



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Matthew J. Frank, Secretary
Scott Humrickhouse, Regional Director

Baldwin Service Center
890 Spruce Street
Baldwin, Wisconsin 54002
Telephone 715-684-2914
FAX 715-684-5940
TTY Access via relay - 711

September 25, 2009

Gerald Kerber
Loparex, LLC
1060 Clyde Hanson Dr.
Hammond, WI 54015

SUBJECT: No Further Action, 708 Closeout
Loparex LLC,
1060 Clyde Hanson Dr., Hammond, WI
WDNR BRRTS Activity # 02-56-553669

Dear Mr. Kerber:

On August 25, 2009, the Wisconsin Department of Natural Resources received a letter report from E. Cooney Associates, Inc. The report included the results from the environmental investigation which was conducted at Loparex's Hammond plant on August 11, 2009. In addition, I have reviewed a report from Clean Harbors Environmental Services dated March 10, 2009 detailing the immediate actions taken in response to a release of ethylene glycol which occurred on or about February 22, 2009. I have reviewed the document and concur that the environment has been restored to the extent practicable as provided in ch. NR 708.09, Wis. Adm. Code. Therefore, the immediate action in response to a release has been completed and the Department of Natural Resources is requiring no further action at this time.

We appreciate your efforts to protect and restore the environment at this site. If you have any questions regarding this No Further Action determination, please contact me in Patrick Collins at 715 684-2914 ext. 117.

Sincerely,

Patrick Collins
Hydrogeologist
Bureau for Remediation & Redevelopment

cc: Ed. Cooney, 359 Webster Ave., Elmhurst IL 60126
Tracy Baysinger, Loparex
FILE

September 9, 2009

Patrick Collins
Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
890 Spruce Street
Baldwin, WI 54002

Re: BRRTS #02-56-553669 Request for Case Closure

Dear Mr. Collins,

You are in receipt of the final report from consultant retained by Loparex LLC, Edward J. Cooney, Ph.D., P.E., of E. Cooney Associates, Inc., 359 E. Webster Avenue, Elmhurst, IL 60126. The report indicates that no further soil contamination remains on the Loparex site in Hammond, WI following the release of water and ethylene glycol in February 2009.

With this memo, I am submitting the required fee of \$250 and requesting closure of this case in conjunction with administrative code 708.09. If an additional form is needed, please let me know and I will complete it.

Sincerely,



Tracy A. Baysinger
715-796-5834
tracy.baysinger@loparex.com

Cc: Bob Brownlee, Loparex LLC
Michael Stang, Loperex LLC

Ed Cooney

From: Craig Chawla [cchawla@statanalysis.com]
Sent: Tuesday, August 25, 2009 3:56 PM
To: ed@ecooney.com
Subject: Lopanex, 1060 Clyde Hemson Dr., Hammond, IN 09080426

Ed,

Sample GP-01-11/11.5 was re-extracted and analyzed for Ethylene Glycol. 1.4 mg/Kg Ethylene Glycol was detected in the re-extract.

Craig Chawla
STAT Analysis Corporation
2242 W. Harrison, Suite 200
Chicago, IL 60612
(312)733-0551

The information contained in this e-mail message and any attachments is confidential information intended only for the use of the individual or entities named above. If the reader of this message is not the intended recipient you are hereby notified that any dissemination, distribution, or copying of this communication is strictly prohibited. If you have received this communication in error, please notify us immediately by e-mail at the originating address.

8/25/2009

ECA	Time: 0904	CLIENT: Loparex, Inc.		Boring ID: GP-01
		JOB NUMBER: 200711		
BORING LOCATION: 1060 Clyde Hanson Drive		DATE STARTED: 8/11		P A G E : 1
DRILLING CONTRACTOR: Matrix Environmental, LLC		DATE FINISHED: 8/11		MEASURING POINT: Ground
DRILLING METHOD: Geoprobe		Water Depth: NA	TOTAL DEPTH (FT): 11.5	
SAMPLING METHOD: Acetate Liner		LOGGED BY: EJC	APPROVED BY: EJC	
Lat:		Long:	COORDINATE SYSTEM AND UNITS: IL State Plane/ft	
Depth (ft)	PID (ppm)	SOIL DESCRIPTION		REMARKS
0	0.0	No Recovery to 18 in.; 6 in. sand fill		Sample 1.5 ft
2	0.0	Silty Clay with Trace Gravel		Sample 2.5 ft
4	0.0	No Recovery 5 – 6 ft.		Sample 4.5 ft
6	0.0	Damp, White Crushed Sandstone (St. Peter) beginning at 6.5 ft		Sample 7.0 ft
8	0.0	Same		
10	0.0	Same		Sample 11.0 ft
12		End Boring (Refusal) @ 11.5 ft (t = 0945)		
14				
16		Set Temp Well – 1 in Diameter PVC; 5 ft screen;, 6 ft riser; 0.5 ft end cap;		
18		Water Level at 1450 = 0.0 (Dry)		
20				
22				
24				
26				
28				
30				
32				

ECA	Time: 0955	CLIENT: Loparex, Inc.		Boring ID: GP-02
		JOB NUMBER: 200711		
BORING LOCATION: 1060 Clyde Hanson Drive		DATE STARTED: 8/11		P A G E : 1
DRILLING CONTRACTOR: Matrix Environmental, LLC		DATE FINISHED: 8/11		MEASURING POINT: Ground
DRILLING METHOD: Geoprobe		Water Depth: NA	TOTAL DEPTH (FT): 11.67	
SAMPLING METHOD: Acetate Liner		LOGGED BY: EJC	APPROVED BY: EJC	
Lat:		Long:	COORDINATE SYSTEM AND UNITS: IL State Plane/ft	
Depth (ft)	PID (ppm)	SOIL DESCRIPTION		REMARKS
0	0.0	No Recovery to 8 in.; 6 in. sand fill		Sample 1/1.5 ft
2	0.0	Silty Clay with Trace Gravel		Sample 3/3.5 ft
4	0.0	No Recovery 5 – 6 ft.		
6	0.0	Damp, White Crushed Sandstone (St. Peter) beginning at 6 - 6.5 ft		Sample 8/8.5 ft
8	0.0	Same		
10	0.0	Same		Sample 11/11.5 ft
12		End Boring (Refusal) @ 11.67 ft @ 10:15		
14				
16		Set Temp Well – 1 in Diameter PVC; 5 ft screen;, 6 ft riser; 0.5 ft end cap;		
18		Water Level at 1450 = 0.0 (Dry)		
20				
22				
24				
26				
28				
30				
32				

TR

E. Cooney Associates, Inc.
Environmental Consultants

Via Email & U.S. Mail

August 25, 2009

Mr. Patrick Collins
Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
890 Spruce Street
Baldwin, Wisconsin 54002

Re: Loparex, Inc.
1060 Clyde Hanson Drive
Hammond, Wisconsin
WDNR BRRTS Activity # 02-56-553669

Dear Patrick:

I have enclosed the analytical data obtained from the sampling we conducted at Loparex's Hammond plant on August 11, 2009. As you observed, two Geoprobe borings were drilled within the spill area on the south side of the main building (see Figure 1). Samples were collected from depths of approximately one foot to the depth of refusal, about 12 ft. Based on field observations, temporary piezometers (1 inch diameter, PVC) were installed at the conclusion of soil sampling to determine if measurable groundwater was present. After waiting for several hours, no groundwater was detected in either location; the wells were removed and borings were backfilled with bentonite. Boring logs are also attached for your review.

The data, summarized in Table 1, show no exceedance of the values previously reported to WDNR on March 10, 2009. Ethylene glycol biodegrades rapidly (ASTDR's Fact Sheet for ethylene glycol indicates that breakdown in water and soil occurs in days to several weeks). As such, it is recommended that the spill incident be closed.

If you have any comments or questions, please contact me.

Very truly yours,



Edward J. Cooney, Ph.D., P.E.

Attachment

Pc: R. Brownlee
M. Stang
T. Baysinger

359 Webster Ave.
Elmhurst, IL 60126
Phone: 630/834-0754
Fax: 630/834-1528
E-mail: ed@ecooney.com

Figure 1. Approximate Sampling Locations (No Scale)

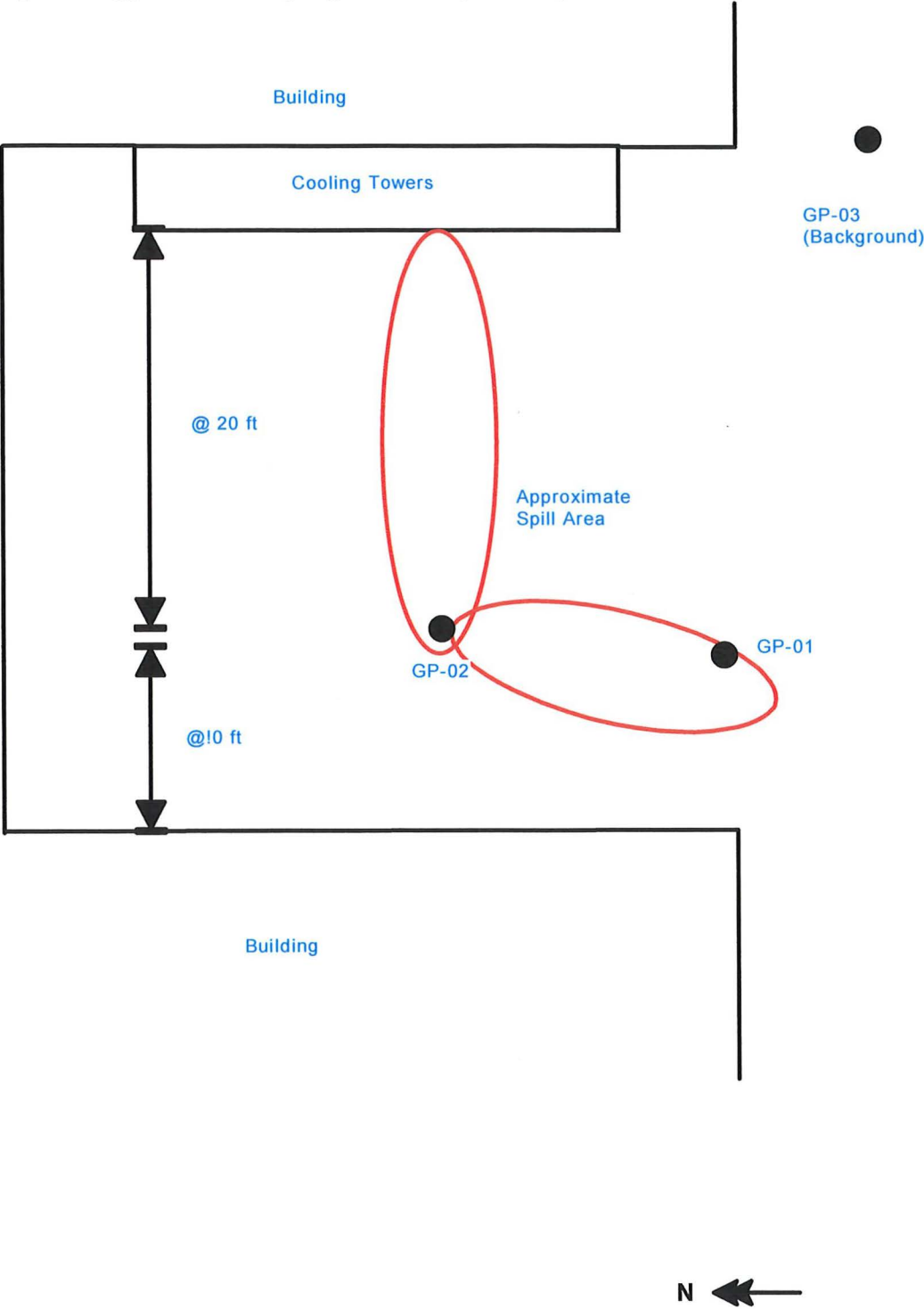


Table 1. Ethylene Glycol (EG) Results

Sample Location	Depth Interval	EG Result (mg/Kg)
GP-01	1.5/2.0	0.45
	2.5/3.0	<0.39
	5.0/5.5	<0.37
	7.0/7.5	<0.36
	11.0/11.5	16.0
Re-Extract*	11.0/11.5	1.4
GP-02	1.0/1.5	<0.39
	3.0/3.5	<0.37
	8.0/8.5	<0.34
	11.0/11.5	<0.35

* The lab reanalyzed the sample to verify initial result. Both results are reported herein.

STAT Analysis Corporation

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766

Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202-0

August 21, 2009

E. Cooney and Associates

359 Webster Ave.

Elmhurst, IL 60126

Telephone: (630) 834-0754

Fax: (630) 834-1528

RE: Lopanex, 1060 Clyde Hemson Dr., Hammond, IN

STAT Project No: 09080426

Dear Ed Cooney:

STAT Analysis received 11 samples for the referenced project on 8/12/2009 3:00:00 PM. The analytical results are presented in the following report.

All analyses were performed in accordance with the requirements of 35 IAC Part 186 / NELAC standards. Analyses were performed in accordance with methods as referenced on the analytical report. Those analytical results expressed on a dry weight basis are also noted on the analytical report.

All analyses were performed within established holding time criteria, and all Quality Control criteria met EPA or laboratory specifications except when noted in the Case Narrative or Analytical Report. If required, an estimate of uncertainty for the analyses can be provided. A listing of accredited methods/parameters can also be provided.

Thank you for the opportunity to serve you and I look forward to working with you in the future. If you have any questions regarding the enclosed materials, please contact me at (312) 733-0551.

Sincerely,



Mary Ann Kidd

Project Manager

The information contained in this report and any attachments is confidential information intended only for the use of the individual or entities named above. The results of this report relate only to the samples tested. If you have received this report in error, please notify us immediately by phone. This report shall not be reproduced, except in its entirety, unless written approval has been obtained from the laboratory.

Client: E. Cooney and Associates
Project: Lopanex, 1060 Clyde Hemson Dr., Hammond, IN
Lab Order: 09080426

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Tag Number	Collection Date	Date Received
09080426-001A	GP-01-1.5/2		8/11/2009	8/12/2009
09080426-002A	GP-01-2.5/3		8/11/2009 9:11:00 AM	8/12/2009
09080426-003A	GP-01-5.5/5		8/11/2009 9:20:00 AM	8/12/2009
09080426-004A	GP-01-7/7.5		8/11/2009 9:25:00 AM	8/12/2009
09080426-005A	GP-01-11/11.5		8/11/2009 9:35:00 AM	8/12/2009
09080426-006A	GP-02-1/1.5		8/11/2009 10:00:00 AM	8/12/2009
09080426-007A	GP-02-3/3.5		8/11/2009 10:05:00 AM	8/12/2009
09080426-008A	GP-02-8/8.5		8/11/2009 10:10:00 AM	8/12/2009
09080426-009A	GP-02-11/11.5		8/11/2009 10:15:00 AM	8/12/2009
09080426-010A	Lopanex Core 0-5		8/11/2009	8/12/2009
09080426-011A	Lopanex Core 5-9.5		8/11/2009	8/12/2009

CLIENT: E. Cooney and Associates
Project: Lopanex, 1060 Clyde Hemson Dr., Hammond, I
Lab Order: 09080426

CASE NARRATIVE

Porosity, fractional organic carbon, soil bulk density and soil particle density analyses were conducted at the University of Illinois at Chicago, Department of Civil Engineering under the supervision of Dr. Krishna Reddy.

STAT Analysis Corporation

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766

Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Date Reported: August 21, 2009

Date Printed: August 21, 2009

Client: E. Cooney and Associates

Project: Lopanex, 1060 Clyde Hemson Dr., Hammond, IN

Lab Order: 09080426

Lab ID: 09080426-001

Collection Date 8/11/2009

Client Sample ID:GP-01-1.5/2

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Glycols, Total	SW8015 (SW3550B)					Prep Date: 8/17/2009 Analyst: TMB
Ethylene Glycol	0.45	0.38	*	mg/Kg-dry	1	8/19/2009
Percent Moisture	D2974					Prep Date: 8/17/2009 Analyst: JP
Percent Moisture	15.5	0.2	*	wt%	1	8/18/2009

Lab ID: 09080426-002

Collection Date 8/11/2009 9:11:00 AM

Client Sample ID:GP-01-2.5/3

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Glycols, Total	SW8015 (SW3550B)					Prep Date: 8/17/2009 Analyst: TMB
Ethylene Glycol	ND	0.39	*	mg/Kg-dry	1	8/19/2009
Percent Moisture	D2974					Prep Date: 8/17/2009 Analyst: JP
Percent Moisture	16.8	0.2	*	wt%	1	8/18/2009

Lab ID: 09080426-003

Collection Date 8/11/2009 9:20:00 AM

Client Sample ID:GP-01-5.5/5

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Glycols, Total	SW8015 (SW3550B)					Prep Date: 8/17/2009 Analyst: TMB
Ethylene Glycol	ND	0.37	*	mg/Kg-dry	1	8/19/2009
Percent Moisture	D2974					Prep Date: 8/17/2009 Analyst: JP
Percent Moisture	12.0	0.2	*	wt%	1	8/18/2009

Lab ID: 09080426-004

Collection Date 8/11/2009 9:25:00 AM

Client Sample ID:GP-01-7/7.5

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Glycols, Total	SW8015 (SW3550B)					Prep Date: 8/17/2009 Analyst: TMB
Ethylene Glycol	ND	0.36	*	mg/Kg-dry	1	8/19/2009
Percent Moisture	D2974					Prep Date: 8/17/2009 Analyst: JP
Percent Moisture	9.4	0.2	*	wt%	1	8/18/2009

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H - Holding time exceeded

STAT Analysis Corporation

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766

Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Date Reported: August 21, 2009

Date Printed: August 21, 2009

Client:	E. Cooney and Associates					
Project:	Lopanex, 1060 Clyde Hemson Dr., Hammond, IN			Lab Order: 09080426		
Lab ID:	09080426-005			Collection Date 8/11/2009 9:35:00 AM		
Client Sample ID:	GP-01-11/11.5			Matrix: Soil		
Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Glycols, Total	SW8015 (SW3550B)					Prep Date: 8/17/2009 Analyst: TMB
Ethylene Glycol	16	3.5	*	mg/Kg-dry	10	8/19/2009
Percent Moisture	D2974					Prep Date: 8/17/2009 Analyst: JP
Percent Moisture	8.4	0.2	*	wt%	1	8/18/2009
Lab ID:	09080426-006			Collection Date 8/11/2009 10:00:00 AM		
Client Sample ID:	GP-02-1/1.5			Matrix: Soil		
Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Glycols, Total	SW8015 (SW3550B)					Prep Date: 8/17/2009 Analyst: TMB
Ethylene Glycol	ND	0.39	*	mg/Kg-dry	1	8/19/2009
Percent Moisture	D2974					Prep Date: 8/17/2009 Analyst: JP
Percent Moisture	15.9	0.2	*	wt%	1	8/18/2009
Lab ID:	09080426-007			Collection Date 8/11/2009 10:05:00 AM		
Client Sample ID:	GP-02-3/3.5			Matrix: Soil		
Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Glycols, Total	SW8015 (SW3550B)					Prep Date: 8/17/2009 Analyst: TMB
Ethylene Glycol	ND	0.37	*	mg/Kg-dry	1	8/19/2009
Percent Moisture	D2974					Prep Date: 8/17/2009 Analyst: JP
Percent Moisture	12.9	0.2	*	wt%	1	8/18/2009
Lab ID:	09080426-008			Collection Date 8/11/2009 10:10:00 AM		
Client Sample ID:	GP-02-8/8.5			Matrix: Soil		
Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Glycols, Total	SW8015 (SW3550B)					Prep Date: 8/17/2009 Analyst: TMB
Ethylene Glycol	ND	0.34	*	mg/Kg-dry	1	8/19/2009
Percent Moisture	D2974					Prep Date: 8/17/2009 Analyst: JP
Percent Moisture	5.5	0.2	*	wt%	1	8/18/2009

Qualifiers:

ND - Not Detected at the Reporting Limit
J - Analyte detected below quantitation limits
B - Analyte detected in the associated Method Blank
HT - Sample received past holding time
* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis
S - Spike Recovery outside accepted recovery limits
R - RPD outside accepted recovery limits
E - Value above quantitation range
H - Holding time exceeded

STAT Analysis Corporation

2242 West Harrison St., Suite 200, Chicago, IL 60612-3766

Tel: (312) 733-0551 Fax: (312) 733-2386 STATinfo@STATAnalysis.com

Accreditation Numbers: IEPA ELAP 100445; ORELAP IL300001; AIHA 101160; NVLAP LabCode 101202

Date Reported: August 21, 2009

Date Printed: August 21, 2009

Client: E. Cooney and Associates

Project: Lopanex, 1060 Clyde Hemson Dr., Hammond, IN

Lab Order: 09080426

Lab ID: 09080426-009

Collection Date 8/11/2009 10:15:00 AM

Client Sample ID: GP-02-11/11.5

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Glycols, Total	SW8015 (SW3550B)					Prep Date: 8/17/2009 Analyst: TMB
Ethylene Glycol	ND	0.35	*	mg/Kg-dry	1	8/19/2009
Percent Moisture	D2974					Prep Date: 8/17/2009 Analyst: JP
Percent Moisture	6.1	0.2	*	wt%	1	8/18/2009

Lab ID: 09080426-010

Collection Date 8/11/2009

Client Sample ID: Lopanex Core 0-5

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Bulk Density	D2937					Prep Date: Analyst: SUB
Bulk Density	117		*	lb/ft³	1	8/17/2009
Soil Particle Density	D854					Prep Date: Analyst: SUB
Soil Particle Density	165		*	lb/ft³	1	8/17/2009
Organic Carbon Content	D2974					Prep Date: Analyst: SUB
Fractional Organic Carbon	1.5	0.01	*	wt%	1	8/17/2009
Porosity	CALCULATED					Prep Date: Analyst: SUB
Porosity	0.39		*	%	1	8/17/2009

Lab ID: 09080426-011

Collection Date 8/11/2009

Client Sample ID: Lopanex Core 5-9.5

Matrix: Soil

Analyses	Result	RL	Qualifier	Units	DF	Date Analyzed
Bulk Density	D2937					Prep Date: Analyst: SUB
Bulk Density	111		*	lb/ft³	1	8/17/2009
Soil Particle Density	D854					Prep Date: Analyst: SUB
Soil Particle Density	164		*	lb/ft³	1	8/17/2009
Organic Carbon Content	D2974					Prep Date: Analyst: SUB
Fractional Organic Carbon	0.65	0.01	*	wt%	1	8/17/2009
Porosity	CALCULATED					Prep Date: Analyst: SUB
Porosity	0.38		*	%	1	8/17/2009

Qualifiers:

ND - Not Detected at the Reporting Limit

J - Analyte detected below quantitation limits

B - Analyte detected in the associated Method Blank

HT - Sample received past holding time

* - Non-accredited parameter

RL - Reporting / Quantitation Limit for the analysis

S - Spike Recovery outside accepted recovery limits

R - RPD outside accepted recovery limits

E - Value above quantitation range

H - Holding time exceeded

STAT Analysis Corporation

2242 W. Harrison, Suite 200, Chicago, Illinois 60612 Phone: (312) 733-0551 Fax: (312) 733-2386

e-mail address: STATinfo@STATAnalysis.com AIHA, NVLAP and NELAP accredited

CHAIN OF CUSTODY RECORD
Nº: 828838

Page: of

Company: <u>E Conroy Associates Inc</u>					P.O. No.:		All test results are subject to the accuracy of the sample + soil particle size analysis												
Project Number: _____ Client Tracking No.:					Quote No.:														
Project Name: <u>Lafayette</u>																			
Project Location: <u>1460 Clyde Hampton Dr, Hammond</u>																			
Sampler(s): <u>Conroy</u>					Report To: <u>Conroy</u>		Phone: <u>630 834 0754</u>		Turn Around:										
					Fax: <u>630 834 1523</u>		e-mail: <u>ed@conroy.com</u>		Results Needed: _____ am/pm										
QC Level: 1 _____ 2 _____ 3 _____ 4 _____																			
Client Sample Number/Description:	Date Taken	Time Taken	Matrix	Comp.	Grab	Preserv.	No. of Containers	Remarks										Lab No.	
GP-01-1.5/2	8/11	0916	S				1	X									001		
GP-01-2.5/3		0911					1	X									002		
GP-01-4.5/5		0920					1	X									003		
GP-01-7/7.5		0925					1	X									004		
GP-01-11/11.5		0935					1	X									005		
GP-02-1/1.5		1000					1	X									006		
GP-02-3/3.5		1005					1	X									007		
GP-02-8/8.5		1010					1	X									008		
GP-02-11/11.5		1015					1	X									009		
Lafayette Core 0-5							1		X	X							010		
Lafayette Core 5-9.5							1		X	X							011		
Relinquished by: (Signature) <u>[Signature]</u>					Date/Time: <u>8/12/09 1130</u>		Comments: 0-5' core - sample @ 3-3.5' 5-9.5' core - sample @ 7.5-8' Hold samples for ID determination					Laboratory Work Order <u>09062428</u> <u>[Signature]</u> Date/Time: <u>8/12/09 1130</u>							
Received by: (Signature) <u>[Signature]</u>					Date/Time: <u>8/12/09 1630</u>														
Relinquished by: (Signature) <u>[Signature]</u>					Date/Time: <u>8/12/09 1630</u>														
Received by: (Signature) <u>[Signature]</u>					Date/Time: <u>8/12/09 1630</u>														
Relinquished by: (Signature) <u>[Signature]</u>					Date/Time: _____														
Received by: (Signature) _____					Date/Time: _____		Preservation Code: A = None B = HNO ₃ C = NaOH D = H ₂ SO ₄ E = HCl F = 5035/EnCore G = Other												

Sample Receipt Checklist

Client Name E. COONEY

Date and Time Received: 8/12/2009 3:00:00 PM

Work Order Number 09080426

Received by: JJM

Checklist completed by:

[Signature] 8/13/09
Signature Date

Reviewed by:

MAK 8/13/09
Initials Date

Matrix:

Carrier name STAT Analysis

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels/containers?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time?	Yes ☒	No ☐	
Container or Temp Blank temperature in compliance?	Yes ☒	No ☐	Temperature 1.2 °C
Water - VOA vials have zero headspace?	No VOA vials submitted ☒	Yes ☒	No ☐
Water - Samples pH checked?	Yes ☒	No ☒	Checked by: _____
Water - Samples properly preserved?	Yes ☒	No ☒	pH Adjusted? _____

Any No response must be detailed in the comments section below.

Comments:

Client / Person contacted:

Date contacted:

Contacted by:

Response:

TR

E. Cooney Associates, Inc.
Environmental Consultants

Via Email & U.S. Mail

July 22, 2009

Mr. Patrick Collins
Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
890 Spruce Street
Baldwin, Wisconsin 54002

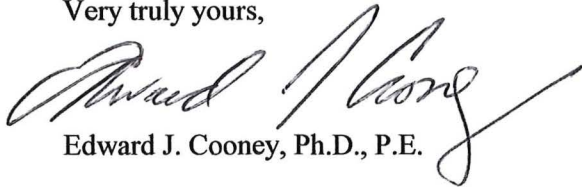
Re: Loparex, Inc.
1060 Clyde Hanson Drive
Hammond, Wisconsin
WDNR BRRTS Activity # 02-56-553669

Dear Patrick:

On behalf of Loparex, Inc., I have enclosed a work plan for conducting the additional investigation of the spill area at Loparex's Hammond, Wisconsin manufacturing facility. The purpose of the work plan is to further characterize the area in which an ethylene glycol solution was released last February. The Wisconsin DNR has indicated that we need to better characterize the vertical extent of the release in the two locations having the highest residual ethylene glycol concentration. As we discussed in June, the cleanup we completed is acceptable provided that the soil component of the groundwater ingestion exposure route (SCGIR) is better understood. To that end, we propose sampling two locations from the release area to a depth of 20 ft. using a Geoprobe (or equivalent). In addition, one additional boring will be located in a representative "background" location to enable collection of certain modeling data for use in determining a site-specific SCGIR screening level, if necessary.

We will notify you before conducting this investigation so that you can be present if desired. Work is tentatively scheduled for mid-August. If you have any comments or questions, please contact me.

Very truly yours,



Edward J. Cooney, Ph.D., P.E.

Attachment

Pc: R. Brownlee
M. Stang
T. Baysinger

359 Webster Ave.
Elmhurst, IL 60126
Phone: 630/834-0754
Fax: 630/834-1528
E-mail: ed@ecooney.com

SUPPLEMENTAL SAMPLING WORK PLAN

**Loparex, Inc.
1060 Clyde Hanson Drive
Hammond, Wisconsin
WDNR BRRTS Activity # 02-56-553669**

Prepared For:

**Loparex, Inc.
7700 Griffin Way
Willowbrook, Illinois**

Prepared By:

***E. Cooney Associates, Inc.
Elmhurst, Illinois 60126***

July 22, 2009

Work Plan Overview

The purpose of this Work Plan is to characterize the extent of any remaining onsite soil contamination following the release and cleanup of a 10% solution of ethylene glycol in water. The work is being conducted to fulfill a request made by the Wisconsin Department of Natural Resources (WDNR) to evaluate the soil component of the groundwater ingestion route. Previous sampling results are summarized in Figure 1.

It is proposed to characterize soils within the release area and, if present, shallow groundwater. Two borings/monitoring wells are planned, drilled to depth of 20 ft or depth of saturation, whichever is less. If saturated conditions are not detected at depth 20 ft, then the well will not be installed. This will be performed by advancing soil borings into the subsurface using a Geoprobe®. The actual sampling intervals at each boring location will be determined in the field, following an evaluation of PID measurements. The boring(s) may be extended to a greater depth in the field, if necessary.

Methodology Overview

All samples will be collected and handled in accordance with approved methods. Decontamination procedures will be followed to limit the possibility of transferring contamination to uncontaminated areas, minimize sample cross contamination, and protect human health, public safety, property, and the environment. Decontamination procedures will be performed on soil and groundwater sampling equipment at each sample location. Alternatively, one-time use sampling equipment will be employed.

Soil Sampling

Soil borings will be installed during this investigation with a GeoProbe® soil sampler. A GeoProbe® soil sampler is a hollow stainless steel barrel with an interior liner and nosepiece. The barrel itself is a two (2) inch exterior diameter sampler measuring two (2) to four (4) feet in length. The hollow interior diameter accommodates the insertion of a slightly smaller diameter clear cellulose acetate butyrate (CAB) liner. The new liners provide the field engineer/geologist complete visual access for field logging activities of the entire sampling interval and preserves sample integrity during sample handling.

Soil borings will be advanced by Matrix, Inc. If groundwater is detected during sampling, each borehole will be converted into a 1-inch diameter PVC Temporary Well (TW).

Soil samples will be collected and logged continuously and field screened using a MiniRae™ PID. Representative soil samples will be collected from each boring location as follows:

- Two sampling locations within the release area will be sampled.
- Discrete samples at each sample location will be obtained every two (2) feet of depth, beginning at six inches below the ground surface and continuing through the zone of contamination. Within each 2-ft interval, samples will be collected at the highest PID reading observed from headspace testing or, if no impacts are observed, at 2-ft intervals within the unsaturated zone. Samples will be collected in the vicinity of previous locations B/BB and D/DD (see Figure 1).
- Results for each location will be averaged in accordance with approved EPA protocols. The upper confidence limit for the average will be calculated based on data distribution.
- Samples obtained at or below the water table shall not be used in compositing or averaging.

Soil samples for ethylene glycol analysis will be collected utilizing a Powerstop™ Handle. The handle is designed to extract a 5g sample using a disposable syringe. For each sample three glass 40 mL vials will be filled using this approach. Samples for solids content will be collected in 4 oz. glass jars. Each sample container will be marked with a sample identification number. The vials containing the samples will be carefully packaged and stored in a cooler packed with ice. In addition, a representative undisturbed soil sample will be collected for physical characterization, bulk density, particle density,

organic fraction (f_{oc}), and moisture content. Approximately 10% of soil samples will be blind duplicates for QA/QC.

Temporary Well Construction

Temporary wells will be installed within each boring following sampling should groundwater be detected. Each well will be constructed of 1-inch diameter polyvinyl chloride (PVC) pre-fabricated materials. Well materials constructed of PVC have been shown to be impervious to the constituents to be monitored. Materials utilized in well construction will include the following or equivalent:

1" x 10' PVC Schedule 40 Riser

1" x 5' PVC Schedule 40 Screen

1" PVC end cap

1" PVC locking cap

The materials utilized in the well construction will consist of clean non-reactive materials. The integrity of the well construction and materials including the joints, connections, and seals will be inspected to insure integrity. This will be performed to prevent poor well construction or leaks which might act as a conduit for cross contamination or migration. During the well construction the operations will be performed to limit the disturbance that can influence and disturb the hydraulic connection between the monitoring well and the groundwater.

The well casing and screen will be connected and lowered to the base of the boring. The top of the well screen will be placed so that the top of the screen is extended into the unsaturated zone above the water table.

Clean quartz filter sand will be placed around the screen to an approximate depth of one (1) foot above the top of the screen. Bentonite pellets will be used to fill from the top of the sand pack to just below ground surface. The well will then be secured.

In accordance with the installation and sampling plan the well will be inspected and maintained. These activities will be logged and recorded as a part of the investigational plan. The well log will be created to diagram the activities and well construction. The details and integrity of the well will be monitored throughout the investigation. The contractor will follow all appropriate regulations (guidance documentation; Monitoring Well Design and Construction (ASTM Standard D-5092)) regarding monitoring well installation.

Temporary Well Development

After the installation of the well, the well will be sealed and allowed to settle. This will allow for the groundwater to reach equilibrium with the groundwater static level and groundwater chemistry. Approximately one day after installation ECA will measure the static water level and each well will be purged to permit representative sampling.

Each monitoring well will be developed using Masterflex™ peristaltic pump having an approximate flow rate of 0.25 gallons per minute (American Society for Testing and Material D4448-01 Standard Guide for Sampling Ground-Water Monitoring Wells). During well purging, water pH, temperature, and conductivity will be measured to determine if steady state conditions are reached. If steady state is not reached (+/- 10% of reading) then ECA will extract a minimum of 2 - 3 well casing volumes before sampling. This will be performed to purge the well. The objective of this will be to extract the stagnant water in the well screen and/or casing before sample collection. Alternatively a PVC bailer may be used.

Groundwater Sampling

Groundwater samples, if groundwater is found present, will be collected in accordance with EPA-approved procedures. Prior to beginning testing, the water level will be measured. Each well will be purged using a low-flow Masterflex® pump/controller system or disposable bailer. Samples will be collected after certain measured well water parameters (such as conductivity, pH, and temperature) stabilized or a minimum of 2 - 3 well volumes have been removed. Samples will be collected in preserved containers, iced, and transported to the laboratory using recommended chain of custody transport protocols. One duplicate sample and one trip blank for QA/QC will be collected.

Data Evaluation

To evaluate the soil component of the groundwater ingestion exposure route, the following procedure will be followed. In the event groundwater is not detected at any sampling location, then the direct exposure screening level for industrial sites will be used as the SSL for sampling result comparison. The direct exposure soil screening level for ethylene glycol is 1.2×10^6 mg/kg (Region IX and Region III soil screening levels for industrial sites).

If groundwater is detected, then the soil to groundwater pathway standard will be estimated using a risk-based cleanup approach developed by EPA for conducting risk assessments at remediation sites. The following approach is suggested.

$$\text{SSL (for migration to groundwater)} = C_w * [K_d + (\theta_w + \theta_a * H') / \rho_b]$$

Where

$$C_w (\text{target soil leachate concentration}) = \text{DAF} * \text{GW}_{\text{obj}}$$

$$K_d (\text{soil water partitioning coefficient}) = K_{oc} * f_{oc}$$

$$\text{DAF (Dilution Factor)} = 1 + (K * i * d) / (I * L)$$

$$\theta_w = \text{water-filled soil porosity, default} = 0.3;$$

$$\theta_a = \text{air-filled soil porosity, default} = 0.13;$$

$$H' = \text{Henry's Constant (dimensionless)} = 2.5 \times 10^{-6} (\text{ethylene glycol})$$

f_{oc} = Organic carbon content of soil – to be determined by field measurement;

K = Hydraulic conductivity – to be determined by field measurement (**see Note C**);

K_{oc} = Organic carbon partition coefficient = 1 (ethylene glycol);

GW_{obj} = Groundwater Objective (**see Note A**).

i = Hydraulic gradient – to be determined by field measurement (**see Note B**);

d = mixing zone depth – to be calculated or default = 2 m;

I = Infiltration Rate – to be calculated or 0.3 m/yr (default);

L = Source Length – to be calculated or 45 m for a 0.5 ac site (default);

ρ_s = soil particle density (kg/ L); default value = 2.65

ρ_b = soil bulk density (kg/ L); default value = 1.5

Note A: The tap water limit for ethylene glycol = 73 mg/L (EPA Region III screening levels). Because there is no maximum contaminant level or specific groundwater objective for ethylene glycol, a site specific GW_{obj} will be back-calculated using modeling. Conceptually, a value of 73 mg/L will be placed as the migration plume concentration on the nearest downgradient property perimeter. Then, the corresponding source concentration (within the release area) will be back -calculated using a standard plume modeling approach.

Note B: The shallow groundwater hydraulic gradient will be calculated during the investigation work using water level measurements and surveyed elevations. The hydraulic gradient for the wells will be obtained by fitting a plane to multiple points such that:

$$a x_1 + b y_1 + c = h_1$$

$$a x_2 + b y_2 + c = h_2$$

$$a x_3 + b y_3 + c = h_3$$

where (x_i, y_i) are the coordinates of the well and h_i is the head with $i = 1, 2, 3$. The gradient is calculated from the square root of $(a^2 + b^2)$ and the angle from the arctangent of a/b or b/a depending on the quadrant using an EPA online calculation approach.

Note C: The hydraulic conductivity will be obtained by slug test or by constant discharge pump test; method dependent on aquifer characteristics. In general – a water level logger will be used to measure the depth of water within the well as function of time. In this case, measure drawdown versus time will be used. The hydraulic conductivity will be calculated using standard aquifer principles and mathematical models such as the Hurr-Worthington method (for a constant discharge pump test) or Bouwer & Rice (for a slug test).

References

US EPA (1991a): Risk Assessment Guidance for Superfund. Vol. I. Human Health Evaluation Manual. Part B. Development of Risk- based Preliminary Remediation Goals. Interim. PB92- 963333. Publication 9285.7- 01B. Office of Emergency and Remedial Response. US Environmental Protection Agency, Washington, DC.

US EPA (1991b): Risk Assessment Guidance for Superfund. Vol. I. Human Health Evaluation Manual, Supplemental Guidance: Standard Default Exposure Factors. Interim Final. OSWER Directive 9285.6- 03. Office of Emergency and Remedial Response.

US EPA (1991c): Role of the Baseline Risk Assessment in Superfund Remedy Selection Decisions. Office of Solid Waste and Emergency Response. OSWER Directive 9355. 0-30.

US EPA (1995): Supplemental Guidance to RAGS: Region 4 Bulletin, Human Health Risk Assessment. Office of Health Assessment. US Environmental Protection Agency, Region 4. Atlanta, GA.

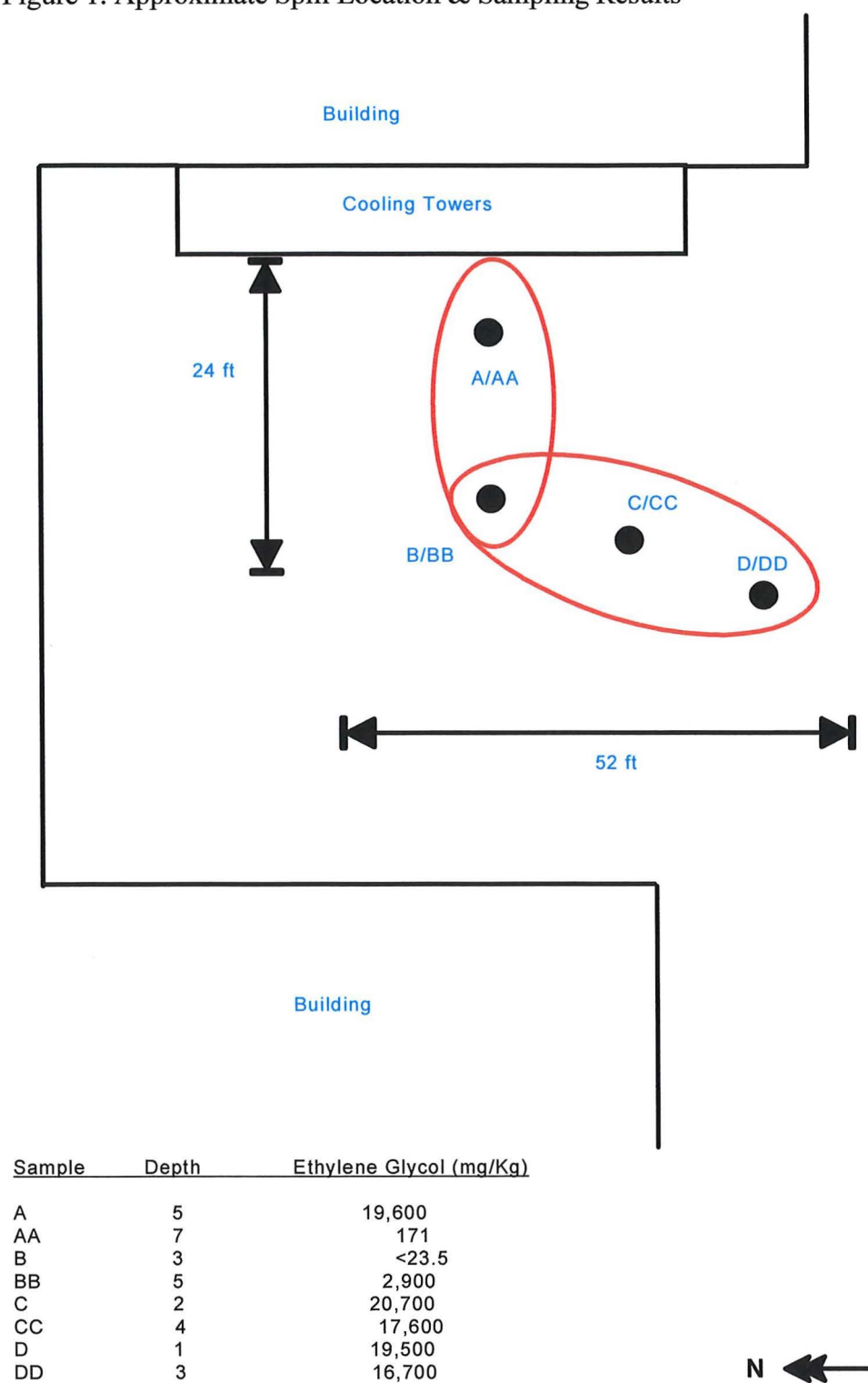
US EPA (1996a): Soil Screening Guidance: Technical Background Document. 9355A-17A, EPA/540iR-95i128, PB96-963502. Office of Emergency and Remedial Response. US Environmental Protection Agency, Washington, DC. US EPA (1996b): Soil Screening Guidance: User's Guide. Second Edition. 9355A-23, EPA/540iR-96i018. Office of Emergency and Remedial Response. US Environmental Protection Agency, Washington, DC.

US EPA (2001a): Risk Assessment Guidance for Superfund. Vol. I. Human Health Evaluation Manual. (Part E, Supplemental Guidance for Dermal Risk Assessment). Interim. Review 13raft – For Public Comment. EPA/540iR/99/005. Office of Emergency and Remedial Response US Environmental Protection Agency, Washington, DC.

US EPA (2001b): Risk Assessment Guidance for Superfund. Vol. I. Human Health Evaluation Manual. (Part 13, Standardized planning, reporting, and review of superfund Risk Assessments). Final. Publication 9285.7-4T. Office of Emergency and Remedial Response US Environmental Protection Agency, Washington, DC.

US EPA (2002): Supplemental Guidance for Developing Soil Screening Levels for Superfund Sites. OSWER 9355A-24. Office of Emergency and Remedial Response. US Environmental Protection Agency, Washington, DC.

Figure 1. Approximate Spill Location & Sampling Results





Backing Your Products, Backing Your Business.

June 22, 2009

Patrick Collins
Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
890 Spruce Street
Baldwin, WI 54002

Re: BRRTS #02-56-553669 Response to Letter Dated May 27, 2009

Dear Mr. Collins,

Thank for speaking with me last week regarding response to the letter received by Gerald Kerber dated May 27, 2009 requesting additional actions on the part of Loparex LLC for clean-up of an ethylene glycol spill in Hammond, WI that occurred on February 22, 2009.

As requested, this letter serves as written verification that Loparex LLC has retained an environmental consultant to assist with developing and implementing a work plan and schedule for further investigation. Loparex LLC has retained Edward J. Cooney, Ph.D., P.E., of E. Cooney Associates, Inc., 359 E. Webster Avenue, Elmhurst, IL 60126. You have spoken with Mr. Cooney by phone and communicated via email. A copy of your response to his summary is attached and will serve as further verification. A work plan and schedule will follow by July 27, 2009 as requested in the letter.

In addition, the contact for communication regarding this spill and other environmental communication for Loparex LLC in Hammond, WI has changed. I am a recently hired Environmental, Health, and Safety Manager and future communications should be addressed to me at the address below. My phone number is 715-796-5834 and email is tracy.baysinger@loparex.com.

Sincerely,

Tracy A. Baysinger

Cc: Bob Brownlee, Loparex LLC
Michael Stang, Loperex LLC
Ed Cooney, E. Cooney Associates Inc.



"Collins, Patrick J - DNR"
<Patrick.Collins@Wisconsin.gov>

06/19/2009 11:24 AM

To Ed Cooney <ed@ecooney.com>

cc "Bob.Brownlee@loporex.com"
<Bob.Brownlee@loporex.com>,
"Tracy.Baysinger@Loporex.com"

bcc

Subject RE: 061909 Call Summary

Ed,

That sums it up very well.
I will wait to hear from you.

P Patrick J. Collins
Hydrogeologist
Bureau of Remediation and Redevelopment
Wisconsin Department of Natural Resources
(*) phone: (715) 684-2914 ext. 117
(*) fax: (715) 684-5940
(*) e-mail: Patrick.Collins@Wisconsin.gov

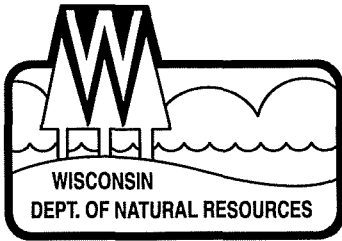
-----Original Message-----

From: Ed Cooney [mailto:ed@ecooney.com]
Sent: Friday, June 19, 2009 11:22 AM
To: Collins, Patrick J - DNR
Cc: Bob.Brownlee@loporex.com; Tracy.Baysinger@Loporex.com
Subject: 061909 Call Summary

Patrick - Thanks for getting back to me this morning regarding the soil testing work that is needed at Loparex to resolve the State's concern about the ethylene glycol spill at its Hammond, WI facility. You indicated that we needed to better characterize the vertical extent of the release in the two locations having the highest residual ethylene glycol concentration (results presented in the March 10 report submitted to WDNR, Tom Kendzierski). As discussed the cleanup we completed is O.K. provided that the soil component of the groundwater ingestion exposure route is better understood. To that end, we discussed collecting two Geoprobe (or equivalent) samples from the release area to a depth of 20 - 25 ft; samples collected at 4 - 5 ft intervals. I will draft a work plan for your review (tentative submittal date week of 7/13). We will notify you before conducting this investigation so that you can be present if desired. Work likely to be in August sometime. There is no problem with E. Cooney being the technical lead for Loparex on this matter as I have ample experience in performing this type of work. We will provide documentation regarding the disposal location for the impacted soil excavated last February. If you need any further or have any questions or comments please let me know.

Ed

Edward J. Cooney, Ph.D., P.E.
E. Cooney Associates Inc.
359 E. Webster Ave.
Elmhurst, IL 60126
P: 630-834-0754
F: 630-834-1528
www.ecooney.com



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor
Matthew J. Frank, Secretary
Scott Humrickhouse, Regional Director

West Central Region Headquarters
1300 W. Clairemont Avenue
PO Box 4001
Eau Claire, Wisconsin 54702-4001
Telephone 715-839-3700
FAX 715-839-6076
TTY Access via relay - 711

May 27, 2009

Gerald Kerber
LOPAREX, LLC
1060 Clyde Hanson Dr
Hammond, WI 54015

Subject: Reported Contamination at 1060 Clyde Hanson Dr, Hammond, WI
WDNR BRRTS Activity # 02-56-553669
FID #656044070

Dear Mr. Gerald Kerber:

On February 22, 2009, you notified the Wisconsin Department of Natural Resources ("WDNR") that ethylene glycol contamination had been released at the property site described above.

Based on the information that has been submitted to the WDNR regarding this site, you are responsible for investigating and restoring the environment at the above-described site under Section 292.11, Wisconsin Statutes, known as the hazardous substances spills law. In this case, results from the spill excavation work revealed elevated levels of ethylene glycol remaining in the soil. The WDNR believes that a limited investigation is warranted to determine if ground water has been impacted.

This letter describes the legal responsibilities of a person who is responsible under section 292.11, explains what you need to do to investigate and clean up the contamination, and provides you with information about cleanups, environmental consultants, possible financial assistance, and working cooperatively with the WDNR.

Legal Responsibilities:

Your legal responsibilities are defined both in statute and in administrative codes. The hazardous substances spill law, Section 292.11 (3) Wisconsin Statutes, states:

- **RESPONSIBILITY.** A person who possesses or controls a hazardous substance which is discharged or who causes the discharge of a hazardous substance shall take the actions necessary to restore the environment to the extent practicable and minimize the harmful effects from the discharge to the air, lands, or waters of the state.

Wisconsin Administrative Code chapters NR 700 through NR 749 establish requirements for emergency and interim actions, public information, site investigations, design and operation of remedial action systems, and case closure. Wisconsin Administrative Code chapter NR 140 establishes groundwater standards for contaminants that reach groundwater.



Steps to Take:

To ensure that your cleanup complies with Wisconsin's laws and administrative codes, you should hire a professional environmental consultant who understands what needs to be done. These are the first steps to take:

1. Within the next **30 days**, by June 27, 2009, you should submit written verification (such as a letter from the consultant) that you have hired an environmental consultant. If you do not take action within this time frame, the WDNR may initiate enforcement action against you.
2. Within the next **60 days**, by July 27, 2009, your consultant should submit a work plan and schedule for the investigation. The consultant must comply with the requirements in the NR 700 Wis. Adm. Code rule series and should adhere to current WDNR technical guidance documents.

In addition, within 30 days of completion of the site investigation, your consultant should submit a site investigation report to the department or other agency with administrative authority.

Sites where discharges to the environment have been reported are entered into the Bureau for Remediation and Redevelopment Tracking System ("BRRTS"), a version of which appears on the WDNR's internet site. You may view the information related to your site at any time (<http://botw.dnr.state.wi.us/botw/Welcome.do>) and use the feedback system to alert us to any errors in the data.

If you want a formal written response from the department on a specific submittal, please be aware that a review fee is required in accordance with ch. NR 749, Wis. Adm. Code. If a fee is not submitted with your reports, you should proceed under the advice of your consultant to complete the site investigation and cleanup to maintain your compliance with the spills law and chapters NR 700 through NR 749. **Do not delay the investigation of your site by waiting for an agency response.** We have provided detailed technical guidance to environmental consultants. Your consultant is expected to know our technical procedures and administrative rules and should be able to answer your questions on meeting cleanup requirements.

All correspondence regarding this site should be sent to:

Patrick Collins
Remediation and Redevelopment Program
Wisconsin Department of Natural Resources
890 Spruce St
Baldwin, WI 54002
Patrick.Collins@Wisconsin.gov
Phone 715-684-2914 ext. 117

Unless otherwise requested, please send only one copy of plans and reports. In addition to the paper copy, an electronic copy may also be submitted. To speed processing, correspondence should reference the **BRRTS #02-56-553669**.

Additional Information for Site Owners :

We encourage you to visit our website at <http://dnr.wi.gov/org/aw/rr>, where you can find information on selecting a consultant, financial assistance and understanding the cleanup process. You will also find information there about liability clarification letters, post-cleanup liability and more.

If you have questions, call Patrick Collins at 715-684-2914 ext. 117 for more information or visit the RR web site at the address above.

Thank you for your cooperation.

Sincerely,

William Evans
West Central Region
Remediation & Redevelopment Team Supervisor

Enclosures:

Selecting an Environmental Consultant – RR-502
<http://dnr.wi.gov/org/aw/rr/archives/pubs/RR502.pdf>
Environmental Services Contractor List – RR-024
<http://dnr.wi.gov/org/aw/rr/archives/pubs/RR024.pdf>
Environmental Contamination Basics, RR-674
<http://dnr.wi.gov/org/aw/rr/archives/pubs/RR674.pdf>
VPLE Fact Sheet #2
<http://dnr.wi.gov/org/aw/rr/archives/pubs/RR506.pdf>

Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; H = HEAST; W = WHO; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; F = See FAQ #28; c = cancer; * = where n SL < 100X c SL; ** = where n SL < 10X c SL; n = noncancer; m = Concentration may exceed ceiling limit
(See User's Guide); s = Concentration may exceed Csat (See User's Guide); SSL values are based on DAF=1

Contaminant		Toxicity and Chemical-specific Information													Screening Levels										Protection of Groundwater Soil Screening Levels		
		SFO (mg/kg-day)	ke (y)	IUR (ug/m ³ -y)	ke (y)	RfDo (mg/kg-day)	ke (y)	RfCI (mg/m ³ -y)	ke (y)	muta- gen	GIABS	ABS	Csat mg/kg	Residential Soil mg/kg	key	Industrial Soil mg/kg	key	Residential Air ug/m ³	key	Industrial Air ug/m ³	key	Tapwater ug/L	key	MCL ug/L	Risk-based SSL mg/kg	MCL-based SSL mg/kg	
Analyste	CAS No.																										
ALAR	1596-84-5	1.8E-02		C	5.1E-06	C	1.5E-01						0.1	2.7E+01	c	9.6E+01	c	4.8E-01	c	2.4E+00	c	3.7E+00	c		8.2E-04		
Acephate	30560-19-1	8.7E-03	I				4.0E-03	I					0.1	5.6E+01	c**	2.0E+02	c*					7.7E+00	c*		1.9E-03		
Acetaldehyde	75-07-0				2.2E-06	I			9.0E-03	I	V		1	1.1E+05	1.1E+01	c**	5.3E+01	c**	1.1E+00	c**	5.8E+00	c**	2.2E+00	c**		4.5E-04	
Acetochlor	34256-82-1						2.0E-02	I					0.1	1.2E+03	n	1.2E+04	n					7.3E+02	n		4.0E-01		
Acetone	67-64-1				9.0E-01	I	3.1E+01	A	V				1.1E+05	6.1E+04	n	6.1E+05	nms	3.2E+04	n	1.4E+05	n	2.2E+04	n		4.4E+00		
Acetone Cyanohydrin	75-86-5						3.0E-03	P	6.0E-02	P	V		1	1.1E+05	2.0E+02	n	2.1E+03	n	6.3E+01	n	2.6E+02	n	5.8E+01	n		1.2E-02	
Acetonitrile	75-05-8						6.0E-02	I	V				1	1.3E+05	8.7E+02	n	3.7E+03	n	6.3E+01	n	2.6E+02	n	1.3E+02	n		2.6E-02	
Acetophenone	98-86-2						1.0E-01	I			V		1	2.3E+03	7.8E+03	ns	1.0E+05	nms					3.7E+03	n		1.1E+00	
Acetylaminofluorene, 2-	53-96-3	3.8E+00	C	1.3E-03	C								0.1	1.3E+01	c	4.5E-01	c	1.9E-03	c	9.4E-03	c	1.8E-02	c		9.6E-05		
Acrolein	107-02-8						5.0E-04	I	2.0E-05	I	V		1	2.5E+04	1.8E-01	n	6.8E-01	n	2.1E-02	n	8.6E-02	n	4.2E-02	n		8.6E-06	
Acrylamide	79-06-1	4.5E+00	I	1.3E-03	I		2.0E-04	I					0.1	1.1E-01	c	3.8E-01	c	1.9E-03	c	9.4E-03	c	1.5E-02	c		3.3E-06		
Acrylic Acid	79-10-7						5.0E-01	I	1.0E-03	I			0.1	3.0E+04	n	2.9E+05	nm	1.0E+00	n	4.4E+00	n	1.8E+04	n		3.7E+00		
Acrylonitrile	107-13-1	5.4E-01	I	6.8E-05	I	4.0E-02	A	2.0E-03	I	V			1	1.1E+04	2.4E-01	c*	1.2E+00	c*	3.6E-02	c*	1.8E-01	c*	4.5E-02	c*		9.9E-06	
Adiponitrile	111-69-3								6.0E-03	P			0.1	8.5E+06	nm	3.6E+07	nm	6.3E+00	n	2.6E+01	n						
Alachlor	15972-60-8	5.6E-02	C			1.0E-02	I						0.1	8.7E+00	c*	3.1E+01	c					1.2E+00	c	2.0E+00	6.8E-04	1.1E-03	
Aldicarb	116-06-3						1.0E-03	I					0.1	6.1E+01	n	6.2E+02	n					3.7E+01	n		9.7E-03		
Aldicarb Sulfone	1646-88-4						1.0E-03	I					0.1	6.1E+01	n	6.2E+02	n					3.7E+01	n		8.0E-03		
Aldrin	309-00-2	1.7E+01	I	4.9E-03	I		3.0E-05	I					0.1	2.9E-02	c*	1.0E-01	c	5.0E-04	c	2.5E-03	c	4.0E-03	c		8.4E-04		
Allyl	74223-64-6						2.5E-01	I					0.1	1.5E+04	n	1.5E+05	nm					9.1E+03	n		3.1E+00		
Allyl Alcohol	107-18-6						5.0E-03	I	3.0E-04	P			0.1	3.1E+02	n	3.1E+03	n	3.1E-01	n	1.3E+00	n	1.8E+02	n		3.7E-02		
Allyl Chloride	107-05-1	2.1E-02	C	6.0E-06	C				1.0E-03	I	V		1	1.5E+03	7.0E-01	c**	3.5E+00	c**	4.1E-01	c**	2.0E+00	c**	6.5E-01	c**		2.1E-04	
Aluminum	7429-90-5					1.0E+00	P	5.0E-03	P				1	7.7E+04	n	9.9E+05	nm	5.2E+00	n	2.2E+01	n	3.7E+04	n		5.5E+04		
Aluminum Phosphide	20859-73-8					4.0E-04	I						1	3.1E+01	n	4.1E+02	n					1.5E+01	n				
Amdro	67485-29-4					3.0E-04	I						0.1	1.8E+01	n	1.8E+02	n					1.1E+01	n		1.4E+04		
Ametryn	634-12-8					9.0E-03	I						0.1	5.5E+02	n	5.5E+03	n					3.3E+02	n		3.6E-01		
Aminobiphenyl, 4-	92-67-1	2.1E+01	C	6.0E-03	C								0.1	2.3E-02	c	8.2E-02	c	4.1E-04	c	2.0E-03	c	3.2E-03	c		1.1E-05		
Aminophenol, m-	591-27-5						8.0E-02	P					0.1	4.9E+03	n	4.9E+04	n					2.9E+03	n		1.0E+00		
Aminophenol, p-	123-30-8					2.0E-02	P						0.1	1.2E+03	n	1.2E+04	n					7.3E+02	n		2.5E-01		
Amtraz	33089-61-1					2.5E-03	I						0.1	1.5E+02	n	1.5E+03	n					9.1E+01	n		1.2E+02		
Ammonia	7864-41-7						1.0E-01	I					1					1.0E+02	n	4.4E+02	n						
Ammonium Perchlorate	7790-98-9					7.0E-04	I						1	5.5E+01	n	7.2E+02	n					2.6E+01	n				
Ammonium Sulfamate	7773-06-0					2.0E-01	I						1	1.6E+04	n	2.0E+05	nm					7.3E+03	n				
Aniline	62-53-3	5.7E-03	I	1.6E-06	C	7.0E-03	P	1.0E-03	I				0.1	8.5E+01	c**	3.0E+02	c*	1.0E+00	n	4.4E+00	n	1.2E+01	c*		3.4E-03		
Antimony (metallic)	7440-36-0					4.0E-04	I					0.15		3.1E+01	n	4.1E+02	n					1.5E+01	n	6.0E+00	6.6E-01	2.7E-01	
Antimony Pentoxide	1314-60-9					5.0E-04	H					0.15		3.9E+01	n	5.1E+02	n					1.8E+01	n				
Antimony Potassium Tartrate	11071-15-1					9.0E-04	H					0.15		7.0E+01	n	9.2E+02	n					3.3E+01	n				
Antimony Trioxide	1332-81-6					4.0E-04	H					0.15		3.1E+01	n	4.1E+02	n					1.5E+01	n				
Antimony Trioxide	1309-64-4							2.0E-04	I			0.15		2.8E+05	nm	1.2E+06	nm	2.1E-01	n	8.8E-01	n				6.1E+02		
Apollo	74115-24-5					1.3E-02	I					0.1		7.9E+02	n	8.0E+03	n					4.7E+02	n				
Aramite	140-57-8	2.5E-02	I	7.1E-06	I	5.0E-02	H						0.1	1.9E+01	c	6.9E+01	c	3.4E-01	c	1.7E+00	c	2.7E+00	c		1.1E-01		
Arsenic, Inorganic	7440-38-2	1.5E+00	I	4.3E-03	I	3.0E-04	I	1.5E-05	C			0.03		3.9E-01	c*	1.8E+00	c*	5.7E-04	c*	2.9E-03	c*	4.5E-02	c	1.0E+01	1.3E-03	2.9E-01	
Arsine	7784-42-1						5.0E-05	I					1	7.1E+04	n	3.0E+05	nm	5.2E-02	n	2.2E-01	n						
Assure	78578-14-8					9.0E-03	I						0.1	5.5E+02	n	5.5E+03	n					3.3E+02	n		3.6E+00		
Asulam	3337-71-1					5.0E-02	I						0.1	3.1E+03	n	3.1E+04	n					1.8E+03	n		5.2E-01		
Atrazine	1912-24-9	2.3E-01	C			3.5E-02	I						0.1	2.1E+00	c	7.5E+00	c					2.9E-01	c	3.0E+00	1.9E-04	2.0E-03	
Avermectin B1	65195-55-3					4.0E-04	I						0.1	2.4E+01	n	2.5E+02	n					1.5E+01	n		4.1E-02		
Azobenzene	103-33-3	1.1E-01	I	3.1E-05	I						V			4.9E+00	c	2.2E+01	c	7.8E-02	c	4.0E-01	c	1.2E-01	c		5.1E-04		
Barium	7440-39-3					2.0E-01	I	5.0E-04	H			0.07		1.5E+04	n	1.9E+05	nm	5.2E-01	n	2.2E+00	n	7.3E+03	n	2.0E+03	3.0E+02	8.2E+01	
Baygon	114-26-1					4.0E-03	I						0.1	2.4E+02	n	2.5E+03	n					1.5E+02	n		4.2E-02		
Bayleton	43121-43-3					3.0E-02	I						0.1	1.8E+03	n	1.8E+04	n					1.1E+03	n		1.2E+01		
Baythroid	68359-37-5					2.5E-02	I						0.1	1.5E+03	n	1.5E+04	n					9.1E+02	n		3.3E+02		
Benefin	1861-40-1					3.0E-01	I						0.1	1.8E+04	n	1.8E+05	nm					1.1E+04	n		2		

Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; H = HEAST; W = WHO; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; F = See FAQ #28; c = cancer; * = where n SL < 100X c SL; ** = where n SL < 10X c SL; n = noncancer; m = Concentration may exceed ceiling limit (See User's Guide); s = Concentration may exceed Csat (See User's Guide); SSL values are based on DAF=1

Contaminant		Toxicity and Chemical-specific Information														Screening Levels										Protection of Groundwater Soil Screening Levels			
Analyte	CAS No.	SFO (mg/kg-day)	k _e y	IUR (ug/m ³ -y)	k _e y	RfDo (mg/kg-day)	k _e y	RfCi (mg/m ³ -y)	k _e y	v	o	muta- gen	GIABS	ABS	Csat mg/kg	Residential Soil mg/kg	key	Industrial Soil mg/kg	key	Residential Air ug/m ³	key	Industrial Air ug/m ³	key	Tapwater ug/L	key	MCL ug/L	Risk-based SSL mg/kg	MCL-based SSL mg/kg	
Bromodichloromethane	75-27-4	6.2E-02	I	3.7E-05	C	2.0E-02	I			V				1	9.9E+02	2.8E-01	c	1.4E+00	c	6.6E-02	c	3.3E-01	c	1.2E-01	c		3.3E-05		
Bromoform	75-25-2	7.9E-03	I	1.1E-06	I	2.0E-02	I							1	0.1	6.1E+01	c*	2.2E+02	c*	2.2E+00	c	1.1E+01	c	8.5E+00	c*		2.3E-03		
Bromomethane	74-83-9					1.4E-03	I	5.0E-03	I	V				1		7.9E+00	n	3.5E+01	n	5.2E+00	n	2.2E+01	n	8.7E+00	n		2.2E-03		
Bromophos	2104-96-3					5.0E-03	H							1	0.1	3.1E+02	n	3.1E+03	n								7.7E-01		
Bromoxynil	1889-84-5					2.0E-02	I							1	0.1	1.2E+03	n	1.2E+04	n								7.8E-01		
Bromoxynil Octanoate	1889-99-2					2.0E-02	I							1	0.1	1.2E+03	n	1.2E+04	n								7.3E+02		
Butadiene, 1,3-	106-99-0	3.4E+00	C	3.0E-05	I			2.0E-03	I	V				1		6.9E+02	5.4E-02	c*	2.6E-01	c*	8.1E-02	c*	4.1E-01	c*	1.8E-02	c		9.8E-06	
Butanol, N-	71-36-3					1.0E-01	I							1	0.1	6.1E+03	n	6.2E+04	n								3.7E+03		
Butyl Benzyl Phthlate	85-88-7	1.9E-03	P			2.0E-01	I							1	0.1	2.6E+02	c*	9.1E+02	c								3.5E+01		
Butyl alcohol, sec-	78-82-2					2.0E+00	P	3.0E+01	P							1.8E+05	nm	2.0E+06	nm	3.1E+04	n	1.3E+05	n				7.3E+04		
Butylate	2008-41-5					5.0E-02	I							1	0.1	3.1E+03	n	3.1E+04	n								1.8E+03		
Butylphthalyl Butylglycolate	85-70-1					1.0E+00	I							1	0.1	6.1E+04	n	6.2E+05	nm								3.7E+04		
Cacodylic Acid	75-60-5					2.0E-02	A							1	0.1	1.2E+03	n	1.2E+04	n								7.3E+02		
Cadmium (Diet)	7440-43-9			4.2E-03	C	1.0E-03	I	1.0E-05	A					0.025	0.001	7.0E+01	n	8.0E+02	n									1.4E+00	
Cadmium (Water)	7440-43-9			1.8E-03	I	5.0E-04	I	1.0E-05	A					0.05	0.001					1.4E-03	c**	6.8E-03	c**	1.8E+01	n	5.0E+00		3.8E-01	
Caprolactam	105-80-2					5.0E-01	I							1	0.1	3.1E+04	n	3.1E+05	nm								1.8E+04		
Captafol	2425-06-1	1.5E-01	C	4.3E-05	C	2.0E-03	I							1	0.1	3.2E+00	c*	1.1E+01	c	5.7E-02	c	2.9E-01	c	4.5E-01	c		2.5E-03		
Captan	133-06-2	2.3E-03	C	6.6E-07	C	1.3E-01	I							1	0.1	2.1E+02	c*	7.5E+02	c	3.7E+00	c	1.9E+01	c	2.9E+01	c		5.6E-02		
Carbaryl	63-25-2					1.0E-01	I							1	0.1	6.1E+03	n	6.2E+04	n								3.7E+03		
Carbofuran	1563-66-2					5.0E-03	I							1	0.1	3.1E+02	n	3.1E+03	n								1.8E+02		
Carbon Disulfide	75-15-0					1.0E-01	I	7.0E-01	I	V				1		6.7E+02	ns	3.0E+03	ns	7.3E+02	n	3.1E+03	n	1.0E+03	n		2.7E-01		
Carbon Tetrachloride	56-23-5	1.3E-01	I	1.5E-05	I	7.0E-04	I	1.9E-01	A	V				1		4.8E+02	2.5E-01	c	1.3E+00	c	1.6E-01	c	8.2E-01	c	2.0E-01	c	5.0E+00	7.9E-05	2.0E-03
Carbosulfan	55285-14-8					1.0E-02	I							1	0.1	6.1E+02	n	6.2E+03	n								3.7E+02		
Carboxin	5234-68-4					1.0E-01	I							1	0.1	6.1E+03	n	6.2E+04	n								3.7E+03		
Chloral Hydrate	302-17-0					1.0E-01	I							1	0.1	6.1E+03	n	6.2E+04	n								3.7E+03		
Chloramben	133-90-4					1.5E-02	I							1	0.1	9.2E+02	n	9.2E+03	n								5.5E+02		
Chloranil	118-75-2	4.0E-01	H											1	0.1	1.2E+00	c	4.3E+00	c								1.7E-01		
Chlordane	12789-03-6	3.5E-01	I	1.0E-04	I	5.0E-04	I	7.0E-04	I					1	0.04	1.6E+00	c*	6.5E+00	c*	2.4E-02	c*	1.2E-01	c*	1.9E-01	c*	2.0E+00	3.3E-02	3.5E-01	
Chlordecone (Kepone)	143-50-0	1.6E+01	C	4.6E-03	C	5.0E-04	A							1	0.1	3.0E-02	c	1.1E-01	c	5.3E-04	c	2.7E-03	c	4.2E-03	c		1.5E-04		
Chlorfenvinphos	470-90-8					7.0E-04	A							1	0.1	4.3E+01	n	4.3E+02	n								2.6E+01		
Chlorimuron, Ethyl-	90982-32-4					2.0E-02	I							1	0.1	1.2E+03	n	1.2E+04	n								7.3E+02		
Chlorine	7782-50-5					1.0E-01	I	1.5E-04	A					1		7.5E+03	n	8.1E+04	n	1.5E-01	n	6.4E-01	n	3.7E+03	n			1.6E+00	
Chlorine Dioxide	10049-04-4					3.0E-02	I	2.0E-04	I					1		2.3E+03	n	3.0E+04	n	2.1E-01	n	8.8E-01	n	1.1E+03	n				
Chlorite (Sodium Salt)	7758-19-2					3.0E-02	I							1		2.3E+03	n	3.1E+04	n								1.1E+03		
Chloro-1,1-difluoroethane, 1-	75-68-3							5.0E+01	I	V				1		1.2E+03	5.9E+04	ns	2.5E+05	nms	5.2E+04	n	2.2E+05	n	1.0E+05	n		5.3E+01	
Chloro-1,3-butadiene, 2-	128-99-8					2.0E-02	H	7.0E-03	H	V				1		8.2E+02	8.6E+00	n	3.8E+01	n	7.3E+00	n	3.1E+01	n	1.4E+01	n		7.7E-03	
Chloro-2-methylaniline HCl, 4-	3185-83-3	4.6E-01	H											1	0.1	1.1E+00	c	3.7E+00	c								1.5E-01		
Chloro-2-methylaniline, 4-	95-69-2	2.7E-01	C	7.7E-05	C									1	0.1	1.8E+00	c	6.4E+00	c	3.2E-02	c	1.6E-01	c	2.5E-01	c		1.1E-04		
Chloroacetic Acid	79-11-8					2.0E-03	H							1	0.1	1.2E+02	n	1.2E+03	n								7.3E+01		
Chloroacetophenone, 2-	532-27-4							3.0E-05	I					1	0.1	4.3E+04	n	1.8E+05	nm	3.1E-02	n	1.3E-01	n					1.5E-02	
Chloroaniline, p-	106-47-8	2.0E-01	P			4.0E-03	I							1	0.1	2.4E+00	c	8.8E+00	c								3.4E-01		
Chlorobenzene	108-90-7					2.0E-02	I	5.0E-02	P	V				1		8.6E+02	3.1E+02	n	1.5E+03	ns	5.2E+01	n	2.2E+02	n	9.1E+01	n	1.0E+02	6.8E-02	7.5E-02
Chlorobenzilate	510-15-6	1.1E-01	C	3.1E-05	C	2.0E-02	I							1	0.1	4.4E+00	c	1.8E+01	c	7.8E-02	c	4.0E-01	c	6.1E-01	c		1.7E-03		
Chlorobenzotrifluoride, 4-	98-56-6					3.0E-03	P	3.0E-01	P	V				1		5.5E+02	2.1E+02	n	2.4E+03	ns	3.1E+02	n	1.3E+03	n	9.3E+01	n		3.9E-01	
Chlorobutane, 1-	109-69-3					4.0E-02	P			V				1		7.9E+02	3.1E+03	ns	4.1E+04	ns							1.5E+03		
Chlorodifluoromethane	75-45-8							5.0E+01	I	V				1		1.7E+03	5.3E+04	ns	2.2E+05	nms	5.2E+04	n	2.2E+05	n	1.0E+05	n		4.4E-01	
Chloroform	67-68-3	3.1E-02	C	2.3E-05	I	1.0E-02	I	9.8E-02	A	V				1		2.7E+03	3.0E-01	c	1.5E+00	c	1.1E-01	c	5.3E-01	c	1.9E-01	c		5.5E-05	
Chloromethane	74-87-3							9.0E-02	I	V				1		1.4E+03	1.2E+02	n	5.1E+02	n	9.4E+01	n	3.8E+02	n	1.9E+02	n		4.9E-02	
Chloromethyl Methyl Ether	107-30-2	2.4E+00	C	6.9E-04	C					V				1		8.1E+03	1.8E-02	c	8.8E-02	c	3.5E-03	c	1.8E-02	c	5.6E-03	c		1.2E-06	
Chloronaphthalene, Beta-	91-58-7					8.0E-02	I			V				1		2.1E+02													

Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; H = HEAST; W = WHO; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; F = See FAQ #28; c = cancer; * = where n SL < 100x c SL; ** = where n SL < 10x c SL; n = noncancer; m = Concentration may exceed ceiling limit (See User's Guide); s = Concentration may exceed Csat (See User's Guide); SSL values are based on DAF=1

Contaminant		Toxicity and Chemical-specific Information													Screening Levels										Protection of Groundwater Soil Screening Levels			
Analyte	CAS No.	SFO (mg/kg-day)	k _e y	IUR (ug/m ³ -y)	k _e y	RfDo (mg/kg-day)	k _e y	RfCl (mg/m ³ -y)	k _e y	muta- gen	GIABS	ABS	Csat mg/kg	Residential Soil mg/kg	key	Industrial Soil mg/kg	key	Residential Air ug/m ³	key	Industrial Air ug/m ³	key	Tapwater ug/L	key	MCL ug/L	Risk-based SSL mg/kg	MCL-based SSL mg/kg		
Cyanides																												
-Calcium Cyanide	592-01-8					4.0E-02	I					1		3.1E+03	n	4.1E+04	n					1.5E+03	n					
-Copper Cyanide	544-92-3					5.0E-03	I					1		3.9E+02	n	5.1E+03	n					1.8E+02	n					
-Cyanide (CN-)	57-12-5					2.0E-02	I					1		1.6E+03	n	2.0E+04	n					7.3E+02	n	2.0E+02	7.4E+00	2.0E+00		
-Cyanogen	460-19-5					4.0E-02	I			V		1		3.1E+03	n	4.1E+04	n					1.5E+03	n					
-Cyanogen Bromide	508-68-3					9.0E-02	I			V		1		7.0E+03	n	9.2E+04	n					3.3E+03	n					
-Cyanogen Chloride	506-77-4					5.0E-02	I			V		1		3.9E+03	n	5.1E+04	n					1.8E+03	n					
-Hydrogen Cyanide	74-90-8					2.0E-02	I	3.0E-03	I	V		1		1.6E+03	n	2.0E+04	n	3.1E+00	n	1.3E+01	n	8.2E+00	n					
-Potassium Cyanide	151-50-8					5.0E-02	I					1		3.9E+03	n	5.1E+04	n					1.8E+03	n					
-Potassium Silver Cyanide	508-61-6					2.0E-01	I				0.04			1.6E+04	n	2.0E+05	nm					7.3E+03	n					
-Silver Cyanide	508-64-9					1.0E-01	I				0.04			7.8E+03	n	1.0E+05	nm					3.7E+03	n					
-Sodium Cyanide	143-33-9					4.0E-02	I					1		3.1E+03	n	4.1E+04	n					1.5E+03	n					
-Thiocyanate	463-56-9					2.0E-04	P			V			5.6E+03	1.6E+01	n	2.0E+02	n					7.3E+00	n			1.5E-03		
-Zinc Cyanide	557-21-1					5.0E-02	I					1		3.9E+03	n	5.1E+04	n					1.8E+03	n					
Cyclohexane	110-82-7							6.0E+00	I	V		1	1.2E+02	7.2E+03	ns	3.0E+04	ns	6.3E+03	n	2.6E+04	n	1.3E+04	n			1.3E+01		
Cyclohexane, 1,2,3,4,5-pentabromo-6-chloro-	87-84-3	2.3E-02	H									1	0.1	2.1E+01	c	7.5E+01	c					2.9E+00	c			2.0E-02		
Cyclohexanone	108-94-1					5.0E+00	I					1	0.1	3.1E+05	nm	3.1E+06	nm					1.8E+05	n			4.2E+01		
Cyclohexylamine	108-91-8					2.0E-01	I					1	0.1	1.2E+04	n	1.2E+05	nm					7.3E+03	n			2.0E+00		
Cyhalothrin/karate	68085-85-8					5.0E-03	I					1	0.1	3.1E+02	n	3.1E+03	n					1.8E+02	n			1.7E+02		
Cypermethrin	52315-07-8					1.0E-02	I					1	0.1	8.1E+02	n	8.2E+03	n					3.7E+02	n			7.9E+01		
Cyromazine	66215-27-8					7.5E-03	I					1	0.1	4.8E+02	n	4.8E+03	n					2.7E+02	n			6.6E-02		
DDD	72-54-8	2.4E-01	I	6.9E-05	C							1	0.1	2.0E+00	c	7.2E+00	c	3.5E-02	c	1.8E-01	c	2.8E-01	c			8.6E-02		
DDE, p,p'-	72-55-9	3.4E-01	I	9.7E-05	C							1	0.1	1.4E+00	c	5.1E+00	c	2.5E-02	c	1.3E-01	c	2.0E-01	c			6.0E-02		
DDT	50-29-3	3.4E-01	I	9.7E-05	I	5.0E-04	I					1	0.03	1.7E+00	c*	7.0E+00	c*	2.5E-02	c	1.3E-01	c	2.0E-01	c*			8.7E-02		
Dacthal	1881-32-1					1.0E-02	I					1	0.1	8.1E+02	n	6.2E+03	n					3.7E+02	n			2.8E-01		
Dalapon	75-99-0					3.0E-02	I					1	0.1	1.8E+03	n	1.8E+04	n					1.1E+03	n	2.0E+02	2.2E-01		4.1E-02	
Decabromodiphenyl ether, 2,2',3,3',4,4',5,5',6,6'- (BDE-209)	1183-19-5	7.0E-04	I			7.0E-03	I					1	0.1	4.3E+02	n	2.5E+03	c**					9.6E+01	c**			7.8E+01		
Demeton	8085-48-3					4.0E-05	I					1	0.1	2.4E+00	n	2.5E+01	n					1.5E+00	n					
Di(2-ethylhexyl)adipate	103-23-1	1.2E-03	I			6.0E-01	I					1	0.1	4.0E+02	c*	1.4E+03	c					5.6E+01	c	4.0E+02	5.5E+00	3.9E+01		
Diallate	2303-16-4					6.1E-02	H					1	0.1	8.0E+00	c	2.8E+01	c					1.1E+00	c			2.5E-03		
Diazinon	333-41-5					7.0E-04	A					1	0.1	4.3E+01	n	4.3E+02	n					2.6E+01	n			7.3E-02		
Dibromo-3-chloropropane, 1,2-	96-12-8	8.0E-01	P	6.0E-03	P	2.0E-04	P	2.0E-04	I	V	M	1	1.1E+03	5.6E-03	c	7.3E-02	c	1.6E-04	c	2.0E-03	c	3.2E-04	c	2.0E-01	1.5E-07		9.2E-05	
Dibromobenzene, 1,4-	108-37-6					1.0E-02	I					1	0.1	6.1E+02	n	6.2E+03	n					3.7E+02	n			3.9E-01		
Dibromochloromethane	124-48-1	8.4E-02	I	2.7E-05	C	2.0E-02	I			V		1	0.1	8.5E+02	7.0E-01	c	3.4E+00	c	9.0E-02	c	4.5E-01	c	1.5E-01	c		4.0E-05		
Dibromomethane, 1,2-	108-93-4	2.0E+00	I	6.0E-04	I	9.0E-03	I	9.0E-03	I	V		1	1.4E+03	3.4E-02	c	1.7E-01	c	4.1E-03	c	2.0E-02	c	6.5E-03	c	5.0E-02	1.9E-06	1.5E-05		
Dibromomethane (Methylene Bromide)	74-95-3					1.0E-02	H			V		1	3.0E+03	7.8E+02	n	1.0E+04	ns					3.7E+02	n			9.1E-02		
Dibutyl Phthalate	84-74-2					1.0E-01	I					1	0.1	6.1E+03	n	6.2E+04	n					3.7E+03	n			1.1E+01		
Dibutyltin Compounds	NA					3.0E-04	P					1	0.1	1.8E+01	n	1.8E+02	n					1.1E+01	n					
Dicamba	1918-00-9					3.0E-02	I					1	0.1	1.8E+03	n	1.8E+04	n					1.1E+03	n			2.8E-01		
Dichloro-2-butene, 1,4-	764-41-0			4.2E-03	P					V		1	6.1E+02	2.0E-03	c	9.9E-03	c	5.8E-04	c	2.9E-03	c	1.2E-03	c			6.1E-07		
Dichloro-2-butene, cis-1,4-	1476-11-5			4.2E-03	P					V		1	6.1E+02	2.1E-03	c	1.1E-02	c	5.8E-04	c	2.9E-03	c	1.2E-03	c			6.1E-07		
Dichloro-2-butene, trans-1,4-	110-57-6			4.2E-03	P					V		1	0.1	5.8E+02	7.3E-03	c	3.7E-02	c	5.8E-04	c	2.9E-03	c	1.2E-03	c		5.8E-07		
Dichloroacetic Acid	79-43-6	5.0E-02	I			4.0E-03	I					1	0.1	9.7E+00	c*	3.4E+01	c*					1.3E+00	c			2.7E-04		
Dichlorobenzene, 1,2-	95-50-1					9.0E-02	I	2.0E-01	H	V		1	2.2E+02	2.0E+03	ns	1.0E+04	ns	2.1E+02	n	8.8E+02	n	3.7E+02	n	6.0E+02	4.0E-01	8.6E-01		
Dichlorobenzene, 1,4-	108-46-7	5.4E-03	C	1.1E-05	C	7.0E-02	A	6.0E-01	I	V		1		2.6E+00	c	1.3E+01	c	2.2E-01	c	1.1E+00	c	4.3E-01	c	7.5E+01	4.6E-04	8.1E-02		
Dichlorobenzidine, 3,3'-	91-84-1	4.5E-01	I	3.4E-04	C							1	0.1	1.1E+00	c	3.8E+00	c	7.2E-03	c	3.6E-02	c	1.5E-01	c			2.3E-03		
Dichlorodifluoromethane	75-71-8					2.0E-01	I	2.0E-01	H	V		1	8.5E+02	1.9E+02	n	7.8E+02	n	2.1E+02	n	8.8E+02	n	3.9E+02	n			6.1E-01		
Dichloroethane, 1,1-	75-34-3	5.7E-03	C	1.6E-06	C	2.0E-01	P			V		1	1.8E+03	3.4E+00	c	1.7E+01	c	1.5E+00	c	7.7E+00	c	2.4E+00	c			7.0E-04		
Dichloroethane, 1,2-	107-06-2	9.1E-02	I	2.8E-05	I	2.0E-02	P	2.4E+00	A	V		1	1.9E+03	4.5E-01	c	2.2E+00	c	9.4E-02	c	4.7E-01	c	1.5E-01	c	5.0E+00	4.4E-05	1.5E-03		
Dichloroethylene, 1,1-	75-35-4					5.0E-02	I	2.0E-01	I	V		1	1.2E+03	2.5E+02	n	1.1E+03	n	2.1E+02	n	8.8E+02	n							

Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; H = HEAST; W = WHO; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; F = See FAQ #28; c = cancer; * = where n SL < 100X c SL; ** = where n SL < 10X c SL; n = noncancer; m = Concentration may exceed ceiling limit (See User's Guide); s = Concentration may exceed Csat (See User's Guide); SSL values are based on DAF=1

Contaminant		Toxicity and Chemical-specific Information													Screening Levels											Protection of Groundwater Soil Screening Levels	
Analyte	CAS No.	SFO (mg/kg-day)	ke (y)	IUR (ug/m ³ -y)	ke (y)	RfDo (mg/kg-day)	ke (y)	RfCI (mg/m ³ -y)	ke (y)	muta- gen	GIABS	ABS	Csat mg/kg	Residential Soil mg/kg	key	Industrial Soil mg/kg	key	Residential Air ug/m ³	key	Industrial Air ug/m ³	key	Tapwater ug/L	key	MCL ug/L	Risk-based SSL mg/kg	MCL-based SSL mg/kg	
Dimethyl methylphosphonate	758-79-6	1.7E-03	P			6.0E-02	P					1	0.1	2.9E+02	c*	1.0E+03	c*					4.0E+01	c*			8.2E-03	
Dimethylamino azobenzene [p-]	60-11-7	4.6E+00	C	1.3E-03	C							1	0.1	1.1E-01	c	3.7E-01	c	1.9E-03	c	9.4E-03	c	1.5E-02	c			3.0E-05	
Dimethylaniline HCl, 2,4-	21436-96-4	5.8E-01	H									1	0.1	8.4E-01	c	3.0E+00	c					1.2E-01	c			5.1E-05	
Dimethylaniline, 2,4-	95-68-1	7.5E-01	H									1	0.1	6.5E-01	c	2.3E+00	c					9.0E-02	c			3.9E-05	
Dimethylaniline, N,N-	121-69-7					2.0E-03	I			V		1	0.1	1.6E+02	n	2.0E+03	ns					7.3E+01	n			2.6E-02	
Dimethylbenzidine, 3,3'-	119-93-7	1.1E+01	P									1	0.1	4.4E-02	c	1.6E-01	c					6.1E-03	c			9.3E-05	
Dimethylformamide	68-12-2					1.0E-01	P	3.0E-02	I			1	0.1	6.1E+03	n	6.2E+04	n	3.1E+01	n	1.3E+02	n	3.7E+03	n			7.5E-01	
Dimethylhydrazine, 1,2-	540-73-8	5.5E+02	C	1.8E-01	C							1	0.1	8.8E-04	c	3.1E-03	c	1.5E-05	c	7.7E-05	c	1.2E-04	c			3.0E-08	
Dimethylphenol, 2,4-	105-67-9					2.0E-02	I					1	0.1	1.2E+03	n	1.2E+04	n					7.3E+02	n			1.2E+00	
Dimethylphenol, 2,6-	578-26-1					6.0E-04	I					1	0.1	3.7E+01	n	3.7E+02	n					2.2E+01	n			3.6E-02	
Dimethylphenol, 3,4-	95-65-8					1.0E-03	I					1	0.1	6.1E+01	n	6.2E+02	n					3.7E+01	n			6.0E-02	
Dimethylterephthalate	120-61-6					1.0E-01	I			V		1	0.1	7.8E+03	ns	1.0E+05	nms					3.7E+03	n			1.0E+00	
Dinitro-o-cresol, 4,6-	534-52-1					1.0E-04	P					1	0.1	6.1E+00	n	6.2E+01	n					3.7E+00	n			5.1E-03	
Dinitro-o-cyclohexyl Phenol, 4,6-	131-89-5					2.0E-03	I					1	0.1	1.2E+02	n	1.2E+03	n					7.3E+01	n			2.1E+00	
Dinitrobenzene, 1,2-	528-29-0					1.0E-04	P					1	0.1	6.1E+00	n	6.2E+01	n					3.7E+00	n			2.4E-03	
Dinitrobenzene, 1,3-	99-65-0					1.0E-04	I					1	0.1	6.1E+00	n	6.2E+01	n					3.7E+00	n			2.3E-03	
Dinitrobenzene, 1,4-	100-25-4					1.0E-04	P					1	0.1	6.1E+00	n	6.2E+01	n					3.7E+00	n			2.3E-03	
Dinitrophenol, 2,4-	51-28-5					2.0E-03	I					1	0.1	1.2E+02	n	1.2E+03	n					7.3E+01	n			6.8E-02	
Dinitrotoluene Mixture, 2,4/2,6-	25321-14-6	6.8E-01	I			1.0E-01	A	3.6E+00	A			1	0.1	7.1E-01	c	2.5E+00	c					9.9E-02	c			9.3E-05	
Dinitrotoluene, 2,4-	121-14-2	3.1E-01	C	8.9E-05	C	2.0E-03	I					1	0.102	1.6E+00	c*	5.5E+00	c	2.7E-02	c	1.4E-01	c	2.2E-01	c			2.0E-04	
Dinitrotoluene, 2,6-	808-20-2					1.0E-03	P					1	0.099	6.1E+01	n	6.2E+02	n					3.7E+01	n			3.4E-02	
Dinitrotoluene, 2-Amino-4,6-	35572-78-2					2.0E-03	I					1	0.006	1.5E+02	n	2.0E+03	n					7.3E+01	n			2.9E-02	
Dinitrotoluene, 4-Amino-2,6-	18408-51-0					2.0E-03	I					1	0.009	1.5E+02	n	1.9E+03	n					7.3E+01	n			2.9E-02	
Dinoseb	88-85-7					1.0E-03	I					1	0.1	6.1E+01	n	6.2E+02	n					3.7E+01	n	7.0E+00		2.7E-01	5.1E-02
Dioxane, 1,4-	123-91-1	1.1E-02	I	7.7E-06	C	1.0E-01	A	3.6E+00	A			1	0.1	4.4E+01	c	1.6E+02	c	3.2E-01	c	1.6E+00	c	6.1E+00	c			1.2E-03	
Dioxins																											
-Hexachlorodibenzo-p-dioxin, Mixture	NA	6.2E+03	I	1.3E+00	I							1	0.03	9.4E-05	c	3.9E-04	c	1.9E-06	c	9.4E-06	c	1.1E-05	c			9.0E-06	
-TCDD, 2,3,7,8-	1746-01-6	1.3E+05	C	3.8E+01	C	1.0E-09	A	4.0E-08	C			1	0.03	4.5E-06	c*	1.8E-05	c*	6.4E-08	c	3.2E-07	c	5.2E-07	c*	3.0E-05		1.5E-07	8.8E-06
Diphenamid	957-51-7					3.0E-02	I					1	0.1	1.8E+03	n	1.8E+04	n					1.1E+03	n			3.4E+01	
Diphenyl Sulfone	127-63-9					3.0E-03	P					1	0.1	1.8E+02	n	1.8E+03	n					1.1E+02	n			6.6E-01	
Diphenylamine	122-39-4					2.5E-02	I					1	0.1	1.5E+03	n	1.5E+04	n					9.1E+02	n			3.6E+00	
Diphenylhydrazine, 1,2-	122-66-7	8.0E-01	I	2.2E-04	I							1	0.1	6.1E-01	c	2.2E+00	c	1.1E-02	c	5.6E-02	c	8.4E-02	c			6.0E-04	
Diquat	85-00-7					2.2E-03	I					1	0.1	1.3E+02	n	1.4E+03	n					8.0E+01	n	2.0E+01		3.3E-01	8.1E-02
Direct Black 38	1937-37-7	7.4E+00	C	2.1E-03	C							1	0.1	6.8E-02	c	2.3E-01	c	1.2E-03	c	5.8E-03	c	9.1E-03	c			1.4E+00	
Direct Blue 6	2602-46-2	7.4E+00	C	2.1E-03	C							1	0.1	6.8E-02	c	2.3E-01	c	1.2E-03	c	5.8E-03	c	9.1E-03	c			4.0E+00	
Direct Brown 95	16071-86-6	6.7E+00	C	1.9E-03	C							1	0.1	7.2E-02	c	2.8E-01	c	1.3E-03	c	6.5E-03	c	1.0E-02	c				
Disulfoton	298-04-4					4.0E-05	I					1	0.1	2.4E+00	n	2.5E+01	n					1.5E+00	n			2.7E-03	
Dithiane, 1,4-	505-29-3					1.0E-02	I					1	0.1	6.1E+02	n	6.2E+03	n					3.7E+02	n			1.9E-01	
Diuron	330-54-1					2.0E-03	I					1	0.1	1.2E+02	n	1.2E+03	n					7.3E+01	n			3.4E-02	
Dodine	2439-10-3					4.0E-03	I			V		1	0.1	2.4E+02	n	2.5E+03	n					1.5E+02	n			4.5E+00	
EPTC	759-94-4					2.5E-02	I			V		1	0.1	2.0E+03	ns	2.8E+04	ns					9.1E+02	n			6.5E-01	
Endosulfan	115-29-7					6.0E-03	I					1	0.1	3.7E+02	n	3.7E+03	n					2.2E+02	n			9.7E+00	
Endothal	145-73-3					2.0E-02	I					1	0.1	1.2E+03	n	1.2E+04	n					7.3E+02	n	1.0E+02		1.6E-01	2.2E-02
Endrin	72-20-8					3.0E-04	I					1	0.1	1.8E+01	n	1.8E+02	n					1.1E+01	n	2.0E+00		2.3E-01	4.3E-02
Epichlorohydrin	106-89-8	9.9E-03	I	1.2E-06	I	6.0E-03	P	1.0E-03	I	V		1	8.4E+03	1.8E+01	n	7.7E+01	n	1.0E+00	n	4.4E+00	n	2.1E+00	n			4.3E-04	
Epoxybutane, 1,2-	106-88-7					2.0E-02	I	V				1	1.2E+04	1.5E+02	n	6.4E+02	n	2.1E+01	n	8.8E+01	n	4.2E+01	n			8.7E-03	
Ethephon	18672-87-0					5.0E-03	I					1	0.1	3.1E+02	n	3.1E+03	n					1.8E+02	n			3.8E-02	
Ethion	563-12-2					5.0E-04	I					1	0.1	3.1E+01	n	3.1E+02	n					1.8E+01	n			4.8E-01	
Ethoxyethanol Acetate, 2-	111-15-9					3.0E-01	H	3.0E-01	C			1	0.1	1.8E+04	n	1.8E+05	nm	3.1E+02	n	1.3E+03	n	1.1E+04	n			2.2E+00	
Ethoxyethanol, 2-	110-80-5					4.0E-01	H	2.0E-01	I			1	0.1	2.4E+04	n	2.5E+05	nm	2.1E+02	n	8.8E+02	n	1.5E+04	n			2.9E+00	
Ethyl Acetate	141-78-6					9.0E-01	I			V		1	1.1E+04	7.0E+04	ns	9.2E+05	nms					3.3E+04	n			7.0E+00	
Ethyl Acrylate	140-88-5																										

Key: I = IRIS; P = PPRVT; A = ATSDR; C = Cal EPA; H = HEAST; W = WHO; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; F = See FAQ #28; c = cancer; * = where n SL < 100X c SL; ** = where n SL < 10X c SL; n = noncancer; m = Concentration may exceed ceiling limit (See User's Guide); s = Concentration may exceed Csat (See User's Guide); SSL values are based on DAF=1

Contaminant		Toxicity and Chemical-specific Information													Screening Levels										Protection of Groundwater Soil Screening Levels	
Analyte	CAS No.	SFO (mg/kg-day)	k _e IUR (ug/m ³ -y)	k _e RfD (mg/kg-day)	k _e RfC (mg/m ³ -y)	k _e v o muta- gen	GIABS	ABS	Csat mg/kg	Residential Soil mg/kg	key	Industrial Soil mg/kg	key	Residential Air ug/m ³	key	Industrial Air ug/m ³	key	Tapwater ug/L	key	MCL ug/L	Risk-based SSL mg/kg	MCL-based SSL mg/kg				
~Naphthalene	91-20-3		3.4E-05	C	2.0E-02	I		3.0E-03	I	V	1	0.13			3.9E+00	c*	2.0E+01	c*	1.4E-01	c*		5.5E-04				
~Pyrene	129-00-0				3.0E-02	I			V	1	0.13			1.7E+03	n	1.7E+04	n		1.1E+03	n		1.5E+02				
Potassium Perchlorate	7778-74-7				7.0E-04	I				1				5.5E+01	n	7.2E+02	n		2.8E+01	n						
Prochloraz	67747-09-5	1.5E-01	I		9.0E-03	I				1	0.1			3.2E+00	c	1.1E+01	c		4.5E-01	c		2.5E-03				
Profluralin	26389-36-0				6.0E-03	H				1	0.1			3.7E+02	n	3.7E+03	n		2.2E+02	n		8.0E+00				
Prometon	1610-18-0				1.5E-02	I				1	0.1			9.2E+02	n	9.2E+03	n		5.5E+02	n		2.8E-01				
Prometryn	7287-19-6				4.0E-03	I				1	0.1			2.4E+02	n	2.5E+03	n		1.5E+02	n		2.3E-01				
Propachlor	1818-16-7				1.3E-02	I				1	0.1			7.9E+02	n	8.0E+03	n		4.7E+02	n		3.7E-01				
Propanil	709-98-8				5.0E-03	I				1	0.1			3.1E+02	n	3.1E+03	n		1.8E+02	n		1.1E-01				
Propargite	2312-35-8				2.0E-02	I				1	0.1			1.2E+03	n	1.2E+04	n		7.3E+02	n		2.0E+02				
Propargyl Alcohol	107-19-7				2.0E-03	I				1	0.1			1.2E+02	n	1.2E+03	n		7.3E+01	n		1.5E-02				
Propazine	139-40-2				2.0E-02	I				1	0.1			1.2E+03	n	1.2E+04	n		7.3E+02	n		6.7E-01				
Propham	122-42-9				2.0E-02	I				1	0.1			1.2E+03	n	1.2E+04	n		7.3E+02	n		3.3E-01				
Propiconazole	60207-90-1				1.3E-02	I				1	0.1			7.9E+02	n	8.0E+03	n		4.7E+02	n		5.4E+00				
Propionaldehyde	123-38-6					8.0E-03	I	V		3.6E+04				8.6E+01	n	3.6E+02	n	8.3E+00	n	3.5E+01	n	1.7E+01	3.4E-03			
Propylene Glycol	57-55-6				2.0E+01	P				1	0.1			1.2E+06	nm	1.2E+07	nm		7.3E+05	n		1.5E+02				
Propylene Glycol Dinitrate	6423-43-4					2.7E-04	A	V		1.4E+03				6.0E+01	n	2.5E+02	n	2.8E-01	n	1.2E+00	n	5.7E-01	1.9E-04			
Propylene Glycol Monoethyl Ether	1569-02-4				7.0E-01	H				1	0.1			4.3E+04	n	4.3E+05	nm		2.6E+04	n		5.2E+00				
Propylene Glycol Monomethyl Ether	107-98-2				7.0E-01	H	2.0E+00	I		1	0.1			4.3E+04	n	4.3E+05	nm	2.1E+03	n	8.8E+03	n	2.6E+04	5.2E+00			
Propylene Oxide	75-56-9	2.4E-01	I	3.7E-06	I	3.0E-02	I	V		6.8E+04				1.9E+00	c	8.7E+00	c	6.6E-01	c*	3.3E+00	c*	2.3E-01	4.7E-05			
Pursuit	81335-77-5				2.5E-01	I				1	0.1			1.5E+04	n	1.5E+05	nm		9.1E+03	n		2.7E+01				
Pydrin	51830-58-1				2.5E-02	I				1	0.1			1.5E+03	n	1.5E+04	n		9.1E+02	n		8.1E+02				
Pyridine	110-86-1				1.0E-03	I		V		3.0E+05				7.8E+01	n	1.0E+03	n		3.7E+01	n		9.7E-03				
Quinalphos	13593-03-8				5.0E-04	I				1	0.1			3.1E+01	n	3.1E+02	n		1.8E+01	n		7.1E-02				
Quinoline	91-22-5	3.0E+00	I							1	0.1			1.6E-01	c	5.7E-01	c		2.2E-02	c		8.7E-05				
Refractory Ceramic Fibers	NA					3.0E-02	A			1				4.3E+07	nm	1.8E+08	nm	3.1E+01	n	1.3E+02	n					
Resmethrin	10453-88-8				3.0E-02	I				1	0.1			1.8E+03	n	1.8E+04	n		1.1E+03	n		9.3E+02				
Ronnel	299-84-3				5.0E-02	H				1	0.1			3.1E+03	n	3.1E+04	n		1.8E+03	n		7.7E+00				
Rotenone	83-79-4				4.0E-03	I				1	0.1			2.4E+02	n	2.5E+03	n		1.5E+02	n		1.0E+02				
Safrole	94-59-7	2.2E-01	C	6.3E-05	C					1	0.1			2.2E+00	c	7.8E+00	c	3.9E-02	c	1.9E-01	c	3.1E-01	2.4E-04			
Savay	78587-05-0				2.5E-02	I				1	0.1			1.5E+03	n	1.5E+04	n		9.1E+02	n		7.8E+00				
Selenious Acid	7783-00-8				5.0E-03	I				1				3.9E+02	n	5.1E+03	n		1.8E+02	n						
Selenium	7782-49-2				5.0E-03	I	2.0E-02	C		1				3.9E+02	n	5.1E+03	n	2.1E+01	n	8.8E+01	n	1.8E+02	5.0E+01	9.5E-01	2.6E-01	
Selenourea	630-10-4				5.0E-03	H				1	0.1			3.1E+02	n	3.1E+03	n		1.8E+02	n						
Sethoxydim	74051-80-2				9.0E-02	I				1	0.1			5.5E+03	n	5.5E+04	n		3.3E+03	n		1.9E+01				
Silver	7440-22-4				5.0E-03	I			0.04					3.9E+02	n	5.1E+03	n		1.8E+02	n		1.6E+00				
Simazine	122-34-9	1.2E-01	H		5.0E-03	I				1	0.1			4.0E+00	c*	1.4E+01	c		5.6E-01	c	4.0E+00	2.8E-04	2.0E-03			
Sodium Acifluorfen	62476-59-9				1.3E-02	I				1	0.1			7.9E+02	n	8.0E+03	n		4.7E+02	n		3.1E+00				
Sodium Azide	26828-22-8				4.0E-03	I				1				3.1E+02	n	4.1E+03	n		1.5E+02	n						
Sodium Diethyldithiocarbamate	148-18-5	2.7E-01	H		3.0E-02	I				1	0.1			1.8E+00	c	6.4E+00	c		2.5E-01	c						
Sodium Fluoride	7681-49-4				5.0E-02	A				1				3.9E+03	n	5.1E+04	n		1.8E+03	n						
Sodium Fluoroacetate	62-74-8				2.0E-05	I				1	0.1			1.2E+00	n	1.2E+01	n		7.3E-01	n		1.5E-04				
Sodium Metavanadate	13718-26-8				1.0E-03	H				1				7.8E+01	n	1.0E+03	n		3.7E+01	n						
Sodium Perchlorate	7601-89-0				7.0E-04	I				1				5.5E+01	n	7.2E+02	n		2.6E+01	n						
Stirofos (Tetrachlorovinphos)	981-11-5	2.4E-02	H		3.0E-02	I				1	0.1			2.0E+01	c*	7.2E+01	c		2.8E+00	c		2.2E-03				
Strontium, Stable	7440-24-6				6.0E-01	I				1				4.7E+04	n	6.1E+05	nm		2.2E+04	n		7.7E+02				
Strychnine	57-24-9				3.0E-04	I	1.0E+00	I	V	1	0.1			1.8E+01	n	1.8E+02	n		1.1E+01	n		1.4E-01				
Styrene	100-42-5				2.0E-01	I				1				6.5E+03	ns	3.8E+04	ns	1.0E+03	n	4.4E+03	n	1.6E+03	1.0E+02	2.0E+00	1.2E-01	
Sulfonylbis(4-chlorobenzene), 1,1'-	80-07-9				5.0E-03	P				1	0.1			3.1E+02	n	3.1E+03	n		1.8E+02	n		2.8E+00				
Systhane	88671-89-0				2.5E-02	I				1	0.1			1.5E+03	n	1.5E+04	n		9.1E+02	n		2.1E+02				
TCMTB	21564-17-0				3.0E-02	H				1	0.1			1.8E+03	n	1.8E+04	n		1.1E+03	n		8.3E+00				
Tebuthiuron	34014-18-1				7.0E-02	I				1	0.1			4.3E+03	n	4.3E+04	n		2.6E+03	n		6.3E-01				
Temephos	3383-96-8				2.0E-02	H				1	0.1			1.2E+03	n	1.2E+04	n		7.3E+02	n		2.3E+03				
Terbacil	5902-51-2				1.3E-02	I				1	0.1			7.9E+02	n	8.0E+03	n		4.7E+02	n		1.7E-01				
Terbufos	13071-79-9				2.5E-05	H				1	0.1			1.5E+00	n	1.5E+01	n		9.1E-01	n		2.0E-03				
Terbutryn	886-50-0				1.0E-03	I				1	0.1			6.1E+01	n	6.2E+02	n		3.7E+01	n		5.4E-02				
Tetrabromodiphenyl ether, 2,2',4,4'- (BDE-47)	5436-43-1				1.0E-04	I								7.8E+00	n	1.0E+02	n		3.7E+00	n						
Tetrachlorobenzene, 1,2,4,5-	95-94-3				3.0E-04	I				1	0.1			1.8E+01	n	1.8E+02	n		1.1E+01	n		2.8E-02				
Tetrachloroethane, 1,1,1,2-	630-20-6	2.6E-02	I	7.4E-06	I	3.0E-02	I	V		7.5E+02																

Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; H = HEAST; W = WHO; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; F = See FAQ #28; c = cancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; n = noncancer; m = Concentration may exceed ceiling limit
(See User's Guide); s = Concentration may exceed Csat (See User's Guide); SSL values are based on DAF=1

Contaminant		Toxicity and Chemical-specific Information														Screening Levels										Protection of Groundwater Soil Screening Levels	
Analyte	CAS No.	SFO (mg/kg-day)	k _e (y)	IUR (ug/m ³ -y)	k _e (y)	RfDo (mg/kg-day)	k _e (y)	RfCI (mg/m ³ -y)	k _e (y)	V	muta- gen	GIABS	ABS	Csat mg/kg	Residential Soil mg/kg	key	Industrial Soil mg/kg	key	Residential Air ug/m ³	key	Industrial Air ug/m ³	key	Tapwater ug/L	key	MCL ug/L	Risk-based SSL mg/kg	MCL-based SSL mg/kg
Formic Acid	64-18-6	2.0E+00				2.0E+00	H	3.0E-03	P			1	0.1		1.2E+05	nm	1.2E+06	nm	3.1E+00	n	1.3E+01	n	7.3E+04	n		1.5E+01	
Fosetyl-AL	39148-24-8	3.0E+00										1	0.1		1.8E+05	nm	1.8E+06	nm					1.1E+05	n			
Furans ~Furan	110-00-8					1.0E-03				V		1		6.8E+03	7.8E+01	n	1.0E+03	n					3.7E+01	n		1.5E-02	
Furazolidone	67-45-8	3.8E+00	H									1	0.1		1.3E-01	c	4.5E-01	c					1.8E-02	c		3.3E-05	
Furfural	98-01-1					3.0E-03	I	5.0E-02	H			1	0.1		1.8E+02	n	1.8E+03	n	5.2E+01	n	2.2E+02	n	1.1E+02	n		2.6E-02	
Furium	531-82-8	1.5E+00	C	4.3E-04	C							1	0.1		3.2E-01	c	1.1E+00	c	5.7E-03	c	2.9E-02	c	4.5E-02	c		5.3E-05	
Furmecyclo	60568-05-0	3.0E-02	I	8.6E-06	C							1	0.1		1.8E+01	c	5.7E+01	c	2.8E-01	c	1.4E+00	c	2.2E+00	c		7.4E-03	
Glufosinate, Ammonium	77182-82-2					4.0E-04	I					1	0.1		2.4E+01	n	2.5E+02	n					1.5E+01	n		4.7E-03	
Glycidyl	765-34-4					4.0E-04	I	1.0E-03	H			1	0.1		2.4E+01	n	2.5E+02	n	1.0E+00	n	4.4E+00	n	1.5E+01	n		2.9E-03	
Glyphosate	1071-83-6					1.0E-01	I					1	0.1		6.1E+03	n	6.2E+04	n					3.7E+03	n	7.0E+02	8.7E-01	1.7E-01
Goal	42874-03-3					3.0E-03	I					1	0.1		1.8E+02	n	1.8E+03	n					1.1E+02	n		1.0E+01	
Guthion	86-50-0					3.0E-03	A	1.0E-02	A			1	0.1		1.8E+02	n	1.8E+03	n	1.0E+01	n	4.4E+01	n	1.1E+02	n		3.7E-02	
Haloxypol, Methyl	69806-40-2					5.0E-05	I					1	0.1		3.1E+00	n	3.1E+01	n					1.8E+00	n		6.5E-02	
Harmony	79277-27-3					1.3E-02	I					1	0.1		7.9E+02	n	8.0E+03	n					4.7E+02	n		1.3E-01	
Heptachlor	76-44-8	4.5E+00	I	1.3E-03	I	5.0E-04	I					1	0.1		1.1E-01	c	3.8E-01	c	1.9E-03	c	9.4E-03	c	1.5E-02	c	4.0E-01	1.6E-03	4.2E-02
Heptachlor Epoxide	1024-57-3	9.1E+00	I	2.6E-03	I	1.3E-05	I					1	0.1		5.3E-02	c*	1.9E-01	c*	9.4E-04	c	4.7E-03	c	7.4E-03	c*	2.0E-01	7.9E-05	2.1E-03
Hexabromobenzene	87-82-1					2.0E-03	I					1	0.1		1.2E+02	n	1.2E+03	n					7.3E+01	n		5.1E-01	
Hexabromodiphenyl ether, 2,2',4,4',5,5'-(BDE-153)	68631-49-2					2.0E-04	I					1	0.1		1.8E+01	n	2.0E+02	n					7.3E+00	n			
Hexachlorobenzene	118-74-1	1.6E+00	I	4.6E-04	I	8.0E-04	I					1	0.1		3.0E-01	c	1.1E+00	c	5.3E-03	c	2.7E-02	c	4.2E-02	c	1.0E+00	2.9E-04	7.0E-03
Hexachlorobutadiene	87-88-3	7.8E-02	I	2.2E-05	I	1.0E-03	P					1	0.1		6.2E+00	c**	2.2E+01	c*	1.1E-01	c	5.6E-01	c	8.8E-01	c*		1.9E-03	
Hexachlorocyclohexane, Alpha-	319-84-8	6.3E+00	I	1.8E-03	I	8.0E-03	A					1	0.1		7.7E-02	c	2.7E-01	c	1.4E-03	c	6.8E-03	c	1.1E-02	c		7.4E-05	
Hexachlorocyclohexane, Beta-	319-85-7	1.8E+00	I	5.3E-04	I							1	0.1		2.7E-01	c	9.6E-01	c	4.6E-03	c	2.3E-02	c	3.7E-02	c		2.6E-04	
Hexachlorocyclohexane, Gamma- (Lindane)	58-89-9	1.1E+00	C	3.1E-04	C	3.0E-04	I					1	0.04		5.2E-01	c*	2.1E+00	c	7.8E-03	c	4.0E-02	c	6.1E-02	c	2.0E-01	4.3E-04	1.4E-03
Hexachlorocyclohexane, Technical	608-73-1	1.8E+00	I	5.1E-04	I							1	0.1		2.7E-01	c	9.6E-01	c	4.8E-03	c	2.4E-02	c	3.7E-02	c		2.6E-04	
Hexachlorocyclopentadiene	77-47-4					6.0E-03	I	2.0E-04	I			1	0.1		3.7E+02	n	3.7E+03	n	2.1E-01	n	8.8E-01	n	2.2E+02	n	5.0E+01	8.0E-01	1.8E-01
Hexachloroethane	67-72-1	1.4E-02	I	4.0E-06	I	1.0E-03	I					1	0.1		3.5E+01	c**	1.2E+02	c**	6.1E-01	c	3.1E+00	c	4.8E+00	c**		3.2E-03	
Hexachlorophene	70-30-4					3.0E-04	I					1	0.1		1.8E+01	n	1.8E+02	n					1.1E+01	n		1.4E+01	
Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX)	121-82-4	1.1E-01	I			3.0E-03	I					1	0.015		5.5E+00	c*	2.4E+01	c					6.1E-01	c		3.6E-04	
Hexamethylene Diisocyanate, 1,6-	822-06-0							1.0E-05	I	V		1		4.1E+03	3.7E+00	n	1.6E+01	n	1.0E-02	n	4.4E-02	n	2.1E-02	n		2.5E-04	
Hexane, N-	110-54-3					6.0E-02	H	7.0E-01	I	V		1		1.4E+02	5.7E+02	ns	2.6E+03	ns	7.3E+02	n	3.1E+03	n	8.8E+02	n		6.2E+00	
Hexanedioic Acid	124-04-9					2.0E+00	P					1	0.1		1.2E+05	nm	1.2E+06	nm					7.3E+04	n		1.8E+01	
Hexazinone	51235-04-2					3.3E-02	I					1	0.1		2.0E+03	n	2.0E+04	n					1.2E+03	n		1.7E+00	
Hydrazine	302-01-2	3.0E+00	I	4.9E-03	I			2.0E-04	C			1			2.1E-01	c	9.5E-01	c	5.0E-04	c	2.5E-03	c	2.2E-02	c			
Hydrazine Sulfate	10034-93-2	3.0E+00	I	4.9E-03	I							1			2.1E-01	c	9.5E-01	c	5.0E-04	c	2.5E-03	c	2.2E-02	c			
Hydrogen Chloride	7647-01-0							2.0E-02	I			1			2.8E+07	nm	1.2E+08	nm	2.1E+01	n	8.8E+01	n					
Hydrogen Fluoride	7664-39-3					4.0E-02	C	1.4E-02	C			1			3.1E+03	n	4.1E+04	n	1.5E+01	n	6.1E+01	n	1.5E+03	n			
Hydrogen Sulfide	7783-06-4							2.0E-03	I			1			2.8E+06	nm	1.2E+07	nm	2.1E+00	n	8.8E+00	n					
Hydroquinone	123-31-9	5.6E-02	P			4.0E-02	P					1	0.1		8.7E+00	c	3.1E+01	c					1.2E+00	c		1.3E-03	
Imazali	35554-44-0					1.3E-02	I					1	0.1		7.9E+02	n	8.0E+03	n					4.7E+02	n		1.9E+00	
Imazaquin	81335-37-7					2.5E-01	I					1	0.1		1.5E+04	n	1.5E+05	nm					9.1E+03	n		9.2E+01	
Iodine	7553-56-2					1.0E-02	A					1			7.8E+02	n	1.0E+04	n					3.7E+02	n			
Iprodione	36734-19-7					4.0E-02	I					1	0.1		2.4E+03	n	2.5E+04	n					1.5E+03	n		7.0E-01	
Iron	7439-89-8					7.0E-01	P					1			5.5E+04	n	7.2E+05	nm					2.6E+04	n		6.4E+02	
Isobutyl Alcohol	78-83-1					3.0E-01	I			V		1		9.6E+03	2.3E+04	ns	3.1E+05	nms					1.1E+04	n		2.2E+00	
Isophorone	78-59-1	9.5E-04	I			2.0E-01	I	2.0E+00	C			1	0.1		5.1E+02	c*	1.8E+03	c*	2.1E+03	n	8.8E+03	n	7.1E+01	c		2.2E-02	
Isopropalin	33820-53-0					1.5E-02	I					1	0.1		9.2E-02	nm	9.2E+03	n					5.5E+02	n		7.4E+00	
Isopropanol	67-63-0							7.0E+00	C			1	0.1		9.9E+09	nm	4.2E+10	nm	7.3E+03	n	3.1E+04	n					
Isopropyl Methyl Phosphonic Acid	1832-54-8					1.0E-01	I					1	0.1		6.1E+03	n	6.2E+04	n					3.7E+03	n		7.7E-01	
Isoxaben	82558-50-7					5.0E-02	I					1	0.1		3.1E+03	n	3.1E+04	n					1.8E+03	n		1.1E+01	
JP-7	NA							3.0E-01	A	V		1			4.3E+08	nm	1.8E+09	nm	3.1E+02	n	1.3E+03						

Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; H = HEAST; W = WHO; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; F = See FAQ #28; c = cancer; * = where n SL < 100 c SL; ** = where n SL < 10X c SL; n = noncancer; m = Concentration may exceed ceiling limit
(See User's Guide); s = Concentration may exceed Csat (See User's Guide); SSL values are based on DAF=1

Contaminant		Toxicity and Chemical-specific Information														Screening Levels										Protection of Groundwater Soil Screening Levels		
Analyte	CAS No.	SFO (mg/kg-day)	ke (y)	IUR (ug/m ³ -y)	ke (y)	RfDo (mg/kg-day)	ke (y)	RfCI (mg/m ³ -y)	ke (y)	muta- gen	GIABS	ABS	Csat mg/kg	Residential Soil mg/kg	key	Industrial Soil mg/kg	key	Residential Air ug/m ³	key	Industrial Air ug/m ³	key	Tapwater ug/L	key	MCL ug/L	Risk-based SSL mg/kg	MCL-based SSL mg/kg		
~Mercury, Inorganic Salts	NA					3.0E-04	I					0.07		2.3E+01	n	3.1E+02	n					1.1E+01	n		5.7E-01			
~Methyl Mercury	22967-92-6					1.0E-04	I					1		7.8E+00	n	1.0E+02	n					3.7E+00	n					
~Phenylmercuric Acetate	62-38-4					8.0E-05	I					0.1		4.9E+00	n	4.9E+01	n					2.9E+00	n		1.6E-03			
Merphos	150-50-5					3.0E-05	I					0.1		1.8E+00	n	1.8E+01	n					1.1E+00	n		1.4E-01			
Merphos Oxide	78-48-8					3.0E-05	I					0.1		1.8E+00	n	1.8E+01	n					1.1E+00	n		4.4E-03			
Metalaxyl	57837-19-1					6.0E-02	I					0.1		3.7E+03	n	3.7E+04	n					2.2E+03	n		5.4E-01			
Methacrylonitrile	128-98-7					1.0E-04	I	7.0E-04	H V				4.5E+03	3.2E+00	n	1.8E+01	n	7.3E-01	n	3.1E+00	n	1.0E+00	n		2.4E-04			
Methamidophos	10265-92-6					5.0E-05	I					0.1		3.1E+00	n	3.1E+01	n					1.8E+00	n		3.8E-04			
Methanol	67-56-1					5.0E-01	I	4.0E+00	C				0.1	3.1E+04	n	3.1E+05	nm	4.2E+03	n	1.8E+04	n	1.8E+04	n		3.7E+00			
Methidathion	950-37-8					1.0E-03	I						0.1	6.1E+01	n	6.2E+02	n					3.7E+01	n		6.0E-03			
Methomyl	16752-77-5					2.5E-02	I						0.1	1.5E+03	n	1.5E+04	n					9.1E+02	n		2.0E-01			
Methoxy-S-nitroaniline, 2-	98-59-2	4.9E-02	C	1.4E-05	C								0.1	9.9E+00	c	3.5E+01	c	1.7E-01	c	8.8E-01	c	1.4E+00	c	4.0E+01	3.8E-04			
Methoxychlor	72-43-5					5.0E-03	I						0.1	3.1E+02	n	3.1E+03	n					1.8E+02	n		1.6E+01	3.4E+00		
Methoxyethanol Acetate, 2-	110-49-6					2.0E-03	H	9.0E-02	C				0.1	1.2E+02	n	1.2E+03	n	9.4E+01	n	3.9E+02	n	7.3E+01	n		1.5E-02			
Methoxyethanol, 2-	109-86-4					3.0E-03	P	2.0E-02	I				0.1	1.8E+02	n	1.8E+03	n	2.1E+01	n	8.8E+01	n	1.1E+02	n		2.2E-02			
Methyl Acetate	79-20-9					1.0E+00	H			V			2.9E+04	7.8E+04	ns	1.0E+06	nms					3.7E+04	n		7.6E+00			
Methyl Acrylate	96-33-3					3.0E-02	H			V			6.9E+03	2.3E+03	n	3.1E+04	ns					1.1E+03	n		2.3E-01			
Methyl Ethyl Ketone (2-Butanone)	78-93-3					6.0E-01	I	5.0E+00	I V				2.8E+04	2.8E+04	ns	1.9E+05	nms	5.2E+03	n	2.2E+04	n	7.1E+03	n		1.5E+00			
Methyl Isobutyl Ketone (4-methyl-2-pentanone)	108-10-1					8.0E-02	H	3.0E+00	I V				3.2E+03	5.3E+03	ns	5.2E+04	ns	3.1E+03	n	1.3E+04	n	2.0E+03	n		4.4E-01			
Methyl Methacrylate	80-82-6					1.4E+00	I	7.0E-01	I V				2.5E+03	4.7E+03	ns	2.0E+04	ns	7.3E+02	n	3.1E+03	n	1.4E+03	n		3.1E-01			
Methyl Parathion	298-00-0					2.5E-04	I						0.1	1.5E+01	n	1.5E+02	n					9.1E+00	n		1.1E-02			
Methyl Phosphonic Acid	993-13-5					2.0E-02	P						0.1	1.2E+03	n	1.2E+04	n					7.3E+02	n		1.5E-01			
Methyl Styrene (Mixed Isomers)	25013-15-4					6.0E-03	H	4.0E-02	H V				4.5E+02	1.9E+02	n	1.1E+03	ns	4.2E+01	n	1.8E+02	n	8.0E+01	n		1.1E-01			
Methyl methanesulfonate	66-27-3	9.9E-02	C	2.8E-05	C								0.1	4.9E+00	c	1.7E+01	c	8.7E-02	c	4.4E-01	c	6.8E-01	c		1.5E-04			
Methyl tert-Butyl Ether (MTBE)	1634-04-4	1.8E-03	C	2.6E-07	C			3.0E+00	I V				6.9E+03	3.9E+01	c	1.8E+02	c	9.4E+00	c	4.7E+01	c	1.2E+01	c		2.7E-03			
Methyl-S-Nitroaniline, 2-	98-55-8	3.3E-02	H										0.1	1.5E+01	c	5.2E+01	c					2.0E+00	c		7.8E-04			
Methylaniline Hydrochloride, 2-	636-21-5	1.3E-01	C	3.7E-05	C								0.1	3.7E+00	c	1.3E+01	c	6.6E-02	c	3.3E-01	c	5.2E-01	c		1.8E-04			
Methylarsonic acid	124-58-3					1.0E-02	A						0.1	6.1E+02	n	6.2E+03	n					3.7E+02	n		8.0E-03			
Methylcholanthrene, 3-	58-49-5	2.2E+01	C	6.3E-03	C								0.1	2.2E-02	c	7.8E-02	c	3.9E-04	c	1.9E-03	c	3.1E-03	c	5.0E+00	1.3E-03			
Methylene Chloride	75-09-2	7.5E-03	I	4.7E-07	I	6.0E-02	I	1.0E+00	A V				3.5E+03	1.1E+01	c	5.4E+01	c	5.2E+00	c	2.6E+01	c	4.8E+00	c		1.2E-03			
Methylene-bis(2-chloroaniline), 4,4'-	101-14-4	1.0E-01	P	4.3E-04	C	2.0E-03	P			M			0.1	1.2E+00	c	1.7E+01	c*	2.2E-03	c	2.9E-02	c	2.2E-01	c		5.9E-03			
Methylene-bis(N,N-dimethyl) Aniline, 4,4'-	101-61-1	4.6E-02	I	1.3E-05	C								0.1	1.1E+01	c	3.7E+01	c	1.9E-01	c	9.4E-01	c	1.5E+00	c		4.3E-02			
Methylenbisbenzenamine, 4,4'-	101-77-9	1.6E+00	C	4.6E-04	C			2.0E-02	C				0.1	3.0E-01	c	1.1E+00	c	5.3E-03	c	2.7E-02	c	4.2E-02	c		4.2E-04			
Methylenediphenyl Diisocyanate	101-68-8					6.0E-04	I						0.1	8.5E+05	nm	3.6E+06	nm	6.3E-01	n	2.8E+00	n				4.7E+00			
Methylstyrene, Alpha-	98-83-9					7.0E-02	H			V			4.5E+02	5.5E+03	ns	7.2E+04	ns					2.6E+03	n		4.7E+00			
Metolachlor	51218-45-2					1.5E-01	I						0.1	9.2E+03	n	9.2E+04	n					5.5E+03	n		4.3E+00			
Metribuzin	21087-64-9					2.5E-02	I						0.1	1.5E+03	n	1.5E+04	n					9.1E+02	n		2.4E+00			
Mirex	2385-85-5	1.8E+01	C	5.1E-03	C								0.1	2.7E-02	c	9.6E-02	c	4.8E-04	c	2.4E-03	c	3.7E-03	c		3.5E-03			
Molinate	2212-67-1					2.0E-03	I						0.1	1.2E+02	n	1.2E+03	n					7.3E+01	n		5.6E-02			
Molybdenum	7439-98-7					5.0E-03	I							3.9E+02	n	5.1E+03	n					1.8E+02	n		3.7E+00			
Monochloramine	10599-90-3					1.0E-01	I							7.8E+03	n	1.0E+05	nm					3.7E+03	n					
Monomethylamine	100-61-8					2.0E-03	P						0.1	1.2E+02	n	1.2E+03	n					7.3E+01	n		2.4E-02			
N,N'-Diphenyl-1,4-benzenediamine	74-31-7					3.0E-04	P						0.1	1.8E+01	n	1.8E+02	n					1.1E+01	n		2.6E+00			
Naled	300-76-5					2.0E-03	I						0.1	1.2E+02	n	1.2E+03	n					7.3E+01	n		2.9E-02			
Naphthylamine, 2-	91-59-8	1.8E+00	C	0.0E+00	C								0.1	2.7E-01	c	9.6E-01	c					3.7E-02	c		2.3E-04			
Napropamide	15299-99-7					1.0E-01	I						0.1	6.1E+03	n	6.2E+04	n					3.7E+03	n		8.5E+01			
Nickel Refinery Dust	NA					2.4E-04	I						0.04	1.4E+04	c	6.9E+04	c	1.0E-02	c	5.1E-02	c				4.8E+01			
Nickel Soluble Salts	7440-02-0					2.6E-04	C	2.0E-02	I	9.0E-05	A		0.04	1.5E+03	n	2.0E+04	n	9.4E-03	c*	4.7E-02	c**	7.3E+02	n					
Nickel Subsulfide	12035-72-2	1.7E+00	C	4.8E-04	I								0.04	3.8E-01	c	1.7E+00	c	5.1E-03	c	2.6E-02	c	4.0E-02	c	1.0E+04				
Nitrate	14797-55-8					1.6E+00	I							1.3E+05	nm	1.8E+06	nm					5.8E+04	n					
Nitrite	14797-65-0					1.0E-01	I							7.8E+03	n	1.0E+05	nm					3.7E+03	n	1.0E+03				
Nitroaniline, 2-	88-74-4					3.0E-03	P	1.0E-04	P				0.1	1.8E+02	n	1.8E+03	n	1.0E-01	n	4.4E-01	n	1.1E+02	n		3.3E-02			
Nitroaniline, 4-	100-01-8	2.0E-02	P			4.0E-03	P	6.0E-03	P				</															

Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; H = HEAST; W = WHO; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; F = See FAQ #28; c = cancer; * = where n SL < 100X c SL; ** = where n SL < 10X c SL; n = noncancer; m = Concentration may exceed ceiling limit (See User's Guide); s = Concentration may exceed Csat (See User's Guide); SSL values are based on DAF=1

Contaminant		Toxicity and Chemical-specific Information												Screening Levels												Protection of Groundwater Soil Screening Levels	
	CAS No.	SFO (mg/kg-day)	k _e (y)	IUR (ug/m ³)	k _e (y)	RfDo (mg/kg-day)	k _e (y)	RfCi (mg/m ³)	k _e (y)	v _o (c)	muta- gen	GIABS	ABS	Csat mg/kg	Residential Soil mg/kg	key	Industrial Soil mg/kg	key	Residential Air ug/m ³	key	Industrial Air ug/m ³	key	Tapwater ug/L	key	MCL ug/L	Riek-based SSL mg/kg	MCL-based SSL mg/kg
Octabromodiphenyl Ether	32536-52-0					3.0E-03	I							0.1	1.8E+02	n	1.8E+03	n					1.1E+02	n			3.1E+01
Octahydro-1,3,5,7-tetranitro-1,3,5,7-tetra (HMX)	2691-41-0					5.0E-02	I							0.006	3.8E+03	n	4.9E+04	n					1.8E+03	n			7.1E+00
Octamethylpyrophosphoramide	152-16-9					2.0E-03	H							0.1	1.2E+02	n	1.2E+03	n					7.3E+01	n			1.3E-01
Oryzalin	19044-88-3					5.0E-02	I							0.1	3.1E+03	n	3.1E+04	n					1.8E+03	n			4.8E+00
Oxadiazon	19666-30-9					5.0E-03	I							0.1	3.1E+02	n	3.1E+03	n					1.8E+02	n			1.3E+00
Oxamyl	23135-22-0					2.5E-02	I							0.1	1.5E+03	n	1.5E+04	n					9.1E+02	n	2.0E+02	2.0E-01	4.4E-02
Paclitaxel	76738-62-0					1.3E-02	I							0.1	7.9E+02	n	8.0E+03	n					4.7E+02	n			1.2E+01
Paraquat Dichloride	1910-42-5					4.5E-03	I							0.1	2.7E+02	n	2.8E+03	n					1.6E+02	n			4.9E-01
Parathion	56-38-2					6.0E-03	H							0.1	3.7E+02	n	3.7E+03	n					2.2E+02	n			8.2E-01
Pebulate	1114-71-2					5.0E-02	H							0.1	3.1E+03	n	3.1E+04	n					1.8E+03	n			2.1E+00
Pendimethalin	40487-42-1					4.0E-02	I							0.1	2.4E+03	n	2.5E+04	n					1.5E+03	n			7.9E+00
Pentabromodiphenyl Ether	32534-81-9					2.0E-03	I							0.1	1.2E+02	n	1.2E+03	n					7.3E+01	n			4.5E+00
Pentabromodiphenyl ether, 2,2',4,4',5'- (BDE-99)	80348-60-9					1.0E-04	I								7.8E+00	n	1.0E+02	n					3.7E+00	n			
Pentachlorobenzene	608-93-5					8.0E-04	I						0.1		4.9E+01	n	4.9E+02	n					2.9E+01	n		1.2E-01	
Pentachloroethane	76-01-7	9.0E-02	P										0.1		5.4E+00	c	1.9E+01	c					7.5E-01	c		3.9E-04	
Pentachloronitrobenzene	82-68-8	2.6E-01	H			3.0E-03	I						0.1		1.9E+00	c*	6.8E+00	c					2.6E-01	c	1.0E+00	3.9E-03	7.0E-03
Pentachlorophenol	87-86-5	1.2E-01	I	4.6E-06	C	3.0E-02	I						0.25		3.0E+00	c	9.0E+00	c	5.3E-01	c	2.7E+00	c	5.6E-01	c			
Perchlorate and Perchlorate Salts	14797-73-0					7.0E-04	I								5.5E+01	n	7.2E+02	n					2.6E+01	n	15 (F)		
Permethrin	52645-53-1					5.0E-02	I						0.1		3.1E+03	n	3.1E+04	n					1.8E+03	n			6.5E+02
Phenacetin	62-44-2	2.2E-03	C	6.3E-07	C								0.1		2.2E+02	c	7.8E+02	c	3.9E+00	c	1.9E+01	c	3.1E+01	c			9.2E-03
Phenmedipham	13684-63-4					2.5E-01	I						0.1		1.5E+04	n	1.5E+05	nm					9.1E+03	n			6.8E+00
Phenol	108-95-2					3.0E-01	I	2.0E-01	C				0.1		1.8E+04	n	1.8E+05	nm	2.1E+02	n	8.8E+02	n	1.1E+04	n			8.1E+00
Phenylenediamine, m-	108-45-2					6.0E-03	I						0.1		3.7E+02	n	3.7E+03	n					2.2E+02	n			7.6E-02
Phenylenediamine, o-	95-54-5	4.7E-02	H										0.1		1.0E+01	c	3.7E+01	c					1.4E+00	c			5.0E-04
Phenylenediamine, p-	106-50-3					1.9E-01	H						0.1		1.2E+04	n	1.2E+05	nm					6.9E+03	n			2.4E+00
Phenylphenol, 2-	90-43-7	1.9E-03	H										0.1		2.5E+02	c	8.9E+02	c					3.5E+01	c			7.2E-01
Phorate	298-02-2					2.0E-04	H						0.1		1.2E+01	n	1.2E+02	n					7.3E+00	n			7.9E-03
Phosgene	75-44-5							3.0E-04	I	V			1	8.7E+04	4.0E-01	n	1.7E+00	n	3.1E-01	n	1.3E+00	n					
Phosmet	732-11-6					2.0E-02	I						0.1		1.2E+03	n	1.2E+04	n					7.3E+02	n			2.1E-01
Phosphine	7803-51-2					3.0E-04	I	3.0E-04	I						2.3E+01	n	3.1E+02	n	3.1E-01	n	1.3E+00	n	1.1E+01	n			
Phosphoric Acid	7664-38-2							1.0E-02	I				1		1.4E+07	nm	6.0E+07	nm	1.0E+01	n	4.4E+01	n					
Phosphorus, White	7723-14-0					2.0E-05	I								1.6E+00	n	2.0E+01	n					7.3E-01	n			2.7E-03
Phthalic Acid, P-	100-21-0					1.0E+00	H						0.1		6.1E+04	n	6.2E+05	nm					3.7E+04	n			1.3E+01
Phthalic Anhydride	85-44-9					2.0E+00	I	2.0E-02	C				0.1		1.2E+05	nm	1.2E+06	nm	2.1E+01	n	8.8E+01	n	7.3E+04	n	5.0E+02	1.6E+01	1.2E-01
Picloram	1918-02-1					7.0E-02	I						0.1		4.3E+03	n	4.3E+04	n					2.6E+03	n			6.0E-01
Picramic Acid (2-Amino-4,6-dinitrophenol)	96-91-3					2.0E-03	P						0.1		1.2E+02	n	1.2E+03	n					7.3E+01	n			2.9E-02
Pirimphos, Methyl	29232-93-7					1.0E-02	I						0.1		6.1E+02	n	6.2E+03	n					3.7E+02	n			1.7E-01
Polybrominated Biphenyls	59536-65-1	3.0E+01	C	8.6E-03	C	7.0E-06	H						0.1		1.8E-02	c*	5.7E-02	c*	2.8E-04	c	1.4E-03	c	2.2E-03	c			
Polychlorinated Biphenyls (PCBs)																											
-Aroclor 1016	12674-11-2	7.0E-02	I	2.0E-05	I	7.0E-05	I						0.14		3.9E+00	n	2.1E+01	c**	1.2E-01	c	6.1E-01	c	9.6E-01	c**			5.2E-02
-Aroclor 1221	11104-28-2	2.0E+00	I	5.7E-04	I							V	0.14	3.0E+02	1.7E-01	c	6.2E-01	c	4.3E-03	c	2.1E-02	c	6.8E-03	c			1.4E-04
-Aroclor 1232	11141-16-5	2.0E+00	I	5.7E-04	I							V	0.14	3.0E+02	1.7E-01	c	6.2E-01	c	4.3E-03	c	2.1E-02	c	6.8E-03	c			1.4E-04
-Aroclor 1242	53469-21-9	2.0E+00	I	5.7E-04	I								0.14		2.2E-01	c	7.4E-01	c	4.3E-03	c	2.1E-02	c	3.4E-02	c			3.0E-03
-Aroclor 1248	12672-29-6	2.0E+00	I	5.7E-04	I								0.14		2.2E-01	c	7.4E-01	c	4.3E-03	c	2.1E-02	c	3.4E-02	c			3.0E-03
-Aroclor 1254	11097-89-1	2.0E+00	I	5.7E-04	I	2.0E-05	I						0.14		2.2E-01	c**	7.4E-01	c*	4.3E-03	c	2.1E-02	c	3.4E-02	c*			5.1E-03
-Aroclor 1260	11098-82-5	2.0E+00	I	5.7E-04	I								0.14		2.2E-01	c	7.4E-01	c	4.3E-03	c	2.1E-02	c	3.4E-02	c			1.4E-02
-Heptachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 189)	39635-31-9	1.3E+01	C	3.8E-03	C								0.14		3.4E-02	c	1.1E-01	c	6.4E-04	c	3.2E-03	c	5.2E-03	c			2.1E-03
-Hexachlorobiphenyl, 2,3',4,4',5,5'- (PCB 187)	52663-72-6	1.3E+01	C	3.8E-03	C								0.14		3.4E-02	c	1.1E-01	c	6.4E-04	c	3.2E-03	c	5.2E-03	c			1.3E-03
-Hexachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 157)	69782-90-7	8.5E+02	C	1.9E-02	C								0.14		6.8E-04	c	2.3E-03	c	1.3E-04	c	6.5E-04	c	1.0E-04	c			2.6E-05
-Hexachlorobiphenyl, 2,3,3',4,4',5,5'- (PCB 156)	38380-08-4	8.5E+02	C	1.9E-02	C								0.14		6.8E-04	c	2.3E-03	c	1.3E-04	c	6.5E-04	c	1.0E-04	c			2.6E-05
-Hexachlorobiphenyl, 3,3',4,4',5,5'- (PCB 169)	32774-16-6	1.3E+01	C	3.8E-03	C								0.14		3.4E-02	c	1.1E-01	c	6.4E-04	c	3.2E-03	c	5				

Key: I = IRIS; P = PPRTV; A = ATSDR; C = Cal EPA; H = HEAST; W = WHO; S = see user guide Section 5; L = see user guide on lead; M = mutagen; V = volatile; F = See FAQ #28; c = cancer; * = where: n SL < 100X c SL; ** = where n SL < 10X c SL; n = noncancer; m = Concentration may exceed ceiling limit
(See User's Guide); s = Concentration may exceed Csat (See User's Guide); SSL values are based on DAF=1

Contaminant		Toxicity and Chemical-specific Information														Screening Levels												Protection of Groundwater Soil Screening Levels	
Analyte	CAS No.	SFO (mg/kg-day)	k _e (y)	IUR (ug/m ³ -y)	k _e (y)	RfDo (mg/kg-day)	k _e (y)	RfCI (mg/m ³ -y)	k _e (y)	v _c (y)	muta- gen	GIABS	ABS	Csat mg/kg	Residential Soil mg/kg	key	Industrial Soil mg/kg	key	Residential Air ug/m ³	key	Industrial Air ug/m ³	key	Tapwater ug/L	key	MCL ug/L	Risk-based SSL mg/kg	MCL-based SSL mg/kg		
Titanium Tetrachloride	7550-45-0	1.0E-04	A												1.4E+05	nm	6.0E+05	nm	1.0E-01	n	4.4E-01	n			1.0E+03	1.7E+00	7.6E-01		
Toluene	108-88-3	3.9E-02	C	1.1E-05	C	8.0E-02	I	5.0E+00	I	V				9.3E+02	5.0E+03	ns	4.8E+04	ns	5.2E+03	n	2.2E+04	n	2.3E+03	n					
Toluene diisocyanate mixture (TDI)	26471-82-5	3.8E+00	C	1.1E-03	C			7.0E-05	I	V				2.1E+03	1.5E+01	c**	6.7E+01	c**	7.3E-02	n	3.1E-01	n	1.5E-01	n			2.7E-03		
Toluene-2,4-diamine	95-80-7					6.0E-01	H						0.1		1.3E-01	c	4.5E-01	c	2.2E-03	c	1.1E-02	c	1.9E-02	c			7.8E-06		
Toluene-2,5-diamine	95-70-5												0.1		3.7E+04	n	3.7E+05	nm					2.2E+04	n			9.8E+00		
Toluene-2,6-diamine	823-40-5					3.0E-02	P						0.1		1.8E+03	n	1.8E+04	n					1.1E+03	n			4.9E-01		
Toluidine, o- (Methylaniline, 2-)	95-53-4	1.8E-01	C	5.1E-05	C								0.1		2.7E+00	c	9.8E+00	c	4.8E-02	c	2.4E-01	c	3.7E-01	c			1.3E-04		
Toluidine, p-	106-49-0	1.9E-01	H										0.1		2.6E+00	c	9.1E+00	c					3.5E-01	n			1.2E-04		
Toxaphene	8001-35-2	1.1E+00	I	3.2E-04	I								0.1		4.4E-01	c	1.9E+00	c	7.6E-03	c	3.8E-02	c	6.1E-02	c	3.0E+00	1.2E-02	6.0E-01		
Tralometrin	66841-25-6					7.5E-03	I						0.1		4.6E+02	n	4.6E+03	n					2.7E+02	n			1.4E+02		
Tri-n-butyltin	688-73-3					3.0E-04	A						0.1		1.8E+01	n	1.8E+02	n					1.1E+01	n			2.8E-01		
Triallate	2303-17-5					1.3E-02	I						0.1		7.9E+02	n	8.0E+03	n					4.7E+02	n			1.7E+00		
Triasulfuron	82097-50-5					1.0E-02	I						0.1		6.1E+02	n	8.2E+03	n					3.7E+02	n			3.3E-01		
Tribromobenzene, 1,2,4-	615-54-3					5.0E-03	I						0.1		3.1E+02	n	3.1E+03	n					1.8E+02	n			3.0E-01		
Tributyl Phosphate	126-73-8	9.2E-03	P			2.0E-01	P						0.1		5.3E+01	c	1.9E+02	c					7.3E+00	c			2.9E-02		
Tributyltin Compounds	NA					3.0E-04	P						0.1		1.8E+01	n	1.8E+02	n					1.1E+01	n					
Tributyltin Oxide	56-35-9					3.0E-04	I						0.1		1.8E+01	n	1.8E+02	n					1.1E+01	n			8.2E+02		
Trichloro-1,2,2-trifluoroethane, 1,1,2-	76-13-1					3.0E+01	I	3.0E+01	H	V				9.4E+02	4.3E+04	ns	1.8E+05	nms	3.1E+04	n	1.3E+05	n	5.9E+04	n			1.5E+02		
Trichloroaniline HCl, 2,4,6-	33663-50-2	2.9E-02	H										0.1		1.7E+01	c	5.9E+01	c					2.3E+00	c			2.2E-03		
Trichloroaniline, 2,4,6-	634-93-5	3.4E-02	H										0.1		1.4E+01	c	5.1E+01	c					2.0E+00	c			1.2E-03		
Trichlorobenzene, 1,2,4-	120-82-1	3.6E-03	C			1.0E-02	I	4.0E-03	P	V				2.2E+02	8.7E+01	n	4.0E+02	ns	4.2E+00	n	1.8E+01	n	8.2E+00	n	7.0E+01	1.3E-02	1.1E-01		
Trichloroethane, 1,1,1-	71-55-6					2.0E+00	I	5.0E+00	I	V				6.8E+02	9.0E+03	ns	3.9E+04	ns	5.2E+03	n	2.2E+04	n	9.1E+03	n	2.0E+02	3.3E+00	7.2E-02		
Trichloroethane, 1,1,2-	79-00-5	5.7E-02	I	1.6E-05	I	4.0E-03	I			V				5.6E+02	1.1E+00	c	5.5E+00	c	1.5E-01	c	7.7E-01	c	2.4E-01	c	5.0E+00	8.2E-05	1.7E-03		
Trichloroethylene	79-01-6	1.3E-02	C	2.0E-06	C					V				7.5E+02	2.8E+00	c	1.4E+01	c	1.2E+00	c	6.1E+00	c	1.7E+00	c	5.0E+00	6.1E-04	1.9E-03		
Trichlorofluoromethane	75-89-4					3.0E-01	I	7.0E-01	H	V				1.3E+03	8.0E+02	n	3.4E+03	ns	7.3E+02	n	3.1E+03	n	1.3E+03	n			8.4E-01		
Trichlorophenol, 2,4,5-	95-95-4					1.0E-01	I						0.1		6.1E+03	n	6.2E+04	n					3.7E+03	n			9.4E+00		
Trichlorophenol, 2,4,6-	88-06-2	1.1E-02	I	3.1E-06	I	1.0E-03	P						0.1		4.4E+01	c**	1.6E+02	c**	7.8E-01	c	4.0E+00	c	6.1E+00	c**			1.6E-02		
Trichlorophenoxy Propionic Acid, 2(2,4,5-	93-72-1					8.0E-03	I						0.1		4.8E+02	n	4.9E+03	n					2.9E+02	n	5.0E+01	1.1E-01	1.8E-02		
Trichlorophenoxyacetic Acid, 2,4,5-	93-76-5					1.0E-02	I						0.1		6.1E+02	n	6.2E+03	n					3.7E+02	n			1.1E-01		
Trichloropropane, 1,1,2-	598-77-6					5.0E-03	I			V				1.4E+03	3.9E+02	n	5.1E+03	ns					1.8E+02	n			7.8E-02		
Trichloropropane, 1,2,3-	96-18-4	7.0E+00	H			6.0E-03	I			V				1.6E+03	9.1E-02	c	4.1E-01	c					9.6E-03	c			4.4E-06		
Trichloropropane, 1,2,3-	96-18-5					1.0E-02	P	1.0E-03	P	V				3.4E+02	2.7E+00	n	1.2E+01	n	1.0E+00	n	4.4E+00	n	2.1E+00	n			1.1E-03		
Tridiphenyl	58138-08-2					3.0E-03	I						0.1		1.8E+02	n	1.8E+03	n					1.1E+02	n			4.1E-01		
Triethylamine	121-44-8							7.0E-03	I	V				5.5E+04	1.7E+02	n	7.1E+02	n	7.3E+00	n	3.1E+01	n	1.5E+01	n			6.1E-03		
Trifluralin	1582-09-8	7.7E-03	I			7.5E-03	I						0.1		6.3E+01	c**	2.2E+02	c*					8.7E+00	c*			1.7E-01		
Trimethyl Phosphate	512-56-1	3.7E-02	H										0.1		1.3E+01	c	4.7E+01	c					1.8E+00	c			3.9E-04		
Trimethylbenzene, 1,2,4-	95-63-6							7.0E-03	P	V				2.5E+02	6.7E+01	n	2.8E+02	ns	7.3E+00	n	3.1E+01	n	1.5E+01	n			2.4E-02		
Trimethylbenzene, 1,3,5-	108-67-8					5.0E-02	P	6.0E-03	P	V				2.1E+02	4.7E+01	n	2.0E+02	n	6.3E+00	n	2.6E+01	n	1.2E+01	n			2.0E-02		
Trinitrobenzene, 1,3,5-	99-35-4					3.0E-02	I					0.019			2.2E+03	n	2.7E+04	n					1.1E+03	n			2.6E+00		
Trinitrotoluene, 2,4,6-	118-96-7	3.0E-02	I			5.0E-04	I					0.032			1.9E+01	c**	7.9E+01	c**					2.2E+00	c**			8.7E-03		
Triphenylphosphine Oxide	791-28-6					2.0E-02	P								1.2E+03	n	1.2E+04	n					7.3E+02	n			1.5E+00		
Tris(2-chloroethyl)phosphate	115-96-8	1.4E-02	P			3.0E-01	P						0.1		3.5E+01	c	1.2E+02	c					4.8E+00	c			3.9E-03		
Tris(2-ethylhexyl)phosphate	78-42-2	3.2E-03	P			1.0E-01	P						0.1		1.5E+02	c*	5.4E+02	c					2.1E+01	c			9.6E+01		
Uranium (Soluble Salts)	NA					3.0E-03	I	3.0E-04	A					2.3E+02	2.3E+02	n	3.1E+03	n	3.1E-01	n	1.3E+00	n	1.1E+02	n			4.9E+01		
Vanadium Pentoxide	1314-62-1			8.3E-03	P	9.0E-03	I	7.0E-06	P			0.026			4.0E+02	c**	2.0E+03	c**	2.9E-04	c*	1.5E-03	c*	3.3E+02	n					
Vanadium Sulfate	36907-42-3					2.0E-02	H					0.026			1.6E+03	n	2.0E+04	n					7.3E+02	n					
Vanadium and Compounds	NA					5.0E-03	I								3.9E+02	n	5.2E+03	n					1.8E+02	n			1.8E+02		
Vanadium, Metallic	7440-62-2					7.0E-03	H					0.026			5.5E+02	n	7.2E+03	n					2.6E+02	n			2.6E+02		
Vernolate	1929-77-7					1.0E-03	I					0.1			6.1E+01	n	6.2E+02	n					3.7E+01	n			4.2E-02		
Vinclozolin	50471-44-8					2.5E-02	I						0.1		1.5E+03	n	1.5E+04	n					9.1E+02	n			7.1E-01		
Vinyl Acetate	108-05-4					1.0E+00	H	2.0E-01	I	V				2.8E+03	9.9E+02	n	4.2E+03	ns	2.1E+02	n	8.8E+02	n	4.1E+02	n			8.8E-02		
Vinyl Bromide	593-60-2			3.2E-05	H			3.0E-03	I	V				1.7E+03	1.1E-01	c*	5.8E-01	c*	7.6E-02	c*	3.8E-01	c*	1.5E-01	c*			4.4E-05		



6/19/09

spoke w/ Ed Cooney
They will submit
workplan

Clean Harbors Environmental Services, Inc.
211 Holiday Ave
Cannon Falls, MN 55009

800-678-4244
www.cleanharbors.com

March 10, 2009

Loparex
1060 Clyde Hanson Dr.
Hammond, WI 54015

NR 708.09

Q: The type of hazardous substance discharged or the type of environmental pollution, including the toxicity, mobility and volume of the contamination?

A: *Ethylene Glycol; The major danger from ethylene glycol is ingestion. Due to its sweet taste, children and animals will sometimes consume large quantities of it if given access to antifreeze. Upon ingestion, ethylene glycol is chemically broken down in the body into toxic compounds. It and its toxic byproducts first affect the central nervous system, then the heart, and finally the kidneys. Ingestion of sufficient amounts can be fatal. Release was from a pressurized system in which 2,000 gallons of 10% solution was released.*

Q: The duration of the discharge?

A: *Less than 8 hours*

Q: Time until the discharge or environmental pollution was responded to and properly contained or eliminated?

A: *Less than 12 hours*

Q: Any mitigation efforts that may have accelerated the migration of the environmental pollution or hazardous substances, such as any fire mitigation methods?

A: *None*

Q: Weather conditions at the site or facility, such as any precipitation that may have accelerated the migration of the contamination, from the time of the discharge until the response was completed?

A: *Frozen soils slowed the migration*

Q: Migration potential of the contamination, including soil conditions, proximity to surface water bodies, location of drains or storm sewers, depth to groundwater and the integrity of any containment areas?

A: *Minimal, Frozen, Jewett Silt Loam, 1000' from South Fork Kinnickinnic River, no drain or storm sewer contact, ground water is greater than 15', excavation filled with sand.*

Q: The nature and scope of any immediate action conducted?

A: *Piping elbow was replaced and 30 yards of soil was excavated*

Q: The results of any sampling conducted to confirm the adequacy of the response, taken in accordance with s. NR 708.05 (3) (c)?

A: *Please see attachment B*

Q: Visual and olfactory evidence of contamination?

A: *Snow melt and surface staining evident. Liquid was encountered during the excavation, approximately 40 gallons mostly draining from underneath the concrete pad.*

Q: Actual or potential environmental impacts?

A: *None known*

Q: Proximity of contamination to receptors?

A: *None effected or anticipated to be.*

Q: Present and anticipated future land use?

A: *Light Industry*

Q: Whether or not routes of exposure are protective and the environment has been restored to the extent practicable?

A: *No free liquid remains; biodegradation is expected within a few months. No further action is recommended at this time.*

Michael J Christensen
General Manager
507-301-2865

Appendix

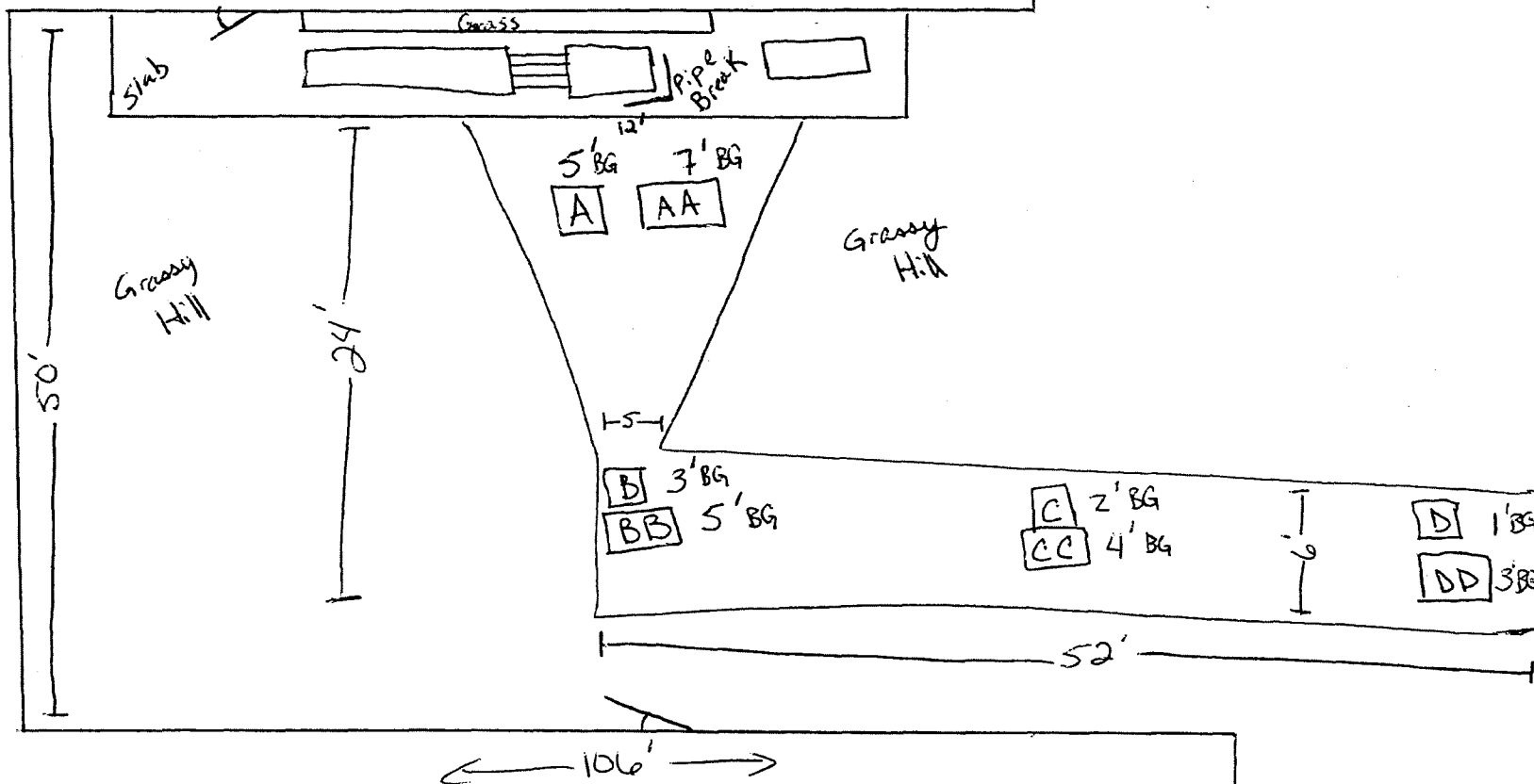
A

Building

Loparex

← N

Building



Building

Sample Pts

A
AA
B
BB
C
CC
D
DD

Appendix

B

March 09, 2009

Michael Christensen
Clean Harbors
211 Holiday Drive
Cannon Falls, MN 55009

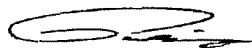
RE: Project: I52238348 LOPAREX
Pace Project No.: 1089830

Dear Michael Christensen:

Enclosed are the analytical results for sample(s) received by the laboratory on February 23, 2009. The results relate only to the samples included in this report. Results reported herein conform to the most current NELAC standards, where applicable, unless otherwise narrated in the body of the report.

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

Sincerely,



Paul Kirchberg

paul.kirchberg@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

Page 1 of 13

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



CERTIFICATIONS

Project: I52238348 LOPAREX
Pace Project No.: 1089830

Minnesota Certification IDs

Tennessee Certification #: 02818
Wisconsin Certification #: 999407970
Washington Certification #: C754
Pennsylvania Certification #: 68-00563
Oregon Certification #: MN200001
North Dakota Certification #: R-036
North Carolina Certification #: 530
New York Certification #: 11647
New Jersey Certification #: MN-002
Montana Certification #: MT CERT0092
Minnesota Certification #: 027-053-137

Maine Certification #: 2007029
Louisiana Certification #: LA080009
Louisiana Certification #: 03086
Kansas Certification #: E-10167
Iowa Certification #: 368
Illinois Certification #: 200011
Florida/NELAP Certification #: E87605
California Certification #: 01155CA
Arizona Certification #: AZ-0014
Alaska Certification #: UST-078

Indiana Certification IDs

West Virginia Certification #: 330
Pennsylvania: 68-00791
Ohio VAP: CL0065
Kentucky Certification #: 0042

Kansas Certification #: E-10247
Indiana Certification #: C-49-06
Illinois/NELAC Certification #: 100418

REPORT OF LABORATORY ANALYSIS

Page 2 of 13

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



SAMPLE ANALYTE COUNT

Project: 152238348 LOPAREX

Pace Project No.: 1089830

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
1089830001	SAMPLE A	ASTM D2974-87	RAK	1	PASI-I
		EPA 6010	TEM	7	PASI-M
		EPA 7471	TEM	1	PASI-M
		EPA 8015 Modified	FRW	1	PASI-I
		EPA 9045	MWD	1	PASI-M
1089830002	SAMPLE B	ASTM D2974-87	RAK	1	PASI-I
		EPA 1664 TPH	MJS	1	PASI-M
		EPA 8015 Modified	FRW	1	PASI-I
1089830003	SAMPLE C	ASTM D2974-87	RAK	1	PASI-I
		EPA 8015 Modified	FRW	1	PASI-I
1089830004	SAMPLE D	ASTM D2974-87	RAK	1	PASI-I
		EPA 8015 Modified	FRW	1	PASI-I
1089830005	SAMPLE AA	ASTM D2974-87	RAK	1	PASI-I
		EPA 8015 Modified	FRW	1	PASI-I
1089830006	SAMPLE BB	ASTM D2974-87	RAK	1	PASI-I
		EPA 8015 Modified	FRW	1	PASI-I
1089830007	SAMPLE CC	ASTM D2974-87	RAK	1	PASI-I
		EPA 8015 Modified	FRW	1	PASI-I
1089830008	SAMPLE DD	ASTM D2974-87	RAK	1	PASI-I
		EPA 8015 Modified	FRW	1	PASI-I

REPORT OF LABORATORY ANALYSIS

Page 3 of 13

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



ANALYTICAL RESULTS

Project: I52238348 LOPAREX
Pace Project No.: 1089830

Sample: **SAMPLE A** Lab ID: **1089830001** Collected: 02/22/09 22:00 Received: 02/23/09 13:56 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP Analytical Method: EPA 6010 Preparation Method: EPA 3050								
Arsenic	2.2 mg/kg		0.41	1	02/25/09 19:12	02/27/09 17:01	7440-38-2	
Barium	72.1 mg/kg		0.41	1	02/25/09 19:12	02/27/09 17:01	7440-39-3	
Cadmium	0.65 mg/kg		0.041	1	02/25/09 19:12	02/27/09 17:01	7440-43-9	
Chromium	8.8 mg/kg		0.41	1	02/25/09 19:12	02/27/09 17:01	7440-47-3	
Lead	0.14 mg/L		0.0049	1	02/25/09 19:12	02/27/09 17:01	7439-92-1	
Selenium	ND mg/kg		0.61	1	02/25/09 19:12	02/27/09 17:01	7782-49-2	M0
Silver	ND mg/kg		0.41	1	02/25/09 19:12	02/27/09 17:01	7440-22-4	
7471 Mercury Analytical Method: EPA 7471 Preparation Method: EPA 7471								
Mercury	0.018 mg/kg		0.017	1	02/26/09 18:13	03/02/09 09:58	7439-97-6	
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	18.7 %		0.10	1		02/26/09 18:16		
8015M Alcohols Analytical Method: EPA 8015 Modified								
Ethylene glycol	19600 mg/kg		2480	100		02/26/09 14:36	107-21-1	
9045 pH Analytical Method: EPA 9045								
pH at 25 Degrees C	7.1 Std. Units		0.10	1		03/02/09 13:10		

Sample: **SAMPLE B** Lab ID: **1089830002** Collected: 02/22/09 22:20 Received: 02/23/09 13:56 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	15.3 %		0.10	1		02/26/09 18:17		
1664 SGT-HEM, TPH Analytical Method: EPA 1664 TPH Preparation Method: EPA 1664 TPH								
Total Petroleum Hydrocarbons	ND mg/kg		714	1	02/27/09 09:19	02/27/09 09:21		
8015M Alcohols Analytical Method: EPA 8015 Modified								
Ethylene glycol	ND mg/kg		23.6	1		02/26/09 14:13	107-21-1	

Sample: **SAMPLE C** Lab ID: **1089830003** Collected: 02/22/09 23:00 Received: 02/23/09 13:56 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture Analytical Method: ASTM D2974-87								
Percent Moisture	16.3 %		0.10	1		02/26/09 18:19		

Date: 03/09/2009 03:33 PM

REPORT OF LABORATORY ANALYSIS

Page 4 of 13

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



ANALYTICAL RESULTS

Project: 152238348 LOPAREX
Pace Project No.: 1089830

Sample: **SAMPLE C** Lab ID: 1089830003 Collected: 02/22/09 23:00 Received: 02/23/09 13:56 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8015M Alcohols	Analytical Method: EPA 8015 Modified							
Ethylene glycol	20700	mg/kg	2400	100		02/26/09 14:58	107-21-1	

Sample: **SAMPLE D** Lab ID: 1089830004 Collected: 02/22/09 23:10 Received: 02/23/09 13:56 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	13.7	%	0.10	1		02/26/09 18:19		
8015M Alcohols	Analytical Method: EPA 8015 Modified							
Ethylene glycol	19500	mg/kg	2310	100		02/26/09 15:05	107-21-1	

Sample: **SAMPLE AA** Lab ID: 1089830005 Collected: 02/23/09 10:00 Received: 02/23/09 13:56 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	15.8	%	0.10	1		02/26/09 18:20		
8015M Alcohols	Analytical Method: EPA 8015 Modified							
Ethylene glycol	171	mg/kg	24.0	1		02/26/09 14:21	107-21-1	

Sample: **SAMPLE BB** Lab ID: 1089830006 Collected: 02/23/09 10:10 Received: 02/23/09 13:56 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	15.8	%	0.10	1		02/26/09 18:20		
8015M Alcohols	Analytical Method: EPA 8015 Modified							
Ethylene glycol	2900	mg/kg	119	5		02/26/09 14:28	107-21-1	

Date: 03/09/2009 03:33 PM

REPORT OF LABORATORY ANALYSIS

Page 5 of 13

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc..



ANALYTICAL RESULTS

Project: I52238348 LOPAREX
Pace Project No.: 1089830

Sample: **SAMPLE CC** Lab ID: 1089830007 Collected: 02/23/09 10:15 Received: 02/23/09 13:56 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	14.7 %		0.10	1		02/26/09 18:20		
8015M Alcohols	Analytical Method: EPA 8015 Modified							
Ethylene glycol	17600 mg/kg		2350	100		02/26/09 15:13	107-21-1	

Sample: **SAMPLE DD** Lab ID: 1089830008 Collected: 02/23/09 10:20 Received: 02/23/09 13:56 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Percent Moisture	Analytical Method: ASTM D2974-87							
Percent Moisture	10.6 %		0.10	1		02/26/09 18:20		
8015M Alcohols	Analytical Method: EPA 8015 Modified							
Ethylene glycol	16200 mg/kg		2250	100		02/26/09 15:20	107-21-1	

QUALITY CONTROL DATA

Project: I52238348 LOPAREX
Pace Project No.: 1089830

QC Batch: WET/4181 Analysis Method: EPA 8015 Modified
QC Batch Method: EPA 8015 Modified Analysis Description: EPA 8015 Modified
Associated Lab Samples: 1089830001, 1089830002, 1089830003, 1089830004, 1089830005, 1089830006, 1089830007, 1089830008

METHOD BLANK: 267382 Matrix: Solid
Associated Lab Samples: 1089830001, 1089830002, 1089830003, 1089830004, 1089830005, 1089830006, 1089830007, 1089830008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Ethylene glycol	mg/kg	ND	20.0	02/26/09 10:38	

LABORATORY CONTROL SAMPLE: 267383

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Ethylene glycol	mg/kg	553	485	88	60-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 267384 267385

Parameter	Units	1089830001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Ethylene glycol	mg/kg	19600	682	682	17000	18400	-378	-165	51-140	8	P6

QUALITY CONTROL DATA

Project: I52238348 LOPAREX
Pace Project No.: 1089830

QC Batch:	PMST/3371	Analysis Method:	ASTM D2974-87
QC Batch Method:	ASTM D2974-87	Analysis Description:	Dry Weight/Percent Moisture
Associated Lab Samples: 1089830001, 1089830002, 1089830003, 1089830004, 1089830005, 1089830006, 1089830007, 1089830008			

SAMPLE DUPLICATE: 268155

Parameter	Units	5023637015 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	13.4	13.3	1	

SAMPLE DUPLICATE: 268156

Parameter	Units	5023589007 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	11.3	11.5	1	

QUALITY CONTROL DATA

Project: 152238348 LOPAREX
Pace Project No.: 1089830

QC Batch: WET/15372	Analysis Method: EPA 1664 TPH
QC Batch Method: EPA 1664 TPH	Analysis Description: 1664 SGT-HEM, TPH
Associated Lab Samples: 1089830002	

METHOD BLANK: 586570 Matrix: Solid
Associated Lab Samples: 1089830002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Total Petroleum Hydrocarbons	mg/kg	ND	500	02/27/09 09:21	

LABORATORY CONTROL SAMPLE: 586571

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Total Petroleum Hydrocarbons	mg/kg	1000	720	72	64-132	

SAMPLE DUPLICATE: 586573

Parameter	Units	1089830002 Result	Dup Result	RPD	Qualifiers
Total Petroleum Hydrocarbons	mg/kg	ND	ND		

QUALITY CONTROL DATA

Project: I52238348 LOPAREX
Pace Project No.: 1089830

QC Batch: MERP/3239 Analysis Method: EPA 7471
QC Batch Method: EPA 7471 Analysis Description: 7471 Mercury
Associated Lab Samples: 1089830001

METHOD BLANK: 586583 Matrix: Solid
Associated Lab Samples: 1089830001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/kg	ND	0.019	03/02/09 09:55	

LABORATORY CONTROL SAMPLE: 586594

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	.44	0.43	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 586595 586596

Parameter	Units	1089830001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Mercury	mg/kg	0.018	.5	.43	0.55	0.47	106	106	80-120	14	

QUALITY CONTROL DATA

Project: I52238348 LOPAREX
Pace Project No.: 1089830

QC Batch:	MPRP/14833	Analysis Method:	EPA 6010
QC Batch Method:	EPA 3050	Analysis Description:	6010 MET
Associated Lab Samples:	1089830001		

METHOD BLANK: 587189 Matrix: Solid
Associated Lab Samples: 1089830001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/kg	ND	0.44	02/27/09 16:53	
Barium	mg/kg	ND	0.44	02/27/09 16:53	
Cadmium	mg/kg	ND	0.044	02/27/09 16:53	
Chromium	mg/kg	ND	0.44	02/27/09 16:53	
Lead	mg/L	ND	0.0053	02/27/09 16:53	
Selenium	mg/kg	ND	0.66	02/27/09 16:53	
Silver	mg/kg	ND	0.44	02/27/09 16:53	

LABORATORY CONTROL SAMPLE: 587190

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	42.4	39.5	93	80-120	
Barium	mg/kg	42.4	38.9	92	80-120	
Cadmium	mg/kg	42.4	38.1	90	80-120	
Chromium	mg/kg	42.4	38.9	92	80-120	
Lead	mg/L	.85	0.83	97	80-120	
Selenium	mg/kg	42.4	39.4	93	80-120	
Silver	mg/kg	21.2	21.2	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 587191 587192

Parameter	Units	1089830001		MS	MSD	MS	MSD	MS	MSD	% Rec	RPD	Qual
		Result	Conc.	Spike	Spike							
				Conc.	Conc.	Result	Result	% Rec	% Rec	Limits		
Arsenic	mg/kg	2.2	40.3		36.5	35.4	31.0	82	79	75-125	13	
Barium	mg/kg	72.1	40.3		36.5	119	107	115	96	75-125	10	
Cadmium	mg/kg	0.55	40.3		36.5	33.0	28.6	81	77	75-125	15	
Chromium	mg/kg	8.8	40.3		36.5	44.2	39.4	88	84	75-125	11	
Lead	mg/L	0.14	.81		.73	0.84	0.74	87	82	75-125	13	
Selenium	mg/kg	ND	40.3		36.5	31.4	26.8	78	73	75-125	18	M0
Silver	mg/kg	ND	20.2		18.2	17.9	15.5	89	85	75-125	15	

QUALITY CONTROL DATA

Project: I52238348 LOPAREX
Pace Project No.: 1089830

QC Batch: WET/15407	Analysis Method: EPA 9045
QC Batch Method: EPA 9045	Analysis Description: 9045 pH
Associated Lab Samples: 1089830001	

LABORATORY CONTROL SAMPLE: 588458

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
pH at 25 Degrees C	Std. Units	5	5.0	100	98-102	

SAMPLE DUPLICATE: 588459

Parameter	Units	1089827001 Result	Dup Result	RPD	Qualifiers
pH at 25 Degrees C	Std. Units	7.5	7.5	0	

QUALIFIERS

Project: 152238348 LOPAREX
Pace Project No.: 1089830

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

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

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

LABORATORIES

PASI-I Pace Analytical Services - Indianapolis

PASI-M Pace Analytical Services - Minneapolis

BATCH QUALIFIERS

Batch: WET/15394

[1] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

M0 Matrix spike recovery was outside laboratory control limits.

P6 Matrix spike recovery was outside laboratory control limits due to a parent sample concentration notably higher than the spike level.

Sample Condition Upon Receipt

Face Analytical

Client Name: Clean Harbors

Project #

1099830

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

Tracking #: _____

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

Option:
Prep. Date:
Prep. Name:

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☒ None ☐ Other Temp Blank: Yes ☐ No ☒

Thermometer Used 80344042, 179425

Type of Ice: Wet Blue ☒ None

☐ Samples on ice, cooling process has begun

Cooler Temperature 14.8

Biological Tissue Is Frozen: Yes No

Date and Initials of person examining contents: 2/23/09

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	☒ Yes ☐ No ☐ N/A	1.
Chain of Custody Filled Out:	☒ Yes ☐ No ☐ N/A	2.
Chain of Custody Relinquished:	☒ Yes ☐ No ☐ N/A	3.
Sampler Name & Signature on COC:	☒ Yes ☐ No ☐ N/A	4.
Samples Arrived within Hold Time:	☒ Yes ☐ No ☐ N/A	5.
Short Hold Time Analysis (<72hr):	☐ Yes ☐ No ☒ N/A	6.
Rush Turn Around Time Requested:	☒ Yes ☐ No ☐ N/A	7. Client Specified Rush "Sample A"
Sufficient Volume:	☒ Yes ☐ No ☐ N/A	8.
Correct Containers Used:	☒ Yes ☐ No ☐ N/A	9.
Pace Containers Used:	☐ Yes ☒ No ☐ N/A	
Containers Intact:	☒ Yes ☐ No ☐ N/A	10.
Filtered volume received for Dissolved tests	☐ Yes ☐ No ☒ N/A	11.
Sample Labels match COC:	☐ Yes ☒ No ☐ N/A	12. NO Date, time or Analysis on Sample Containers
-Includes date/time/ID/Analysis Matrix: <u>SI</u>		
All containers needing acid/base preservation have been checked. Noncompliance are noted in 13.	☐ Yes ☐ No ☒ N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☐ Yes ☐ No ☒ N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, W-DRO (water)	☐ Yes ☒ No	Initial when completed: _____ Lot # of added preservative: _____
Samples checked for dechlorination:	☐ Yes ☐ No ☒ N/A	14.
Headspace in VOA Vials (>6mm):	☐ Yes ☐ No ☒ N/A	15.
Trip Blank Present:	☐ Yes ☐ No ☒ N/A	16.
Trip Blank Custody Seals Present	☐ Yes ☐ No ☒ N/A	
Pace Trip Blank Lot # (if purchased):		

Client Notification/ Resolution:

Field Data Required?

Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review:

Date: 2/24/09

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

Per 2/24/09 SK

Material Safety Data Sheet



Distributed by

WORUR CHEMICAL COMPANY

2130 ENERGY PARK DRIVE • ST. PAUL, MINNESOTA 55108 • 612-645-9224

24 HOUR EMERGENCY ASSISTANCE • CHEMTREC 800-424-9300

Acute Health + 2	Fire 1	Reactivity 0	HAZARD RATING: LEAST-0 SLIGHT-1 MODERATE-2 HIGH-3 EXTREME-4
---------------------	-----------	-----------------	--

Chemical Name and Synonyms:

N/A

Trade Name and Synonyms:

2380 Glycol Mix Product #16465

Chemical Family:

N/A

Formula:

N/A

DOT Shipping Name: Ethylene Glycol Solution

DOT Hazard Class: Not Regulated

SECTION 1 • PHYSICAL DATA

Boiling Point @ 760 mm Hg or Range: 212°F - 387°F	Vapor Pressure: mm Hg @ 68°F 13.2	Vapor Density (Air = 1): .7	Solubility (Weight % in Water): 100
Specific Gravity (H ₂ O = 1): @ 60°F 1.06	Volume % Volatile: 50	Evaporation Rate: (Butyl Acetate = 1) Probably less than 1	

Appearance and Odor:

Clear liquid with a characteristic odor.

SECTION 2 • HAZARDOUS INGREDIENTS

	%	T.L.V. (p.p.m.)
Ethylene Glycol Inhibited (107-21-1)	46-57	50
Deionized Water	40-59	Not determined
SEE ATTACHED PAGE FOR SUBSTANCES SUBJECT TO SECTION 313 OF TITLE III OF S.A.R.A.		

SECTION 3 • FIRE AND EXPLOSION HAZARD DATA

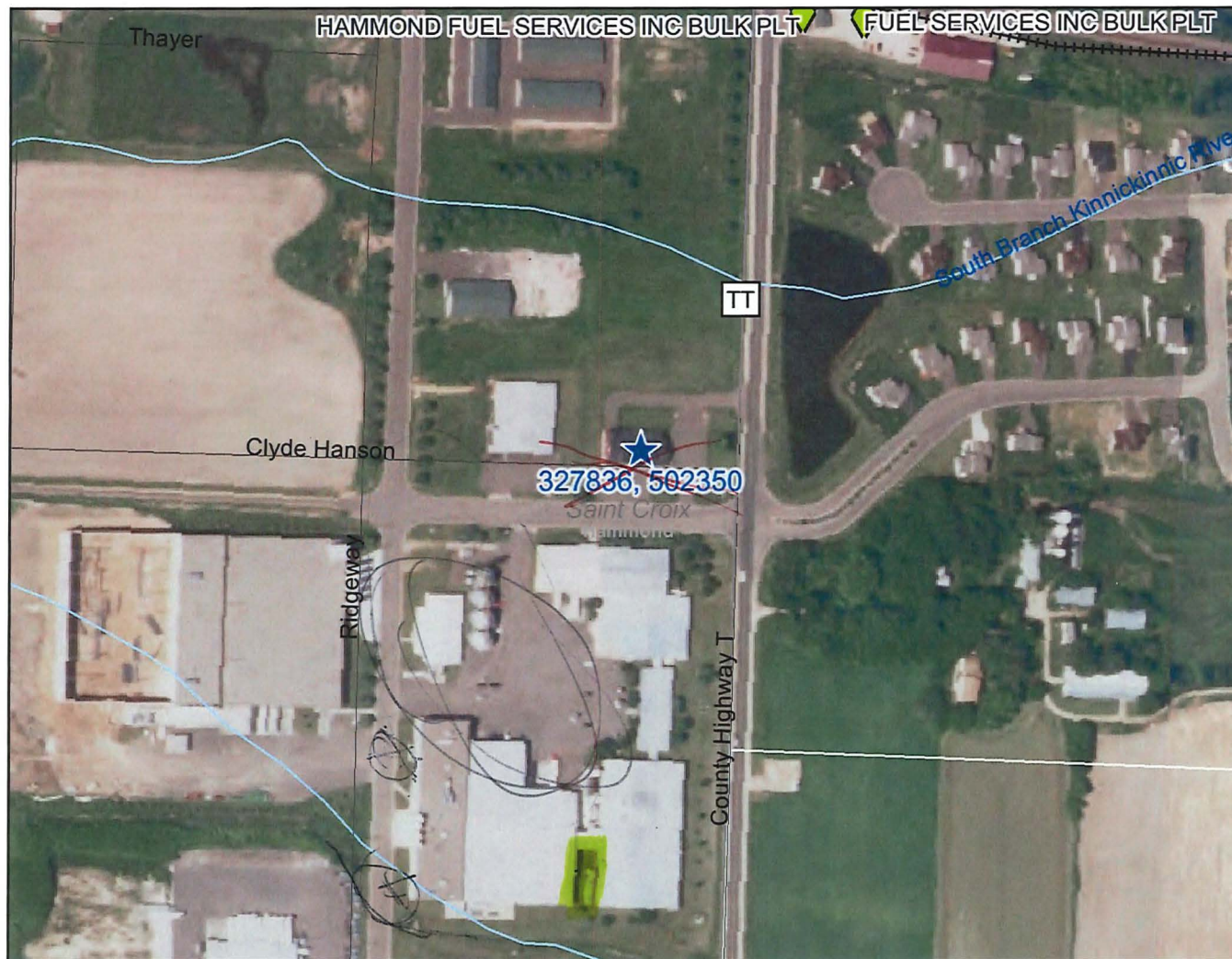
Flash Point °F Method Used = TCC 250°F for the lowest flashing component	Flammable Limits in Air (% by Volume) LEL: N/D UEL: N/D	Extinguishing Media: Carbon dioxide, dry chemical, or foam
Special Fire Fighting Procedures: Cool fire-exposed containers with water. Do not enter confined fire space without proper protective equipment including a NIOSH-approved self-contained breathing apparatus.		
Unusual Fire and Explosion Hazards:		

SECTION 4 • HEALTH HAZARD DATA

Permissible Exposure Limits (TLV): For the lowest component.

50 ppm

Map Created on Feb 23, 2009



Legend

- Open Sites (ongoing cleanups)
- Open Sites (ongoing cleanups) - site boundaries shown
- Closed Sites (completed cleanups)
- Closed Sites (completed cleanups) - site boundaries shown
- County Boundary
- Railroads
- Major Highways
- Interstate
- US Highway
- State Highway
- Local Roads
- Civil Towns
- Civil Town
- 24K Open Water
- 24K Rivers and Shorelines
- Municipalities

0 350 700 1050 ft.

Map created on Feb 23, 2009

Note: Not all RR Sites have been geo-located yet.

This map is a user generated static output from an Internet mapping site and is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. THIS MAP IS NOT TO BE USED FOR NAVIGATION.

Notes: 20090222WC56-1 LOPAREX

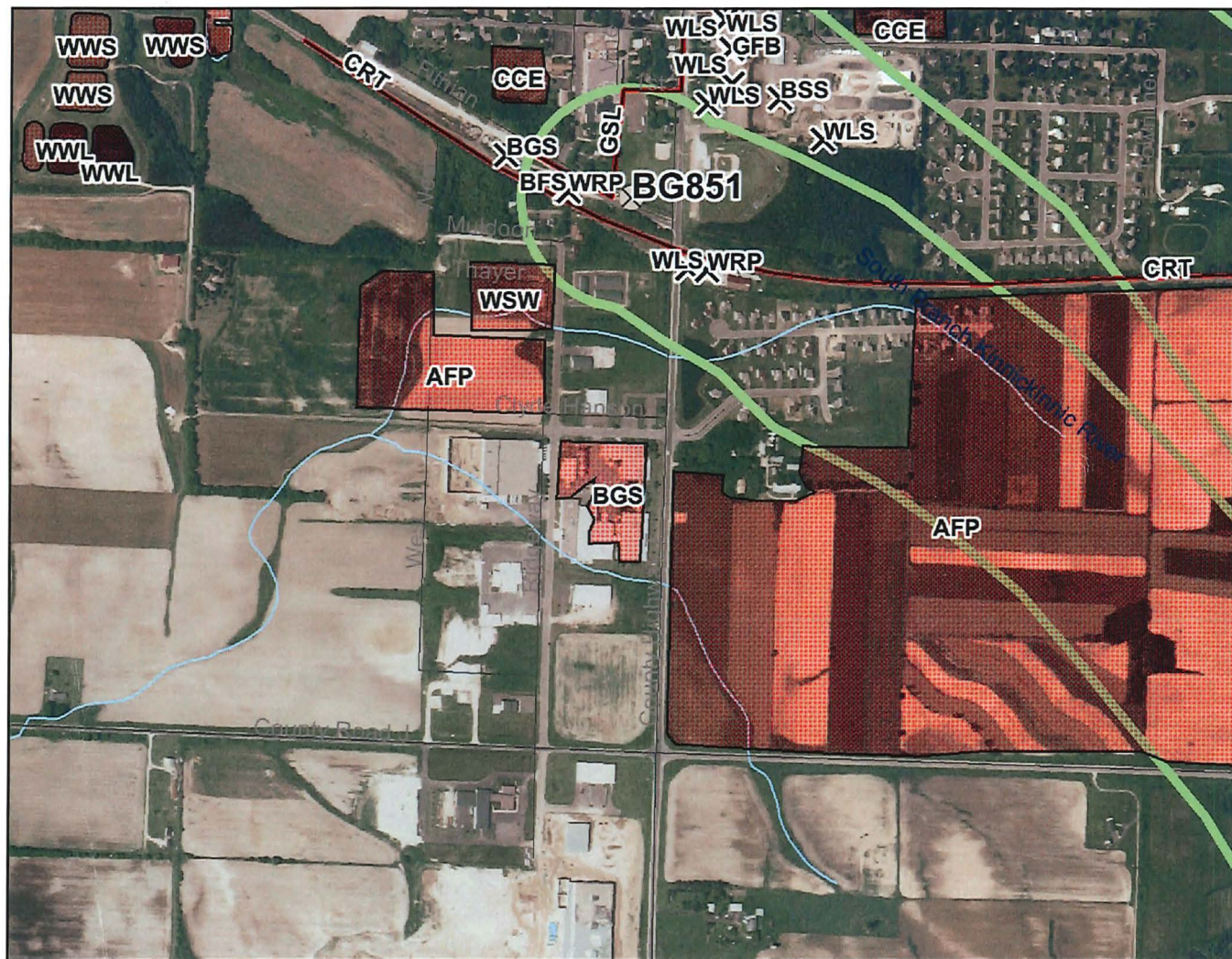


Scale: 1:3,619

1900.8



Source Water Assessment Program



- Legend**
- Public Water Supply Well
 - Point Potential Contaminant Source
 - Line Potential Contaminant Source
 - Area Potential Contaminant Source
- Assessments Area**
- Default Minimum Radius
 - Default Minimum Radius
 - Default Minimum Radius
 - Calculated fixed radius
 - hydrogeologic modeled capture area
 - wellhead protection area

0 1100 2200 3300 ft.



Scale: 1:11,051

The specific locations of drinking water wells, surface water intakes, and source water assessment areas are sensitive information. To prevent misuse of this information DNR staff may not provide this information outside of the Department. Information requests should be directed to Gabrielle Petersen, (608) 266-8470, Gabrielle.Petersen@wisconsin.gov.

State of Wisconsin - Department of Natural Resources
Substance Release Notification Report (SERTS)
Report created on 02/23/2009

DRAFT

SPILL ID# 20090222WC56-1

Incident Date & Time: 02/22/2009 UNKNOWN	Reported Date & Time: 02/22/2009 11:21	BRRTS No: OPEN	Spill ID: 20090222WC56-1
DATCP Reported? No DATCP Transferred? No	NFA Letter Sent? No	ERP Transferred? No	Incident Closed? No

Location		
Region: WC	County: St. Croix	Municipality: HAMMOND, VILLAGE OF
Facility/Property Name and Street Address: 1060 CLYDE HANSON DR 1060 CLYDE HANSON DR		Description:
Facility Type: Industrial Facility (foundry, factory, platter, etc)		
Lat/Long:	PLSS:	WTM:
Weather Conditions: Sunny, Snow		

Responsible Parties			
Name/Address (1): LOPAREX 1060 CLYDE HANSON DR HAMMOND, WI 54015- (715) 796-2245 x Primary (715) 760-1447 x Secondary	Contact: GERALD KERBER ENGINEERING MANAGER (715) 796-2245 x primary (715) 760-1447 x secondary	Other Contact:	Spill Packet: Sent on 02/23/2009 to GERALD.KERBER@LOPAREX via email

Cause
BROKEN PIPE

Cause Type: Equipment Failure

Substances						
Name	Other / Comments	Amt Released	Amt Recovered	Type	Color	Odor
Antifreeze	ETHYENE GLYCOL	200.0 Gal	0.0 Gal	LIQUID		

Environmental Impacts / Damages			
Environmental Impacts: SOIL SURFACE WATER : Potential - Name : S BRANCH KINNIKINNIC RIVER	Resource Damages: No	Injuries: No	Evacuation: No

Cleanup Actions	
Method	Description
Excavation	

Cleanup Action Comments
GERALD KERBER CALLED TOM KENDZIERSKI AT 1000 HRS ON 2/23/09 AND REPORTED THAT LOPAREX HAD HIRED CLEAN HARBORS WHO HAD EXCAVATED THE SPILL AREA AND TOOK SAMPLES. KERBER WILL FORWARD THE CLEAN HARBORS REPORT WHEN READY. KENDZIERSKI ALSO E-MAILED KERBER SPILL PROGRAM INFO AT KERBER'S REQUEST FOR UPDATING LOPAREX'S CONTINGENCY PLANS. TKE

Contractors Hired	
Name	Description

State of Wisconsin - Department of Natural Resources
 Substance Release Notification Report (SERTS)
 Report created on 02/23/2009

SPILL ID# 20090222WC56-1

CLEANHARBORS 800-645-8265				
Waste Destinations				
Location		Description		
Agencies Notified / On Scene				
Agency		Notified	On Scene	
DNR		X		
Additional Comments				
CALLER WOULD LIKE A CALL FROM SPILL COORDINATOR SUBMITTED VIA SERTS WEB FORM REF # 4204				
Enforcement Action/Citation				
Enforcement Action/Citation? Undetermined				
Case Activity Reports:				
Person Reporting				
Name	Representing / Address	Primary Phone	Secondary Phone	
GERALD KERBER	LOPAREX	(715) 796-2245 x	(715) 760-1447 x	
Contractors Hired				
Name / Address			Zone Contractor Hired by DNR?	
			No	
Contacts				
Role	Name	Office Phone	Date	Time
Prepared By:	Adrienne (Andy) Casper	(608) 267-0844 x	02/22/2009	
Person Notified:	WARDEN PAUL SICKMAN		02/22/2009	
Investigated By:	TOM KENDZIERSKI	(715) 839-1604 x	02/22/2009	
Incident Commander:				
Spill Coordinator:	THOMAS KENDZIERSKI, WC Region	(715) 839-1604 x		
Electronic Attachments (list)				
Name		Type		



Address **1060 Clyde Hanson Dr**
Hammond, WI 54015

Get Google Maps on your phone



Text the word "GMAPS" to 466453

