Highly flammable liquid and vapor. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Runoff to sewer may create fire or explosion hazard. This material is toxic to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

- Special protective actions for fire-fighters** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

- For non-emergency personnel** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

- For emergency responders** : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Section 6. Accidental release measures

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities. Collect spillage.

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Avoid exposure - obtain special instructions before use. Avoid exposure during pregnancy. Do not handle until all safety precautions have been read and understood. Do not get in eyes or on skin or clothing. Do not swallow. Avoid breathing vapor or mist. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not enter storage areas and confined spaces unless adequately ventilated. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Take precautionary measures against electrostatic discharges. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in a segregated and approved area. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Separate from oxidizing materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Section 8. Exposure controls/personal protection

Ingredient name	Exposure limits
hexane	<p>ACGIH TLV (United States, 4/2014). TWA: 500 ppm 8 hours. TWA: 1760 mg/m³ 8 hours. STEL: 1000 ppm 15 minutes. STEL: 3500 mg/m³ 15 minutes.</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 500 ppm 8 hours. TWA: 1800 mg/m³ 8 hours. STEL: 1000 ppm 15 minutes. STEL: 3600 mg/m³ 15 minutes.</p> <p>NIOSH REL (United States, 10/2013). TWA: 100 ppm 10 hours. TWA: 350 mg/m³ 10 hours. CEIL: 510 ppm 15 minutes. CEIL: 1800 mg/m³ 15 minutes.</p>
Naphtha (petroleum), hydrotreated light	<p>OSHA PEL (United States). TWA: 500 ppm 8 hours. TWA: 1800 mg/m³ 8 hours.</p> <p>ACGIH TLV (United States). TWA: 50 ppm 8 hours.</p>
n-hexane	<p>ACGIH TLV (United States, 4/2014). Absorbed through skin. TWA: 50 ppm 8 hours.</p> <p>OSHA PEL (United States, 2/2013). TWA: 500 ppm 8 hours. TWA: 1800 mg/m³ 8 hours.</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 50 ppm 8 hours. TWA: 180 mg/m³ 8 hours.</p> <p>NIOSH REL (United States, 10/2013). TWA: 50 ppm 10 hours. TWA: 180 mg/m³ 10 hours.</p>
benzene	<p>ACGIH TLV (United States, 4/2014). Absorbed through skin. TWA: 0.5 ppm 8 hours. TWA: 1.6 mg/m³ 8 hours. STEL: 2.5 ppm 15 minutes. STEL: 8 mg/m³ 15 minutes.</p> <p>OSHA PEL (United States, 2/2013). STEL: 5 ppm 15 minutes. TWA: 1 ppm 8 hours.</p> <p>OSHA PEL Z2 (United States, 2/2013). TWA: 10 ppm 8 hours. CEIL: 25 ppm AMP: 50 ppm 10 minutes.</p> <p>OSHA PEL 1989 (United States, 3/1989). TWA: 1 ppm 8 hours. STEL: 5 ppm 15 minutes.</p> <p>NIOSH REL (United States, 10/2013). TWA: 0.1 ppm 10 hours. STEL: 1 ppm 15 minutes.</p>

Appropriate engineering controls

: Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Section 8. Exposure controls/personal protection

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid. [Mobile liquid.]

Color : Clear. Colorless.

Odor : Hydrocarbon.

Odor threshold : Not available.

pH : Not available.

Melting point : Not available.

Boiling point : 58.333 to 63.889°C (137 to 147°F)

Flash point : Closed cup: -17°C (1.4°F) [Tagliabue.]

Evaporation rate : Not available.

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : Not available.

Vapor density : Not available.

Relative density : 0.666

Solubility : Insoluble in the following materials: cold water and hot water.

Section 9. Physical and chemical properties

Partition coefficient: n-octanol/water : Not available.
Auto-ignition temperature : Not available.
Decomposition temperature : Not available.
Viscosity : Kinematic (40°C (104°F)): <0.1 cm²/s (<10 cSt)

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : Avoid all possible sources of ignition (spark or flame). Do not pressurize, cut, weld, braze, solder, drill, grind or expose containers to heat or sources of ignition.

Incompatible materials : Reactive or incompatible with the following materials:
oxidizing materials

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Naphtha (petroleum), hydrotreated light	LC50 Inhalation Vapor	Rat	>5.2 mg/l	4 hours
	LD50 Dermal	Rat	>2000 mg/kg	-
n-hexane	LD50 Oral	Rat	>5000 mg/kg	-
	LC50 Inhalation Vapor	Rat	48000 ppm	4 hours
benzene	LD50 Oral	Rat	15840 mg/kg	-
	LD50 Oral	Rat	930 mg/kg	-

Irritation/Corrosion

Product/ingredient name	Result	Species	Score	Exposure	Observation
Naphtha (petroleum), hydrotreated light	Eyes - Mild irritant	Rabbit	-	10 milligrams	-
	Eyes - Mild irritant	Rabbit	-	10 milligrams	-
	Eyes - Moderate irritant	Rabbit	-	88 milligrams	-
	Eyes - Severe irritant	Rabbit	-	24 hours 2 milligrams	-
n-hexane	Skin - Mild irritant	Rat	-	8 hours 60 microliters	-
	Skin - Mild irritant	Rabbit	-	24 hours 15 milligrams	-
	Skin - Moderate irritant	Rabbit	-	24 hours 20 milligrams	-
benzene					

Sensitization

Not available.

Mutagenicity

Not available.

Section 11. Toxicological information

Carcinogenicity

Not available.

Classification

Product/ingredient name	OSHA	IARC	NTP
benzene	+	1	Known to be a human carcinogen.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
hexane	Category 3	Not applicable.	Narcotic effects
Naphtha (petroleum), hydrotreated light	Category 3	Not applicable.	Narcotic effects
n-hexane	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects
benzene	Category 3	Not applicable.	Respiratory tract irritation and Narcotic effects

Specific target organ toxicity (repeated exposure)

Name	Category	Route of exposure	Target organs
n-hexane	Category 2	Not determined	peripheral nervous system
benzene	Category 1	Not determined	blood system and bone marrow

Aspiration hazard

Name	Result
hexane	ASPIRATION HAZARD - Category 1
Naphtha (petroleum), hydrotreated light	ASPIRATION HAZARD - Category 1
n-hexane	ASPIRATION HAZARD - Category 1
benzene	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure : Routes of entry anticipated: Oral, Dermal, Inhalation.

Potential acute health effects

- Eye contact** : Causes eye irritation.
- Inhalation** : Can cause central nervous system (CNS) depression. May cause drowsiness and dizziness.
- Skin contact** : Causes skin irritation.
- Ingestion** : Can cause central nervous system (CNS) depression. May be fatal if swallowed and enters airways.

Symptoms related to the physical, chemical and toxicological characteristics

- Eye contact** : Adverse symptoms may include the following:
pain or irritation
watering
redness

Section 11. Toxicological information

- Inhalation** : Adverse symptoms may include the following:
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Skin contact** : Adverse symptoms may include the following:
irritation
redness
reduced fetal weight
increase in fetal deaths
skeletal malformations
- Ingestion** : Adverse symptoms may include the following:
nausea or vomiting
reduced fetal weight
increase in fetal deaths
skeletal malformations

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Long term exposure

- Potential immediate effects** : Not available.
- Potential delayed effects** : Not available.

Potential chronic health effects

Not available.

- General** : No known significant effects or critical hazards.
- Carcinogenicity** : No known significant effects or critical hazards.
- Mutagenicity** : No known significant effects or critical hazards.
- Teratogenicity** : Suspected of damaging the unborn child.
- Developmental effects** : No known significant effects or critical hazards.
- Fertility effects** : Suspected of damaging fertility.

Numerical measures of toxicity

Acute toxicity estimates

Not available.

Section 12. Ecological information

Toxicity

Section 12. Ecological information

Product/ingredient name	Result	Species	Exposure
Naphtha (petroleum), hydrotreated light n-hexane benzene	Acute EC50 1 to 10 mg/l	Algae	72 hours
	Acute EC50 1 to 10 mg/l	Daphnia	48 hours
	Acute LC50 1 to 10 mg/l	Fish	96 hours
	Acute LC50 2500 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Acute EC50 29000 µg/l Fresh water	Algae - Pseudokirchneriella subcapitata	72 hours
	Acute EC50 1600000 µg/l Fresh water	Algae - Selenastrum sp.	96 hours
	Acute EC50 9230 µg/l Fresh water	Daphnia - Daphnia magna - Neonate	48 hours
	Acute LC50 21000 µg/l Marine water	Crustaceans - Artemia salina - Nauplii	48 hours
	Acute LC50 5.28 ul/L Fresh water	Fish - Oncorhynchus gorbuscha - Fry	96 hours
Chronic NOEC 98 mg/l Fresh water	Daphnia - Daphnia magna	21 days	
Chronic NOEC 1.5 to 5.4 ul/L Marine water	Fish - Morone saxatilis - Juvenile (Fledgling, Hatchling, Weanling)	4 weeks	

Persistence and degradability

Product/ingredient name	Aquatic half-life	Photolysis	Biodegradability
Naphtha (petroleum), hydrotreated light benzene	-	-	Inherent
	-	-	Readily

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Naphtha (petroleum), hydrotreated light n-hexane benzene	2.2 to 5.2	10 to 2500	high
	4	501.187	high
	2.13	11	low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.








Other adverse effects : No known significant effects or critical hazards.

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Vapor from product residues may create a highly flammable or explosive atmosphere inside the container. Do not cut, weld or grind used containers unless they have been cleaned thoroughly internally. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

RCRA classification : D001 [Flammable]

Section 14. Transport information

	DOT Classification	TDG Classification	IMDG	IATA
UN number	UN1208	UN1208	UN1208	UN1208
UN proper shipping name	Hexanes	HEXANES	HEXANES	Hexanes
Transport hazard class(es)	3  	3  	3  	3 
Packing group	II	II	II	II
Environmental hazards	Yes.	Yes.	Yes.	No.
Additional information	<p>This product is not regulated as a marine pollutant when transported on inland waterways in sizes of ≤5 L or ≤5 kg or by road, rail, or inland air in non-bulk sizes, provided the packagings meet the general provisions of §§ 173.24 and 173.24a.</p> <p>Limited quantity Yes.</p> <p>Packaging instruction Passenger aircraft Quantity limitation: 5 L</p> <p>Cargo aircraft Quantity limitation: 60 L</p> <p>Special provisions IB2, T4, TP1</p>	<p>Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.18-2.19 (Class 3), 2.7 (Marine pollutant mark).</p> <p>The marine pollutant mark is not required when transported by road or rail.</p> <p>Explosive Limit and Limited Quantity Index 1</p> <p>Passenger Carrying Ship Index Forbidden</p> <p>Passenger Carrying Road or Rail Index 5</p>	<p>The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.</p> <p>Emergency schedules (EmS) F-E, S-D</p>	<p>The environmentally hazardous substance mark may appear if required by other transportation regulations.</p> <p>Passenger and Cargo Aircraft Quantity limitation: 5 L Packaging instructions: 353</p> <p>Cargo Aircraft Only Quantity limitation: 60 L Packaging instructions: 364</p> <p>Limited Quantities - Passenger Aircraft Quantity limitation: 1 L Packaging instructions: Y341</p>

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

U.S. Federal regulations : **TSCA 8(a) CDR Exempt/Partial exemption:** Not determined
All components are listed or exempted.
Clean Water Act (CWA) 307: benzene
Clean Water Act (CWA) 311: benzene

Section 15. Regulatory information

Clean Air Act Section 112 : Listed

(b) Hazardous Air
Pollutants (HAPs)

Clean Air Act Section 602 : Not listed
Class I Substances

Clean Air Act Section 602 : Not listed
Class II Substances

DEA List I Chemicals : Not listed
(Precursor Chemicals)

DEA List II Chemicals : Not listed
(Essential Chemicals)

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Fire hazard
Immediate (acute) health hazard
Delayed (chronic) health hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
hexane	≥50 - <75	Yes.	No.	No.	Yes.	No.
Naphtha (petroleum), hydrotreated light	≥25 - <50	Yes.	No.	No.	Yes.	Yes.
n-hexane	≥3 - <5	Yes.	No.	No.	Yes.	Yes.
benzene	<0.1	Yes.	No.	No.	Yes.	Yes.

SARA 313

	Product name	CAS number	%
Form R - Reporting requirements	n-hexane	110-54-3	≥3 - <5
Supplier notification	n-hexane	110-54-3	≥3 - <5

SARA 313 notifications must not be detached from the SDS and any copying and redistribution of the SDS shall include copying and redistribution of the notice attached to copies of the SDS subsequently redistributed.

State regulations

Massachusetts : The following components are listed: ISOHEXANE; HEXANE

New York : The following components are listed: Hexane

New Jersey : The following components are listed: 2-METHYLPENTANE; ISOHEXANE; n-HEXANE; HEXANE

Pennsylvania : The following components are listed: PENTANE, 2-METHYL-; HEXANE

California Prop. 65

This product is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

International lists

National inventory

Australia : All components are listed or exempted.

Canada : All components are listed or exempted.

China : All components are listed or exempted.

Europe : All components are listed or exempted.

Section 15. Regulatory information

Japan	: All components are listed or exempted.
Malaysia	: Not determined.
New Zealand	: All components are listed or exempted.
Philippines	: All components are listed or exempted.
Republic of Korea	: All components are listed or exempted.
Taiwan	: All components are listed or exempted.

Section 16. Other information

Procedure used to derive the classification

Classification	Justification
Flam. Liq. 2, H225	On basis of test data
Skin Irrit. 2, H315	Calculation method
Eye Irrit. 2B, H320	Calculation method
Repr. 2, H361 (Fertility)	Calculation method
Repr. 2, H361 (Unborn child)	Calculation method
STOT SE 3, H336	Calculation method
Asp. Tox. 1, H304	Calculation method
Aquatic Acute 2, H401	Calculation method
Aquatic Chronic 2, H411	Calculation method

History

Date of issue/Date of revision : 09/14/2015

Version : 3

Key to abbreviations

: ATE = Acute Toxicity Estimate
BCF = Bioconcentration Factor
GHS = Globally Harmonized System of Classification and Labelling of Chemicals
IATA = International Air Transport Association
IBC = Intermediate Bulk Container
IMDG = International Maritime Dangerous Goods
LogPow = logarithm of the octanol/water partition coefficient
MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
UN = United Nations

▀ Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Joslin, Richard R - DNR

From: Tom Willis <TWillis@chemdesign.com>
Sent: Tuesday, May 28, 2019 10:58 AM
To: Joslin, Richard R - DNR
Subject: Chem Design Chemical Spill - SERTS # 20190513NE38-1
Attachments: Bldg 52 MCB-Isoheaxane spill Let to WDNR final 519.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Attached is the follow-up letter you requested in regards to our NRC call on May 13, 2019. As stated in the report, we have collected additional TCLP samples after remediation and I will forward those once received. We hope to get them back from the lab later this week or early next week.

If you have any questions, or would like to discuss, please give me a call – thank you Tom

Tom Willis
Director of HES



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M (906)280-8919

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twillis@chemdesign.com

From: Joslin, Richard R - DNR <Richard.Joslin@wisconsin.gov>
Sent: Tuesday, May 14, 2019 10:15 AM
To: Tom Willis <TWillis@chemdesign.com>
Subject: RE: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Sounds Good.

We are committed to service excellence.

Visit our survey at <http://dnr.wi.gov/customersurvey> to evaluate how I did.

Richard R. Joslin

Hydrogeologist / NER Spills Coordinator – Remediation & Redevelopment Bureau

Wisconsin Department of Natural Resources

625 East County Road Y, Suite 700, Oshkosh, WI 54901-9731

Phone: (920) 424-7077

Cell Phone: (920) 360-4291

Richard.Joslin@Wisconsin.gov



dnr.wi.gov



From: Tom Willis <TWillis@chemdesign.com>
Sent: Tuesday, May 14, 2019 10:06 AM

To: Joslin, Richard R - DNR <Richard.Joslin@wisconsin.gov>
Subject: FW: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Good morning Rick, Chris Kanikula forwarded your request to me as I was out of the plant yesterday when the spill occurred. Our folks did an excellent job on response and clean-up, and I should have a detailed report for you by early next week. In the meantime if you have any question or you would like to discuss, please feel free to call me. Thank you Tom

Tom Willis
Director of HES



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From: Christopher Kanikula
Sent: Monday, May 13, 2019 3:42 PM
To: Tom Willis <TWillis@chemdesign.com>
Subject: FW: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Christopher Kanikula
Manager of Waste Operations



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ckanikula@chemdesign.com

From: Joslin, Richard R - DNR <Richard.Joslin@wisconsin.gov>
Sent: Monday, May 13, 2019 3:01 PM
To: Christopher Kanikula <CKanikula@chemdesign.com>
Subject: Chem Design Chemical Spill - SERTS # 20190513NE38-1

Chris

Per our conversation, please send me a map of the facility that shows where the spill occurred and where it ran to.

Please note that a documentation report will be needed for the spill referenced above. The report should be submitted to me within 45 days of the incident. The report should include information (i.e., what happened, where it happened, how it was fixed, what remedial activities were performed, photo documentation, etc.) to document spill response activities that occurred. Photos of the condition of the asphalt and concrete should also be included.

Please make sure that the report includes **global positioning system (GPS) coordinates** or a **map** that presents an accurate location of the spill. If you need more information related to the spill cleanup documentation report, please do not hesitate to contact me.

The report should be sent to:

Email: richard.joslin@wisconsin.gov (No hard copy of the report is required)

Thank you for your cooperation with this matter!

Rick

We are committed to service excellence.

Visit our survey at <http://dnr.wi.gov/customersurvey> to evaluate how I did.

Richard R. Joslin

Hydrogeologist / NER Spills Coordinator – Remediation & Redevelopment Bureau

Wisconsin Department of Natural Resources

625 East County Road Y, Suite 700, Oshkosh, WI 54901-9731

Phone: (920) 424-7077

Cell Phone: (920) 360-4291

Richard.Joslin@Wisconsin.gov



dnr.wi.gov



May 28, 2019

Mr. Rick Joslin
NER Spill Coordinator
WDNR
2984 Shawano Ave.
Green Bay, WI 54313

Dear Mr. Joslin

On May 13, 2019, Christopher Kanikula, ChemDesign's Hazardous Waste Manager reported a spill of monochlorobenzene (CAS# 108-90-7) to the National Response Center at approximately 1:30 PM. The spill involved a site glass failure on a vessel at the start of a transfer to a hazardous waste tanker.

Location: 2 Stanton Street, Marinette, Wisconsin 54143, Parcel 1 – Stanton Street Plant Site, Fractional Section 5, Township 50 North, Range 24 East. Refer to Site Plan Drawing for the spill location and our Stormwater Program Hold and Test Puddle (area where the spill collected) (see Map 1).

At the time of the spill the wind direction was into the NW at approximately 9 mph, and a temperature of 57 Degrees F.

Summary of Incident - Vessel number 5228 is a 2,000-gallon glass-lined reactor containing 838.6 lbs of monochlorobenzene (MCB) and 6,738 lbs of isohexane (CAS# 107-83-5) at a temperature of 35 degrees F, which was being transferred under pressure to a tanker for recycling. The Operator opened the automatic bottom valve of the vessel to release the material that was lined-out to the tanker when the sight-glass immediately adjacent burst open and came apart. This released the contents of vessel 5228 on to the floor and immediately outside the door to the containment puddle where it collected (see Pic 1, 2 & 5).

The investigation revealed that the sight glass was at its end of service life, and when it burst the subsequent pressure misaligned the plug valve and prevented it from closing properly. This allowed material to flow directly from the site glass and onto the floor. The sight glass was rated for 150 psig (1.5" diameter sight glass) and failed at 34.7 psig. The plug valve was also removed from service and replaced with a new automatic ball valve.

Approximately 4,000 gallons of material, including 838.6 lbs (111 gal) of MCB, 6,738 lbs (1,214 gal) of isohexane, clean-up/rinse waters and storm water from a previous rain event were collected in a Veolia Environmental Services, Inc. tanker and transferred to Milwaukee, Wisconsin for disposal. Manifest Number 001540515VES.

We also generated 12, 55-gallon drums of contaminated soil and asphalt barrier as the curbing along the road way on the North side of Bldg 52 was broken up. The drums will be sent out as hazardous waste once profiled. The curbing has since been repaired (see Pic 3).

We tested the remaining soil for MCB after we pulled-up a 1ft x 1ft x 28ft section of soil along the deteriorated curbing. MCB analysis was conducted by ChemDesign's in-house Quality Control and

Research laboratory. The soil samples were analyzed using a Gas Chromatograph (GC) equipped with Flame Ionization Detection. The MCB present in the soil samples was extracted into a solvent and injected into the GC inlet via an automatic liquid sampler.

Four initial one liter samples were collected for analysis (see Pic 4):

Soil Sample A: 29 ppm MCB

Soil Sample B: 51 ppm MCB

Soil Sample C: 6 ppm MCB

Soil Sample D: <5 ppm MCB

After the results came back from initial sampling, an additional 0.8ft x 2ft x 28ft section was removed and disposed in 55-gallon drums. Four additional TCLP soil samples were collected along the trench in the same locations and sent out to Pace Analytical in Green Bay, Wisconsin. We will determine if additional remediation is required based on the results of the TCLP samples once received.

After the TCLP samples were taken, gravel and sand were brought in to fill the void and a new asphalt curb was run along the area to re-establish a barrier to ground (see Pic 3).

In summary, approximately 1,400 gallons of solvent was released from vessel 5228 and drained out of Bldg 52 and into a storm water containment area. All efforts were made to clean-up materials, soils, soap and rinse water for disposal as hazardous waste. The soil was tested and four TCLP samples are still at the lab and we are waiting for results. The roadway barrier has been replaced along with a new site glass and valve on 5228. If you have any questions, please feel free to contact me at the number below.

Sincerely,

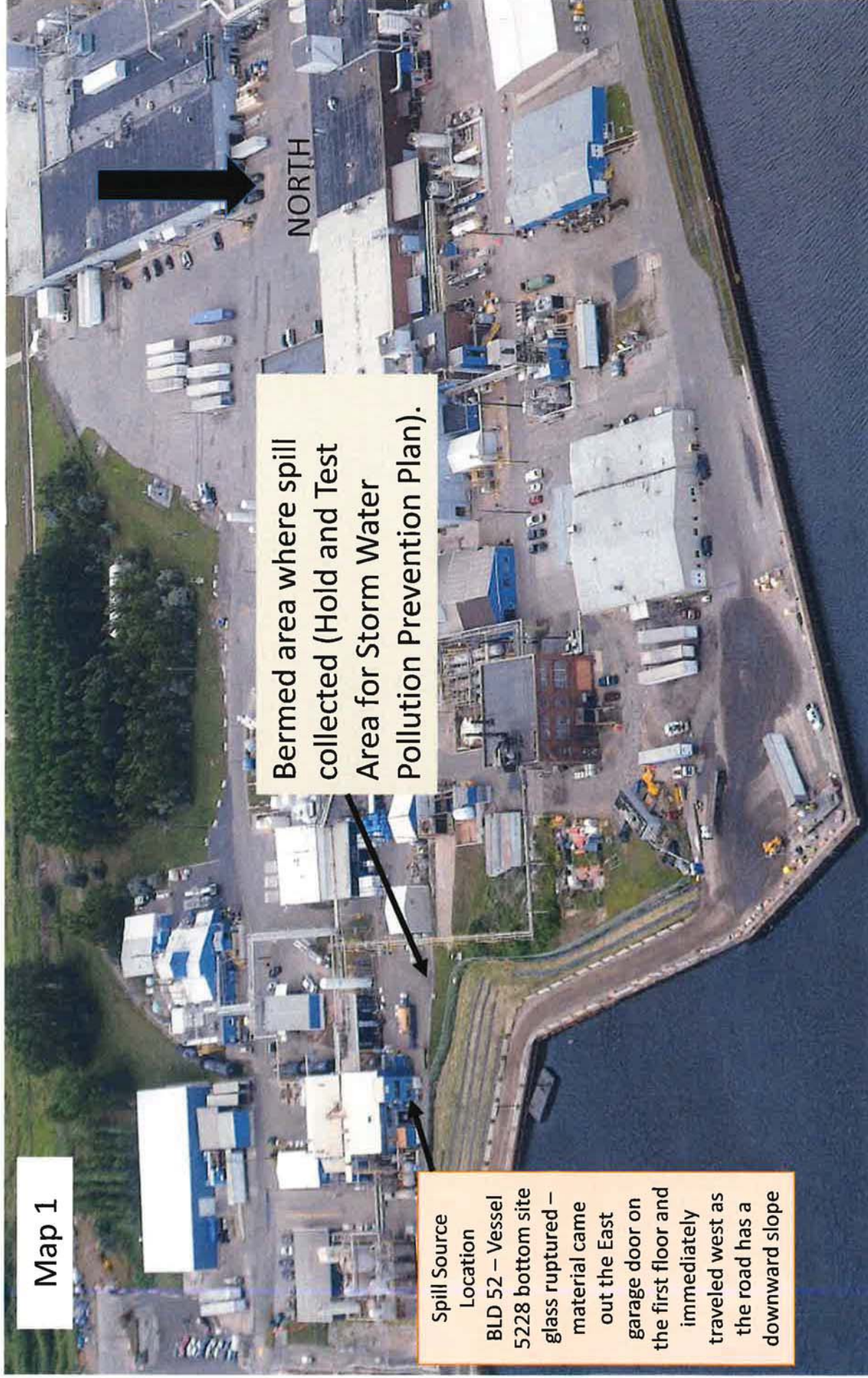


Thomas Willis
Director of HES
ChemDesign Products, Inc.
2 Stanton Street
Marinette, WI 54143
(715)735-8263
twillis@chemdesign.com

Attachments:

1. Map 1 – Site map and location of spill
2. Pics 1 -5 – Detailing incident and clean-up

Map 1



Bermed area where spill collected (Hold and Test Area for Storm Water Pollution Prevention Plan).

Spill Source

Location

BLD 52 – Vessel
5228 bottom site
glass ruptured –
material came
out the East
garage door on
the first floor and
immediately
traveled west as
the road has a
downward slope



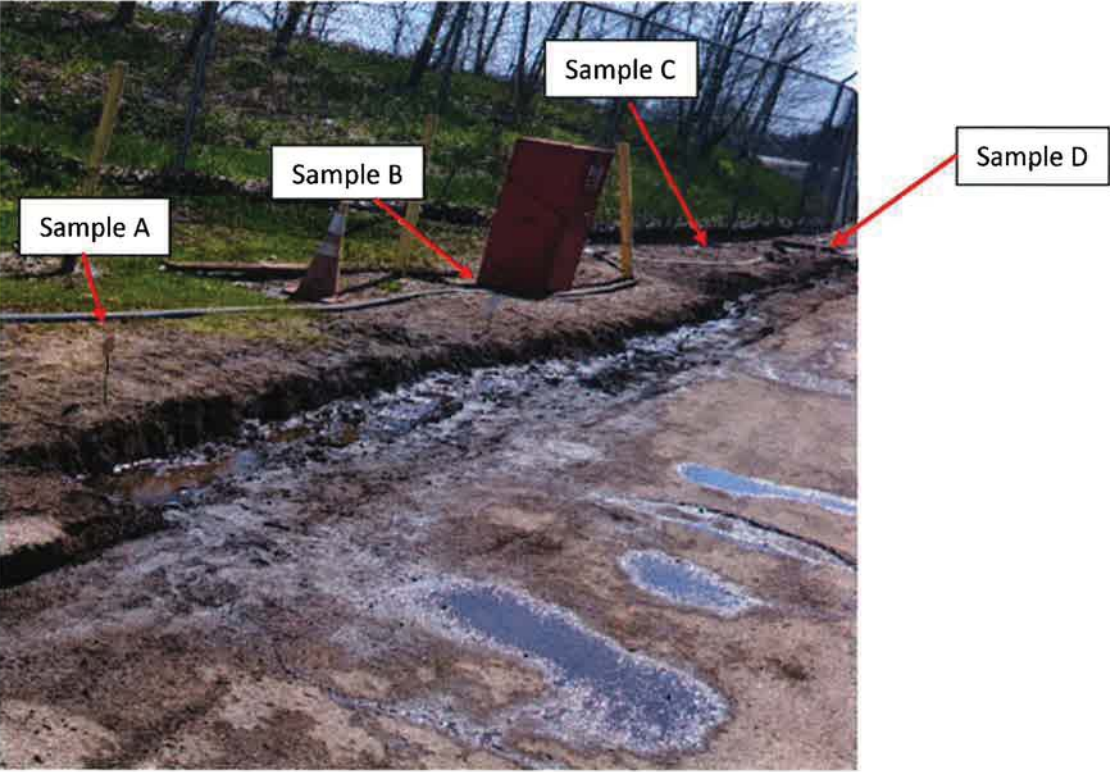
Pic 1 – 5/13/19 3:00 PM drainage plum of the spill to our Hold and Test Containment area for our Storm Water Management Plan



Pic 2 - Bldg 52, 5228's room to the North of the building. The spill drained to the West into our Hold and Test containment area



Pic 3 - View to the East after clean-up and gravel fill



Pic 4 - Four soil samples were collected after initial soil was removed from the ground adjacent to the asphalt. These sample results are detailed in the report.



Pic 5 – Spill containment area\Hold and Test containment area

Joslin, Richard R - DNR

From: Christopher Kanikula <CKanikula@chemdesign.com>
Sent: Monday, May 13, 2019 3:18 PM
To: Joslin, Richard R - DNR
Subject: RE: Chem Design Chemical Spill - SERTS # 20190513NE38-1
Attachments: Spill Location Site Pic.pptx

Christopher Kanikula
Manager of Waste Operations



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ckanikula@chemdesign.com

From: Joslin, Richard R - DNR <Richard.Joslin@wisconsin.gov>
Sent: Monday, May 13, 2019 3:01 PM
To: Christopher Kanikula <CKanikula@chemdesign.com>
Subject: Chem Design Chemical Spill - SERTS # 20190513NE38-1

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Rick

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Richard R. Joslin

Hydrogeologist / NER Spills Coordinator – Remediation & Redevelopment Bureau

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625 East County Road Y, Suite 700, Oshkosh, WI 54901-9731
Phone: (920) 424-7077
Cell Phone: (920) 360-4291
Richard.Joslin@Wisconsin.gov





BLD 52 -
Spill Source
Location

Bermed area
where spill
drained to.