TriMatrix Laboratories, Inc.

Volatile Soil Sample Receipt Information Sheet

Client: MDEQ   Date Received: 06/06/2002   Sheet Completed By: LEW

Project-Submittal: 36024.1   Date Form Completed: 06/06/2002   Sheet Reviewed By:

Client Sample Identification	TriMatrix Sample Number	Vial Size: 40, 60, or 120 mL	Empty Weight of Bottle (g)	MeOH Added: 10, 25, or 50 mL	Full Weight of Bottle (g)	Date Sample Weighed	Time Sample Weighed	Weight of Soil (g)	Low Wt. Flag Required?	Additional MeOH Required?	Accept/ Reject Sample	MeOH to Add (mL)	mL MeOH Added: By, Date, Time
SS15		40	25.1	10	45.1			12.1		*Yes*	Accept Sample	2.1	2.1
SS16		40	25.2	10	43.3			10.2			Accept Sample		
SS17		40	25.2	10	42.9			9.8			Accept Sample		
SS18		40	25.2	10	45.1			12.0		*Yes*	Accept Sample	2.0	2.0
SS19		40	25.3	10	44.2			11.0			Accept Sample		
SS20		40	25.2	10	43.5			10.4			Accept Sample		
SS21		40	25.3	10	44.5			11.3			Accept Sample		
SS22		40	25.3	10	44.5			11.3			Accept Sample		
SS23		40	25.3	10	42.9			9.7			Accept Sample		
SS24		40	25.0	10	45.4			12.5		*Yes*	Accept Sample	2.5	2.5
SS25		40	25.3	10	43.6			10.4			Accept Sample		
SB1		40	25.1	10	44.1			11.1			Accept Sample		
SB2		40	25.1	10	43.8			10.8			Accept Sample		
SB3		40	25.4	10	44.1			10.8			Accept Sample		

Tri-Matrix Laboratories, Inc.

Volatile Soil Sample Receipt Information Sheet

Client: MDEQ
Date Received: 06/06/2002
Sheet Completed By: LEW

Project-Submittal: 36524.1
Date Form Completed: 06/06/2002
Sheet Reviewed By:

Client Sample Identification	TriMatrix Sample Number	Vial Size: 40, 60, or 120 mL	Empty Weight of Bottle (g)	MeOH Added: 10, 25, or 50 mL	Full Weight of Bottle (g)	Date Sample Weighed	Time Sample Weighed	Weight of Soil (g)	Low Wt. Flag Required?	Additional MeOH Required?	Accept/ Reject Sample	MeOH to Add (mL)	mL MeOH Added: By, Date, Time
SB4		40	25.1	10	43.2			10.2			Accept Sample		
SB5		40	25.3	10	42.6			9.3			Accept Sample		
SB6		40	25.3	10	42.6			9.4			Accept Sample		
SB7		40	25.3	10	43.5			10.3			Accept Sample		
SB8		40	25.4	10	43.4			10.1			Accept Sample		
SB9		40	25.4	10	44.6			11.3			Accept Sample		
SB10		40	25.4	10	41.9			8.6			Accept Sample		

TriMatrix Laboratories, Inc.

Volatile Soil Sample Preservation Log

Client Name: _______ MDEQ

Date and Time Sample(s) Received 6-6-02

Sample(s) from Wisconsin or Michigan: Yes No

Are samples Encores or Pre-pres.

pg 1 of 3

Type: Low, High, (Pre-pres.)*	Sample ID	Weight of Sample (g)	mL of MeOH or Na(SO4)2 added	Added: By, Date, Time	Received Within 40 Hours	Preserved Within 48 Hours	Sonicated By, Date, Time
	SS1	12.6	2.6 mL ~~na~~	LED, 6/6/02, 1430	n/a	n/a	[illegible] 6/6/02 1600
	SS2	12.4	12.4 mL				
	SS3	10.5	na	n/a			
	SS4	10.4					
	SS5	11.3					
	SS6	10.7					
	SS7	10.9					
	SS8	10.1					
	SS9	10.8					
	SS10	10.5					
	SS11	11.8	1.8 mL	LED, 6/6/02, 1430			
	SS12	12.3	2.3 mL				
	SS13	10.9	n/a	n/a			
	SS14	11.3					
	SS15	12.1	2.1 mL	LED, 6/6/02, 1430			

* Samples that are pre-preserved in the field will have a "PVOC Sample Receipt Information Sheet" attached.

TriMatrix Laboratories, Inc.

Volatile Soil Sample Preservation Log

Client Name: _______ MDEQ

Date and Time Sample(s) Received ______________

Sample(s) from Wisconsin or Michigan: Yes No

Are samples Encores or Pre-pres.

pg 2 of 3

Type: Low, High, (Pre-pres.)*	Sample ID	Weight of Sample (g)	mL of MeOH or Na(SO4)2 added	Added: By, Date, Time	Received Within 40 Hours	Preserved Within 48 Hours	Sonicated By, Date, Time
	SS16	10.2	na	n/a	n/a	n/a	fme 6/6/02
	SS17	9.8					
	SS18	12.0	2.0ml	LEW 6-6-02, 1430			
	SS19	11.0	n/a	n/a			
	SS20	10.4					
	SS21	11.3					
	SS22	11.3					
	SS23	9.7					
	SS24	12.5	2.5ml	LEW, 6-6-02, 1430			
	SS25	10.4	n/a	n/a			
	SB1	11.1					
	SB2	10.8					
	SB3	10.8					
	~~SB3~~	LEW 6-7-02 ~~10.8~~					
	SB4	10.2					

* Samples that are pre-preserved in the field will have a "PVOC Sample Receipt Information Sheet" attached.

TriMatrix Laboratories, Inc.

Volatile Soil Sample Preservation Log

Client Name: _______ MDEQ

Date and Time Sample(s) Received ____________

Sample(s) from Wisconsin or Michigan: Yes No

Are samples Encores or Pre-pres.

pg 3 of 3

Type: Low, High, (Pre-pres.)*	Sample ID	Weight of Sample (g)	mL of MeOH or Na(SO4)2 added	Added: By, Date, Time	Received Within 40 Hours	Preserved Within 48 Hours	Sonicated By, Date, Time
	SB5	9.3	n/a	n/a	n/a	n/a	tma 6/6/02
	SB6	9.4					
	SB7	10.3					
	SB8	10.1					
	SB9	11.3					
	SB10	8.6					

* Samples that are pre-preserved in the field will have a "PVOC Sample Receipt Information Sheet" attached.

JUN 2 0 2002

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: June 19, 2002

SUBJECT: Review of Data
Received for Review on June 13, 2002

FROM: Stephen L. Ostrodka, Chief (SMF-4J)
Superfund Field Services Section

TO: Data User: MDEQ

The data in this case has not been validated.
We have compiled the CADRE files into a narrative format for the following case:

SITE NAME: Tamarack City/ Stamp Mill

C : NUMBER: 30568 SDG NUMBER: ME0SS1

Number and Type of Samples: 20 soils

Sample Numbers: ME0SS1-9; ME0ST0-9; ME0SW0

Laboratory: Compuchem Hrs. for Review: 2

Following are our findings:

CC: Cecilia Moore
Region 5 TPO
Mail Code: SM-5J

RECEIVED
JUN 2 5 2002
ERD-SUPERFUND

Case Number : 30568
Site Name: Tamarack City/ Stamp Mill

SDG Number: ME0SS1
Laboratory: Compuchem

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

NUMBER (##) MATRIX samples numbered ##, were collected on DATE. The lab received the samples on DATE in good condition. All samples were analyzed for metals and cyanide. All samples were analyzed using CLP SOW ILM04.1 analysis procedures.

Mercury analysis was performed using a Cold Vapor AA Technique. Cyanide analysis was performed using the MIDI Distillation procedure. The remaining inorganic analyses were performed using an Inductively Coupled Plasma-Atomic Emission Spectrometric procedure.

Assembled By: ESAT
Date: June 19, 2002

Case Number : 30568
Site Name: Tamarack City/ Stamp Mill

SDG Number: ME0SS1
Laboratory: Compuchem

HOLDING TIME:

Holding Time Report

SDG NO: ME0SS1

HOLDING TIME CRITERIA

Inorganic

	Holding Time Primary	Holding Time Expanded	pH Primary	pH Expanded
Metals	180	0	2.0	0.0
Mercury	28	0	2.0	0.0
Cyanide	14	0	12.0	0.0

DC-280: The following inorganic soil samples were reviewed for holding time violations using criteria developed for water samples.

ME0SS1, ME0SS2, ME0SS3, ME0SS3D, ME0SS3S, ME0SS4
ME0SS5, ME0SS6, ME0SS7, ME0SS8, ME0SS9, ME0ST0
ME0ST1, ME0ST2, ME0ST3, ME0ST4, ME0ST5, ME0ST6
ME0ST7, ME0ST8, ME0ST9, ME0SW0

CALIBRATIONS:

Calibration Report

SDG NO: ME0SS1

CALIBRATION CRITERIA

Inorganic

Percent Recovery Limits

	Primary Low	Primary High	Expanded Low	Expanded High
Cyanide	85.00	115.00	70.00	130.00
AA	90.00	110.00	75.00	125.00
ICP	90.00	110.00	75.00	125.00
Mercury	80.00	120.00	65.00	135.00

No problems found for this qualification.

Assembled By: ESAT
Date: June 19, 2002

Case Number : 30568
Site Name: Tamarack City/ Stamp Mill

SDG Number: ME0SS1
Laboratory: Compuchem

CRDL Standards Report

SDG NO: ME0SS1

DC-373: The following inorganic samples are associated with a CRDL standard with low percent recovery.

Copper
PBS02

Selenium
ME0SS5, ME0SS9, ME0ST3

Zinc
ME0SS1, ME0SS2, ME0SS3, ME0SS4, ME0SS5, ME0SS6
ME0SS7, ME0SS8, ME0SS9, ME0ST0, ME0ST1, ME0ST2
ME0ST3, ME0ST4, ME0ST5, ME0ST6, ME0ST7, ME0ST8
ME0ST9, ME0SW0, PBS02

DC-374: The following inorganic samples are associated with a CRDL standard with high percent recovery.
Hits and non-detects are flagged .

Arsenic
ME0SS5, ME0SS9, ME0ST3

Copper
ME0SS1, ME0SS2, ME0SS3, ME0SS4, ME0SS5, ME0SS6
ME0SS7, ME0SS8, ME0SS9, ME0ST0, ME0ST1, ME0ST2
ME0ST3, ME0ST4, ME0ST5, ME0ST6, ME0ST7, ME0ST8
ME0ST9, ME0SW0

Lead
ME0SS1, ME0SS2, ME0SS3, ME0SS4, ME0SS5, ME0SS6
ME0SS7, ME0SS8, ME0SS9, ME0ST0, ME0ST1, ME0ST2
ME0ST3, ME0ST4, ME0ST5, ME0ST6, ME0ST7, ME0ST8
ME0ST9, ME0SW0

Mercury
ME0SS1, ME0SS2, ME0SS3, ME0SS4, ME0SS5, ME0SS6
ME0SS7, ME0SS8, ME0SS9, ME0ST0, ME0ST1, ME0ST2
ME0ST3, ME0ST4, ME0ST5, ME0ST6, ME0ST7, ME0ST8
ME0ST9, ME0SW0, PBS04

Selenium
ME0SS1, ME0SS2, ME0SS3, ME0SS4, ME0SS5, ME0SS6
ME0SS7, ME0SS8, ME0SS9, ME0ST0, ME0ST1, ME0ST2
ME0ST3, ME0ST4, ME0ST5, ME0ST6, ME0ST7, ME0ST8
ME0ST9, ME0SW0, PBS02

Thallium
ME0SS1, ME0SS2, ME0SS3, ME0SS4, ME0SS5, ME0SS6
ME0SS7, ME0SS8, ME0SS9, ME0ST0, ME0ST1, ME0ST2
ME0ST3, PBS02

3. BLANKS:

Laboratory Blanks Report

Assembled By: ESAT
Date: June 19, 2002

Case Number : 30568
Site Name: Tamarack City/ Stamp Mill

SDG Number: ME0SS1
Laboratory: Compuchem

SDG NO: ME0SS1

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LABORATORY BLANKS CRITERIA

DC-283: The following inorganic samples are associated with a blank analyte with negative concentration whose absolute value is greater than the instrument detection limit (IDL). Professional judgement should be used to qualify the data.

ME0SS1
Calcium, Chromium, Copper, Sodium
Zinc, Cyanide

ME0SS2
Calcium, Chromium, Copper, Sodium
Zinc, Cyanide

ME0SS3
Calcium, Chromium, Copper, Sodium
Zinc, Cyanide

ME0SS3D
Calcium, Chromium, Copper, Sodium
Zinc, Cyanide

ME0SS3S
Chromium, Copper, Zinc, Cyanide

ME0SS4
Calcium, Chromium, Copper, Sodium
Zinc, Cyanide

ME0SS5
Calcium, Chromium, Copper, Selenium
Sodium, Zinc, Cyanide

ME0SS6
Calcium, Chromium, Copper, Sodium
Zinc, Cyanide

ME0SS7
Calcium, Chromium, Copper, Sodium
Zinc, Cyanide

ME0SS8
Calcium, Chromium, Copper, Sodium
Zinc, Cyanide

ME0SS9
Calcium, Chromium, Copper, Selenium
Sodium, Zinc, Cyanide

ME0ST0
Calcium, Chromium, Copper, Sodium
Zinc, Cyanide

ME0ST1
Calcium, Chromium, Copper, Sodium
Zinc, Cyanide

ME0ST2
Calcium, Chromium, Copper, Sodium

Zinc, Cyanide

ME0ST3
Calcium, Chromium, Copper, Selenium
Sodium, Zinc, Cyanide

ME0ST4
Calcium, Chromium, Copper, Sodium
Zinc, Cyanide

ME0ST5
Calcium, Chromium, Copper, Sodium
Zinc, Cyanide

ME0ST6
Calcium, Chromium, Copper, Sodium
Zinc, Cyanide

ME0ST7
Calcium, Chromium, Copper, Sodium
Zinc, Cyanide

ME0ST8
Calcium, Chromium, Copper, Sodium
Zinc, Cyanide

ME0ST9
Calcium, Chromium, Copper, Sodium
Zinc, Cyanide

ME0SW0
Calcium, Chromium, Copper, Sodium
Zinc, Cyanide

DC-284: The following inorganic samples are associated with a blank concentration which is greater than the instrument detection limit (IDL). The sample concentration is also greater than the IDL and less than five times the blank concentration. Hits are qualified "J"; non-detects are not flagged.

Antimony
ME0SS3A, ME0SS5, ME0SS9

Beryllium
ME0SS1, ME0SS2, ME0SS3, ME0SS3D, ME0SS4, ME0SS5
ME0SS6, ME0SS7, ME0SS8, ME0SS9, ME0ST0, ME0ST1
ME0ST2, ME0ST3, ME0ST4, ME0ST5, ME0ST6, ME0ST8
ME0ST9, ME0SW0

Cadmium
ME0SS1, ME0SS2, ME0SS3, ME0SS3D, ME0SS5, ME0SS7
ME0SS8, ME0SS9, ME0ST9, ME0SW0

Manganese
ME0SS3A

Silver
ME0SS1, ME0SS2, ME0SS3, ME0SS3D, ME0SS4, ME0SS6

DC-338: During review of the following inorganic samples, the reported IDL/default CRDL value was used for cyanide.

ME0SS1, ME0SS2, ME0SS3, ME0SS3D, ME0SS3S, ME0SS4
ME0SS5, ME0SS6, ME0SS7, ME0SS8, ME0SS9, ME0ST0

Case Number : 30568 SDG Number: ME0SS1
Site Name: Tamarack City/ Stamp Mill Laboratory: Compuchem

ME0ST1, ME0ST2, ME0ST3, ME0ST4, ME0ST5, ME0ST6
ME0ST7, ME0ST8, ME0ST9, ME0SW0

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE:

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Matrix Spike Report

SDG NO: ME0SS1

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MATRIX SPIKE CRITERIA

Inorganic

Percent Recovery Limits

Upper	125.0
Lower	75.0
Extreme lower	30.0

DC-268: The following inorganic samples are associated with a matrix spike recovery which is low (30-74 %) indicating that sample results may be biased low.
Hits are qualified "J" and non-detects are qualified "UJ".

Antimony
ME0SS1, ME0SS2, ME0SS3, ME0SS3A, ME0SS3D, ME0SS4
ME0SS5, ME0SS6, ME0SS7, ME0SS8, ME0SS9, ME0ST0
ME0ST1, ME0ST2, ME0ST3, ME0ST4, ME0ST5, ME0ST6
ME0ST7, ME0ST8, ME0ST9, ME0SW0

Manganese
ME0SS1, ME0SS2, ME0SS3, ME0SS3A, ME0SS3D, ME0SS4
ME0SS5, ME0SS6, ME0SS7, ME0SS8, ME0SS9, ME0ST0
ME0ST1, ME0ST2, ME0ST3, ME0ST4, ME0ST5, ME0ST6
ME0ST7, ME0ST8, ME0ST9, ME0SW0

DC-269: The following inorganic samples are associated with a matrix spike recovery which is extremely low (<30 %) indicating that sa mple results may be biased low.
Hits are qualified "J" and non-detects are qualified "R".

Thallium
ME0SS1, ME0SS2, ME0SS3, ME0SS3A, ME0SS3D, ME0SS4
ME0SS5, ME0SS6, ME0SS7, ME0SS8, ME0SS9, ME0ST0
ME0ST1, ME0ST2, ME0ST3, ME0ST4, ME0ST5, ME0ST6
ME0ST7, ME0ST8, ME0ST9, ME0SW0

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LCS Report

SDG NO: ME0SS1

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No problems found for this qualification.

Assembled By: ESAT
Date: June 19, 2002

5. LABORATORY AND FIELD DUPLICATE

Duplicates Report

SDG NO: ME0SS1

DC-256: The following inorganic samples are associated with duplicate results which did not meet relative percent difference (RPD) criteria.
Hits are qualified "J" and non-detects are qualified "UJ".

Copper
ME0SS1, ME0SS2, ME0SS3, ME0SS3S, ME0SS4, ME0SS5
ME0SS6, ME0SS7, ME0SS8, ME0SS9, ME0ST0, ME0ST1
ME0ST2, ME0ST3, ME0ST4, ME0ST5, ME0ST6, ME0ST7
ME0ST8, ME0ST9, ME0SW0

Lead
ME0SS1, ME0SS2, ME0SS3, ME0SS3S, ME0SS4, ME0SS5
ME0SS6, ME0SS7, ME0SS8, ME0SS9, ME0ST0, ME0ST1
ME0ST2, ME0ST3, ME0ST4, ME0ST5, ME0ST6, ME0ST7
ME0ST8, ME0ST9, ME0SW0

6. ICP ANALYSIS

ICS Report

SDG NO: ME0SS1

DC-307: The following inorganic samples have no associated ICS analyses.
Manual review of the data is required.

ME0SS1
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SS2
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SS3
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SS4

Case Number : 30568
Site Name: Tamarack City/ Stamp Mill

SDG Number: ME0SS1
Laboratory: Compuchem

Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SS5
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SS6
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SS7
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SS8
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SS9
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0ST0
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0ST1
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0ST2
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0ST3
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead

Case Number : 30568
Site Name: Tamarack City/ Stamp Mill

SDG Number: ME0SS1
Laboratory: Compuchem

Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0ST4
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0ST5
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0ST6
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0ST7
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0ST8
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0ST9
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SW0
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

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Serial Dilution Report

SDG NO: ME0SS1

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DC-294: The analyte concentration is high (>50 X the IDL) and serial dilution percent difference is not in criteria (>10%). Hits are qualified "J" and non-detects are qualified "UJ".

Potassium

Assembled By: ESAT
Date: June 19, 2002

Case Number : 30568
Site Name: Tamarack City/ Stamp Mill

SDG Number: ME0SS1
Laboratory: Compuchem

ME0SS1, ME0SS2, ME0SS3, ME0SS3D, ME0SS4, ME0SS5
ME0SS6, ME0SS7, ME0SS8, ME0SS9, ME0ST0, ME0ST1
ME0ST2, ME0ST3, ME0ST4, ME0ST5, ME0ST6, ME0ST7
ME0ST8, ME0ST9, ME0SW0

7. GFAA ANALYSIS

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Furnace AA QC Report

SDG NO: ME0SS1

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No problems found for this qualification.

8. SAMPLE RESULTS

All data, except those qualified above, are acceptable.

||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||

Sample Result Verification Report

SDG NO: ME0SS1

||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||

No problems found for this qualification.

Assembled By: ESAT
Date: June 19, 2002

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The data are unusable. (The compound may or may not be present)

Case #: 30568 SDG : ME0SS1

Site : TAMARACK CITY / STAMP MILL

Lab. : LIBRTY

Reviewer :

Date :

Number of Soil Samples : 20

Number of Water Samples : 0

Sample Number :	ME0SS1		ME0SS2		ME0SS3		ME0SS4		ME0SS5	
Sampling Location :	SS-1		SS-2		SS-3		SS-4		SS-5	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	10:10		10:15		11:45		13:00		13:20	
%Solids :	85.2		88.6		76.0		95.6		93.7	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	6450		5450		6080		11900		6620	
ANTIMONY	0.53	J	0.84	J	0.42	UJ	0.38	J	0.58	J
ARSENIC	76.6		4.7		4.4		2.3		61.0	
BARIUM	166		38.9		51.5		153		48.1	
BERYLLIUM	0.81	J	0.52	J	0.62	J	0.34	J	0.53	J
CADMIUM	0.57	J	0.090	J	0.11	J	0.060	U	0.17	J
CALCIUM	8970		6210		5210		19900		5830	
CHROMIUM	26.5		14.7		12.6		40.5		17.8	
COBALT	9.2		7.5		8.3		18.1		11.4	
COPPER	1170	J	1190	J	681	J	1070	J	15700	J
IRON	22800		10900		10600		16800		22700	
LEAD	865	J	122	J	116	J	578	J	85.3	J
MAGNESIUM	6180		4990		5670		17200		7500	
MANGANESE	310	J	209	J	213	J	408	J	363	J
MERCURY	0.23		0.28		0.17		0.070		0.64	
NICKEL	25.1		17.2		19.9		31.6		26.4	
OTASSIUM	780	J	423	J	367	J	116	J	190	J
SELENIUM	6.8		0.59		1.4		0.45	U	1.6	
SILVER	0.80	J	0.26	J	0.25	J	0.50	J	3.2	
SODIUM	390		159		166		153		103	
THALLIUM	0.76	R	0.74	R	0.87	R	0.67	R	0.69	R
VANADIUM	30.1		27.1		25.8		44.9		30.3	
ZINC	360		92.8		95.6		195		145	
CYANIDE	0.23		0.10		0.12		0.030	U	0.31	

DISCLAIMER: This package has been electronically assessed as an added service to our customer. It has not been either validated or approved by Region 5 and any subsequent use by the data user is strictly at the risk of the data user. Region 5 assumes no responsibility for use of unvalidated data.

Analytical Results (Qualified Data)

Case #: 30568 SDG : ME0SS1
Site : TAMARACK CITY / STAMP MILL
Lab. : LIBRTY
Reviewer :
Date :

Sample Number :	ME0SS6		ME0SS7		ME0SS8		ME0SS9		ME0ST0	
Sampling Location :	SS-6		SS-7		SS-8		SS-9		SS-10	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	13:30		13:25		13:10		13:45		13:55	
%Solids :	91.3		89.1		93.9		91.8		93.9	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	5360		6230		5920		8480		6020	
ANTIMONY	0.34	UJ	0.36	UJ	0.37	J	0.87	J	0.32	UJ
ARSENIC	5.2		10.1		15.0		14.2		3.1	
BARIUM	35.3		66.6		50.4		69.1		28.0	
BERYLLIUM	0.43	J	0.64	J	0.58	J	0.49	J	0.34	J
CADMIUM	0.060	U	0.10	J	0.17	J	0.14	J	0.060	U
CALCIUM	3770		7540		4180		14400		6910	
CHROMIUM	12.4		13.3		16.5		54.4		14.2	
COBALT	7.2		8.2		8.9		13.8		7.7	
COPPER	1710	J	3290	J	2060	J	8940	J	1280	J
IRON	9720		14800		15700		25500		9490	
LEAD	82.0	J	76.7	J	104	J	192	J	82.7	J
MAGNESIUM	4990		5280		5080		9090		6550	
MANGANESE	138	J	265	J	190	J	350	J	179	J
MERCURY	0.070		0.18		0.31		0.17		0.070	
NICKEL	14.6		18.0		20.1		71.6		17.9	
OTASSIUM	328	J	539	J	366	J	260	J	174	J
SELENIUM	0.92		1.7		1.8		1.0		0.45	U
SILVER	0.62	J	0.92		0.66		3.3		0.39	
SODIUM	100		143		85.9		220		170	
THALLIUM	0.71	R	0.73	R	0.70	R	0.71	R	0.67	R
VANADIUM	26.4		28.1		28.4		45.3		26.0	
ZINC	75.0		115		117		159		61.4	
CYANIDE	0.10		0.21		0.10		0.15		0.070	

Analytical Results (Qualified Data)

Case #: 30568 SDG : ME0SS1
Site : TAMARACK CITY / STAMP MILL
Lab. : LIBRTY
Reviewer :
Date :

Sample Number :	ME0ST1		ME0ST2		ME0ST3		ME0ST4		ME0ST5	
Sampling Location :	SS-11		SS-12		SS-13		SS-14		SS-15	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	14:55		14:05		14:10		14:25		14:40	
%Solids :	95.3		91.7		89.5		96.3		87.2	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	7410		10400		9640		7980		6870	
ANTIMONY	0.33	UJ	0.36	J	2.8	J	0.48	J	0.35	UJ
ARSENIC	3.3		6.2		16.0		4.1		5.0	
BARIUM	36.5		31.4		157		39.6		27.6	
BERYLLIUM	0.40	J	0.40	J	0.52	J	0.54	J	0.35	J
CADMIUM	0.060	U	0.060	U	0.070	U	0.060	U	0.070	U
CALCIUM	6560		16200		27800		6200		6780	
CHROMIUM	24.3		25.0		88.7		17.1		21.4	
COBALT	9.4		17.9		18.5		10.2		8.8	
COPPER	620	J	3340	J	9290	J	719	J	596	J
IRON	11400		14300		132000		10800		23300	
LEAD	69.1	J	55.9	J	878	J	41.4	J	34.4	J
MAGNESIUM	6850		12700		11400		7780		6470	
MANGANESE	218	J	315	J	1020	J	222	J	259	J
MERCURY	0.050	U	0.080		0.22		0.070		0.060	U
NICKEL	21.2		30.2		73.6		20.6		17.8	
OTASSIUM	314	J	87.3	J	145	J	283	J	297	J
SELENIUM	0.59		0.48		2.4		1.3		1.6	
SILVER	0.31		0.89		2.4		0.35		0.37	
SODIUM	246		136		118		182		388	
THALLIUM	0.68	R	0.70	R	0.73	R	0.68	R	0.72	R
VANADIUM	31.8		52.2		48.5		33.2		35.1	
ZINC	95.2		96.5		372		94.4		53.9	
CYANIDE	0.10		0.050		0.090		0.090		0.34	

Analytical Results (Qualified Data)

Case #: 30568
SDG : ME0SS1
Site : TAMARACK CITY / STAMP MILL
Lab. : LIBRTY
Reviewer :
Date :

Sample Number :	ME0ST6		ME0ST7		ME0ST8		ME0ST9		ME0SW0	
Sampling Location :	SS-16		SS-17		SS-18		SS-19		SS-20	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	14:30		11:35		11:20		11:25		11:10	
%Solids :	93.6		83.7		90.1		92.0		94.4	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	5800		8890		9080		5630		6830	
ANTIMONY	0.34	UJ	0.36	UJ	1.3	J	0.41	J	0.34	UJ
ARSENIC	2.4		15.4		11.8		4.9		3.8	
BARIUM	42.4		125		123		81.3		44.5	
BERYLLIUM	0.30	J	1.1		0.51	J	0.40	J	0.28	J
CADMIUM	0.060	U	0.070	U	0.070	U	0.40	J	0.10	J
CALCIUM	6530		6950		15000		6140		7670	
CHROMIUM	13.5		21.6		47.8		13.6		14.8	
COBALT	6.4		9.3		14.6		7.6		7.4	
COPPER	478	J	1020	J	4980	J	878	J	789	J
IRON	8440		18700		58400		8850		9960	
LEAD	38.6	J	115	J	197	J	209	J	51.7	J
MAGNESIUM	4780		4910		9070		5350		6050	
MANGANESE	176	J	222	J	895	J	211	J	211	J
MERCURY	0.050	U	0.13		0.39		0.10		0.11	
NICKEL	15.0		18.5		47.6		14.5		14.7	
POTASSIUM	386	J	666	J	294	J	243	J	299	J
SELENIUM	0.46	U	2.6		1.7		1.2		0.83	
SILVER	0.21		0.22		1.1		0.43		0.22	
SODIUM	279		474		338		151		273	
THALLIUM	0.69	R	0.75	R	0.71	R	0.71	R	0.70	R
VANADIUM	27.5		37.9		42.8		25.6		27.2	
ZINC	60.3		110		185		165		63.0	
CYANIDE	0.070		0.24		0.12		0.22		0.13	

DISCLAIMER: This package has been electronically assessed as an added service to our customer. It has not been either validated or approved by Region 5 and any subsequent use by the data user is strictly at the risk of the data user. Region 5 assumes no responsibility for use of unvalidated data.

Analytical Results (Qualified Data)

Page ____ of ____

Case #: 30568 SDG : ME0SS1
Site : TAMARACK CITY / STAMP MILL
Lab. : LIBRTY
Reviewer :
Date :

Sample Number :	ME0SS3D		ME0SS3S							
Sampling Location :	SS-3		SS-3							
Matrix :	Soil		Soil							
Units :	mg/Kg		mg/Kg							
Date Sampled :	06/04/2002		06/04/2002							
Time Sampled :	11:45		11:45							
%Solids :	76.0		76.0							
Dilution Factor :	1.0		1.0							
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	6240									
ANTIMONY	0.42	UJ	85.8							
ARSENIC	7.7		15.3							
BARIUM	61.4		585							
BERYLLIUM	0.62	J	12.9							
CADMIUM	0.18	J	12.7							
CALCIUM	5750									
CHROMIUM	14.6		66.3							
COBALT	8.1		133							
COPPER	1690		2590	J						
IRON	11400									
LEAD	202		102	J						
MAGNESIUM	5040									
MANGANESE	253	J	311							
MERCURY	0.21		0.82							
NICKEL	16.8		142							
OTASSIUM	388	J								
SELENIUM	1.8		3.9							
SILVER	0.57	J	12.9							
SODIUM	140									
THALLIUM	0.87	R	0.87	U						
VANADIUM	27.6		162							
ZINC	103		226							
CYANIDE	0.13		6.7							

Duag 1

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: 30568
DAS No:
SDG No: MEOSS1, MEOSW1 L

Date Shipped: 6/4/02
Carrier Name: UPS
Airbill: 1Z 549 OW4 22 1008 057 6
Shipped to: Liberty Analytical
501 Madison Avenue
Cary NC 27513
(919) 379-4100

Chain of Custody Record

Sampler Signature:

	Relinquished By	(Date / Time)	Received By	(Date / Time)
1	[signature]	6/4/02 16:30	[signature]	6-5-02 910
2				
3				
4				

For Lab Use Only
Lab Contract No: 68W00088
Unit Price: $79.57
Transfer To:
Lab Contract No:
Unit Price:

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
ME0SS4	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-4	6/4/02 - 13:00	E0SS4	Good
ME0SS5	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-5	13:20	E0SS5	
ME0SS6	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-6	13:30	E0SS6	
ME0SS1	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-1	10:10	E0SS1	
ME0SS2	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-2	10:15	E0SS2	
ME0SS3	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (2)	SS-3	11:45	E0SS3	
ME0SW5	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-25	10:35	E0SW5	
ME0SS7	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-7	13:25	E0SS7	
ME0SS8	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-8	13:10	E0SS8	

ORIGINAL

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: ME0SS3	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt: 6.2°C	Chain of Custody Seal Number: 24265, 24266

Analysis Key: Concentration: L = Low, M = Low/Medium, H = High Type/Designate: Composite = C, Grab = G
Custody Seal Intact? Y Shipment Iced? Y
TM/CN = CLP Total Metals/Cyanide-Soil

TR Number: 5-462576586-050302-0015

LABORATORY COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Contract Laboratory Analytical Services Support, 2000 Edmund Halley Dr., Reston, VA. 20191-3436 Phone 703/264-9348 Fax 703/264-9222

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: 30568
DAS No:
SDG No: ME0SS1
L

Date Shipped: 6/4/02
Carrier Name: UPS
Airbill: 1Z 549 OW4 22 1008 057 6
Shipped to: Liberty Analytical
501 Madison Avenue
Cary NC 27513
(919) 379-4100

Chain of Custody Record

Sampler Signature:

	Relinquished By	(Date / Time)	Received By	(Date / Time)
1	John Spielberg	6/4/02, 16:30	Joan Purdie	6.5.02 910
2				
3				
4				

For Lab Use Only
Lab Contract No: 68W00082
Unit Price: $79.57
Transfer To:
Lab Contract No:
Unit Price:

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
ME0SS9	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-9	6/4/02 - 13:45	E0SS9	Good
ME0ST0	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-10	13:55	E0ST0	
ME0ST1	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-11	14:55	E0ST1	
ME0ST2	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-12	14:05	E0ST2	
ME0ST3	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-13	14:10	E0ST3	
ME0ST4	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-14	14:25	E0ST4	
ME0ST5	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-15	14:40	E0ST5	
ME0ST6	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-16	14:30	E0ST6	
ME0ST7	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-17	11:35	E0ST7	

ORIGINAL

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: ME0SS3	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt: 6.7°C	Chain of Custody Seal Number: 24265, 24266
Analysis Key: TM/CN = CLP Total Metals/Cyanide-Soil	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Custody Seal Intact? Y	Shipment Iced? Y

TR Number: 5-462576586-050302-0015

LABORATORY COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Contract Laboratory Analytical Services Support, 2000 Edmund Halley Dr., Reston, VA. 20191-3436 Phone 703/264-9348 Fax 703/264-9222

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: 30568
DAS No:
SDG No: MEOSSI, MEOSWI **L**

Date Shipped:
Carrier Name: UPS
Airbill: 1Z 549 OW4 22 1008 057 6
Shipped to: Liberty Analytical
501 Madison Avenue
Cary NC 27513
(919) 379-4100

Chain of Custody Record

Sampler Signature:

	Relinquished By	(Date / Time)	Received By	(Date / Time)
1	[signature]	6/4/02, 16:30	[signature]	6.5.02 910
2				
3				
4				

For Lab Use Only
Lab Contract No: 68W00088
Unit Price: $79.57
Transfer To:
Lab Contract No:
Unit Price:

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
ME0ST8	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-18	6/4/02 11:20	E0ST8	Good
ME0ST9	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-19	11:25	E0ST9	
ME0SW0	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-20	11:10	E0SW0	SDG Fixed Sample
ME0SW1	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-21	10:45	E0SW1	
ME0SW2	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-22	10:30	E0SW2	
ME0SW3	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-23	14:55	E0SW3	
ME0SW4	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-24	10:35	E0SW4	

ORIGINAL Rec. sample MEOSW6 not listed on COC PP 6.5.02

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: ME0SS3	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt: 6.2°C	Chain of Custody Seal Number: 24265, 24266

Analysis Key: Concentration: L = Low, M = Low/Medium, H = High Type/Designate: Composite = C, Grab = G
Custody Seal Intact? Y Shipment Iced? Y
TM/CN = CLP Total Metals/Cyanide-Soil

TR Number: 5-462576586-050302-0015

LABORATORY COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Contract Laboratory Analytical Services Support, 2000 Edmund Halley Dr., Reston, VA. 20191-3436 Phone 703/264-9348 Fax 703/264-9222

JUN 13 2002

CompuChem
a Division of Liberty Analytical Corp.
501 Madison Avenue Cary, NC 27513

SDG NARRATIVE
CASE # 30568 SDG # ME0SS1
CONTRACT # 68W00082

The indicated Sample Delivery Group (SDG) consisting of twenty (20) soil samples was received into the laboratory information management system (LIMS) on June 5, 2002; intact and in good condition with Chain of Custody (COC) Records in order, unless otherwise noted in any attachments or Quality Assurance Notices. Sample ID's reported in this data package are noted by the receiving department on the COC if they differ from those listed by the samplers on the COC.

The samples were analyzed, in accordance with EPA - CLP Statement of Work (SOW) document ILM04.1 for CLP TAL total metals and cyanide.

The correlation coefficients for the mercury and cyanide analytical runs are confirmed to be $\geq$ 0.9950.

The cooler temperature bottle was present with samples received on June 5, 2002; and sample temperature was 6.2 degrees Celsius.

EQUATIONS FOR SOLID SAMPLE CALCULATIONS:

Client sample ME0SS3 is used for illustration.

Any sample result that is $\leq$ the instrument detection limit (IDL) will be entered at the IDL for that analyte.

ICP Equation:

Equation for obtaining metals sample results in mg/Kg as presented on FORM I data sheets from ICP instrument acquired results in ug/L (ppb).

$$\text{Concentration (\% solids) (mg/Kg)} \quad \frac{C \times D \times V}{W \times S}$$

Where
C = concentration (ug/L)
D = dilution factor
V = final volume in liters after sample preparation
W = weight in grams of wet sample
S = % solids/100

Example: aluminum result ug/L to mg/Kg.

$$\frac{23101.68 \text{ ug/L (C)} \times 1 \text{ (D)} \times 0.2 \text{ L (V)}}{1.0 \text{ g (W)} \times 0.760 \text{ (S)}} = 6079.389 \text{ mg/Kg reported as } 6080 \text{ mg/Kg}$$

Mercury Equation:

Equation for obtaining mercury sample results in mg/Kg as presented on FORM I data sheets from instrument acquired results in ug/L (ppb).

$$\frac{A \times D \times F}{B \times E}$$

Where

A = ug/L Hg
B = wet weight of sample
D = dilution factor to bring sample into analysis range
E = % solids/100
F = final volume in liters (0.1 L)

Example: mercury result ug/L to mg/Kg

$$\frac{0.2572 \text{ ug/L (A)} \times 1 \text{ (D)} \times 0.1 \text{ (F)}}{0.2 \text{ g (B)} \times 0.760 \text{ (E)}} = 0.1692 \text{ mg/Kg reported as } 0.17 \text{ mg/Kg}$$

Cyanide Equation:

Equation for obtaining cyanide sample results in mg/Kg as presented on FORM I data sheets from instrument acquired results in ug/L (ppb).

$$\frac{A \times D \times F}{B \times E}$$

Where

A = ug/L CN
B = wet weight of sample
D = dilution factor to bring sample into analysis range
E = % solids/100
F = final volume in liters (0 05 L)

Example: cyanide result ug/L to mg/Kg

$$\frac{1.828703 \text{ ug/L (A)} \times 1 \text{ (D)} \times 0.05 \text{ L (F)}}{1.00 \text{g (B)} \times 0.760 \text{ (E)}} = 0.1203 \text{ mg/Kg reported as } 0.12 \text{ mg/Kg}$$

SAMPLE IDs:

The following customer IDs are associated with this SDG:

ME0SS1	ME0SS2	ME0SS3	ME0SS4	ME0SS5	ME0SS6
ME0SS7	ME0SS8	ME0SS9	ME0ST0	ME0ST1	ME0ST2
ME0ST3	ME0ST4	ME0ST5	ME0ST6	ME0ST7	ME0ST8
ME0ST9	ME0SW0				

INSTRUMENTAL QUALITY CONTROL:

All calibration verification solutions (ICV & CCV), blanks (ICB, & CCB), and interference check samples (ICSA & ICSAB) associated with this data were confirmed to be within EPA CLP allowable limits.

SAMPLE PREPARATION QUALITY CONTROL:

The sample preparation procedure verifications (LCSS & PBS) were found to be within acceptable ranges and all field samples were prepared and analyzed within the contract specified holding times.

MATRIX RELATED QUALITY CONTROL:

The sample matrix spike, CCN = WG17917-1 (ME0SS3S) was found to be outside CLP control limits for antimony, manganese, and thallium. The reported concentrations for these analytes are flagged with an "N" on all associated Form 1 and on Form 5a.

An "N" indicates a matrix-related interference in the sample preparation procedure &/or analysis for the flagged analyte. This is normally the consequence of a relatively high anionic content in the sample or (for some sediments) an inconsistent sample matrix relative to that analyte.

CLP control limits for matrix spike recoveries are set at 75% to 125% of the analyte quantity added unless original sample concentrations exceed the true values of these "spikes" by a factor of four or more. In this case, affected analytes are not flagged even if recoveries are outside percentage recovery control limits.

Post-digestion spikes are mandatory for analytes demonstrating unsatisfactory matrix spike recoveries during ICP analysis (excluding silver). The results of such spikes are presented on Form 5b.

Unsatisfactory recovery of post-digestion spikes of this type do not have bearing upon the aforementioned "N" flags, but may indicate interference during analysis &/or a solution matrix which is hostile to the analyte in question.

Satisfactory recovery of an analyte in a post-digestion spike of this type implies interference by the required preparation procedure or in the sample matrix itself. Lack of uniformity for an analyte in sediments will also result in satisfactory recovery of post-digestion spikes after failure in the related matrix spike.

The sample matrix duplicate, CCN = WG17917-2 (ME0SS3D) was outside CLP control limits for arsenic, copper, and lead. The reported concentrations for these analytes are flagged with a "*" on all associated Form 1 and on Form 6.

A "*" indicates a non-homogeneous sample matrix in regard to the flagged analyte. This is normally the consequence of a relatively coarse texture or of a mixed-matrix in sediment samples.

CLP control limits for duplicate determinations are +/- 20% Relative Percent Difference (RPD) for concentrations greater than or equal to five times the CRDL in both the original and duplicate samples, and +/- the CRDL for concentrations less than five times the CRDL. The RPD is not calculated if both the original and duplicate values fall below the IDL.

A five-fold serial dilution of sample, CCN = ME0SS1-3 (ME0SS3L) was performed in accordance with CLP requirements for ICP analysis.

The adjusted sample concentrations were outside CLP control limits for potassium, which is flagged with an "E" on all associated Form 1, the Cover Page and Form 9.

An "E" indicates that a chemical or physical interference effect was encountered during the analysis of the flagged analyte. As a result of this interference, all values for the analyte in the same matrix must be considered to be estimated quantities.

CLP control limits for serial dilution are defined as a deviation less than or equal to 10% in the dilution-adjusted concentrations from the original values for all analyte concentrations with values greater than fifty (50) times their respective Instrument Detection Limit (IDL) in the original sample.

The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Thomas R. Cole
Data Reviewer II
June 11, 2002

U. S. EPA - CLP
COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

JUN 13 2002

Lab Name: COMPUCHEM Contract: 68W00082

Lab Code: LIBRTY Case No.: 30568 SAS No.: SDG No.: ME0SS1

SOW No.: ILM04.1

EPA Sample No.	Lab Sample ID.
ME0SS1	ME0SS1-1
ME0SS2	ME0SS1-2
ME0SS3	ME0SS1-3
ME0SS3D	WG17917-2
ME0SS3S	WG17917-1
ME0SS4	ME0SS1-4
ME0SS5	ME0SS1-5
ME0SS6	ME0SS1-6
ME0SS7	ME0SS1-7
ME0SS8	ME0SS1-8
ME0SS9	ME0SS1-9
ME0ST0	ME0SS1-10
ME0ST1	ME0SS1-11
ME0ST2	ME0SS1-12
ME0ST3	ME0SS1-13
ME0ST4	ME0SS1-14
ME0ST5	ME0SS1-15
ME0ST6	ME0SS1-16
ME0ST7	ME0SS1-17
ME0ST8	ME0SS1-18
ME0ST9	ME0SS1-19

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES

If yes-were raw data generated before application of background corrections? Yes/No NO

Comments: THE FOLLOWING ANALYTES HAVE BEEN FLAGGED WITH AN "E" TO INDICATE SERIAL DILUTION RESULTS WHICH ARE NOT WITHIN CONTROL LIMITS:
POTASSIUM

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Thomas R Cole Name: Thomas R. Cole

Date: June 11, 2002 Title: Data Reviewer II

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U. S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

Lab Name: COMPUCHEM Contract: 68W00082

Lab Code: LIBRTY Case No.: 30568 SAS No.: SDG No.: ME0SS1

SOW No.: ILM04.1

EPA Sample No.	Lab Sample ID.
ME0SW0	ME0SS1-20

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES
If yes-were raw data generated before application of background corrections? Yes/No NO

Comments: THE FOLLOWING ANALYTES HAVE BEEN FLAGGED WITH AN "E" TO INDICATE SERIAL DILUTION RESULTS WHICH ARE NOT WITHIN CONTROL LIMITS:
POTASSIUM

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Thomas R. Cole Name: Thomas R. Cole

Date: June 11, 2002 Title: Data Reviewer II 4

JUN 21 2002

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: June 20, 2002

SUBJECT: Review of Data
Received for Review on June 18, 2002

FROM: Stephen L. Ostrodka, Chief (SMF-4J)
Superfund Field Services Section

TO: Data User: MDEQ

The data in this case has not been validated.
We have compiled the CADRE files into a narrative format for the following case:

SITE NAME: Tamarack City/ Stamp Mill

CASE NUMBER: 30568 SDG NUMBER: ME0SW1

Number and Type of Samples: 15 soils

Sample Numbers: ME0SW1-9; ME0SX0-5

Laboratory: Compuchem Hrs. for Review: 2

Following are our findings:

CC: Cecilia Moore
Region 5 TPO
Mail Code: SM-5J

Case Number : 30568
Site Name: Tamarack City/ Stamp Mill

SDG Number: ME0SW1
Laboratory: Compuchem

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

NUMBER (##) MATRIX samples numbered ##, were collected on DATE. The lab received the samples on DATE in good condition. All samples were analyzed for metals and cyanide. All samples were analyzed using CLP SOW ILM04.1 analysis procedures.

Mercury analysis was performed using a Cold Vapor AA Technique. Cyanide analysis was performed using the MIDI Distillation procedure. The remaining inorganic analyses were performed using an Inductively Coupled Plasma-Atomic Emission Spectrometric procedure.

Assembled By: ESAT
Date: June 20, 2002

Case Number : 30568
Site Name: Tamarack City/ Stamp Mill

SDG Number: ME0SW1
Laboratory: Compuchem

I. HOLDING TIME:

Holding Time Report

SDG NO: ME0SW1

HOLDING TIME CRITERIA

Inorganic

	Holding Time		pH	
	Primary	Expanded	Primary	Expanded
Metals	180	0	2.0	0.0
Mercury	28	0	2.0	0.0
Cyanide	14	0	12.0	0.0

DC-280: The following inorganic soil samples were reviewed for holding time violations using criteria developed for water samples.

ME0SW1, ME0SW2, ME0SW3, ME0SW4, ME0SW5, ME0SW6
ME0SW7, ME0SW8, ME0SW8D, ME0SW8S, ME0SW9, ME0SX0
ME0SX1, ME0SX2, ME0SX3, ME0SX4, ME0SX5

.. CALIBRATIONS:

Calibration Report

SDG NO: ME0SW1

CALIBRATION CRITERIA

Inorganic

Percent Recovery Limits

	Primary		Expanded	
	Low	High	Low	High
Cyanide	85.00	115.00	70.00	130.00
AA	90.00	110.00	75.00	125.00
ICP	90.00	110.00	75.00	125.00
Mercury	80.00	120.00	65.00	135.00

No problems found for this qualification.

Assembled By: ESAT
Date: June 20, 2002

Case Number : 30568
Site Name: Tamarack City/ Stamp Mill

SDG Number: ME0SW1
Laboratory: Compuchem

CRDL Standards Report

SDG NO: ME0SW1

DC-373: The following inorganic samples are associated with a CRDL standard with low percent recovery.

Selenium
ME0SW1, ME0SW2, ME0SW3, ME0SW4, ME0SW5, ME0SW6
ME0SW7, ME0SW9, ME0SX0, ME0SX1, ME0SX2, ME0SX3
ME0SX4, ME0SX5

DC-374: The following inorganic samples are associated with a CRDL standard with high percent recovery.
Hits and non-detects are flagged .

Lead
ME0SW8, PBS02

Mercury
ME0SW1, ME0SW2, ME0SW3, ME0SW4, ME0SW5, ME0SW6
ME0SW7, ME0SW8, ME0SW9, ME0SX0, ME0SX1, ME0SX2
ME0SX3, ME0SX4, ME0SX5, PBS03

3. BLANKS:

Laboratory Blanks Report

SDG NO: ME0SW1

LABORATORY BLANKS CRITERIA

DC-283: The following inorganic samples are associated with a blank analyte with negative concentration whose absolute value is greater than the instrument detection limit (IDL). Professional judgement should be used to qualify the data.

ME0SW1
Cyanide

ME0SW2
Cyanide

ME0SW3
Cyanide

ME0SW4
Cyanide

ME0SW5
Cyanide

ME0SW6
Cyanide

Assembled By: ESAT
Date: June 20, 2002

Case Number : 30568
Site Name: Tamarack City/ Stamp Mill

SDG Number: ME0SW1
Laboratory: Compuchem

ME0SW7
Cyanide

ME0SW8
Cyanide

ME0SW8D
Cyanide

ME0SW8S
Cyanide

ME0SW9
Cyanide

ME0SX0
Cyanide

ME0SX1
Cyanide

ME0SX2
Cyanide

ME0SX3
Cyanide

ME0SX4
Cyanide

ME0SX5
Cyanide

DC-284: The following inorganic samples are associated with a blank concentration which is greater than the instrument detection limit (IDL). The sample concentration is also greater than the IDL and less than five times the blank concentration. Hits are qualified "J"; non-detects are not flagged.

Beryllium
ME0SX2, ME0SX4

Lead
ME0SX2, ME0SX3, ME0SX5

Selenium
ME0SX5

Thallium
ME0SW3, ME0SW4, ME0SW5

DC-338: During review of the following inorganic samples, the reported IDL/default CRDL value was used for cyanide.

ME0SW1, ME0SW2, ME0SW3, ME0SW4, ME0SW5, ME0SW6
ME0SW7, ME0SW8, ME0SW8D, ME0SW8S, ME0SW9, ME0SX0
ME0SX1, ME0SX2, ME0SX3, ME0SX4, ME0SX5

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE:

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Matrix Spike Report

Assembled By: ESAT
Date: June 20, 2002

Case Number : 30568
Site Name: Tamarack City/ Stamp Mill

SDG Number: ME0SW1
Laboratory: Compuchem

SDG NO: ME0SW1

MATRIX SPIKE CRITERIA

Inorganic

Percent Recovery Limits

Upper	125.0
Lower	75.0
Extreme lower	30.0

DC-268: The following inorganic samples are associated with a matrix spike recovery which is low (30-74 %) indicating that sample results may be biased low.
Hits are qualified "J" and non-detects are qualified "UJ".

Antimony
ME0SW1, ME0SW2, ME0SW3, ME0SW4, ME0SW5, ME0SW6
ME0SW7, ME0SW8, ME0SW8A, ME0SW8D, ME0SW9, ME0SX0
ME0SX1, ME0SX2, ME0SX3, ME0SX4, ME0SX5

Arsenic
ME0SW1, ME0SW2, ME0SW3, ME0SW4, ME0SW5, ME0SW6
ME0SW7, ME0SW8, ME0SW8A, ME0SW8D, ME0SW9, ME0SX0
ME0SX1, ME0SX2, ME0SX3, ME0SX4, ME0SX5

LCS Report

SDG NO: ME0SW1

DC-331: The following inorganic soil samples are associated with a solid laboratory control sample (LCS) higher than the EPA control limit it are high, indicating a potential positive bias in the sample results. Hits are qualified "J", non-detects are acceptable.

Sodium
ME0SW1, ME0SW2, ME0SW3, ME0SW5, ME0SW6, ME0SW7
ME0SW8, ME0SW8D, ME0SW9, ME0SX0, ME0SX1, ME0SX2
ME0SX5

5. LABORATORY AND FIELD DUPLICATE

Duplicates Report

SDG NO: ME0SW1

DC-256: The following inorganic samples are associated with duplicate results which did not meet relative percent difference (RPD)

criteria.
Hits are qualified "J" and non-detects are qualified "UJ".

Copper
ME0SW1, ME0SW2, ME0SW3, ME0SW4, ME0SW5, ME0SW6
ME0SW7, ME0SW8, ME0SW8S, ME0SW9, ME0SX0, ME0SX1
ME0SX2, ME0SX3, ME0SX4, ME0SX5

Iron
ME0SW1, ME0SW2, ME0SW3, ME0SW4, ME0SW5, ME0SW6
ME0SW7, ME0SW8, ME0SW9, ME0SX0, ME0SX1, ME0SX2
ME0SX3, ME0SX4, ME0SX5

6. ICP ANALYSIS

ICS Report

SDG NO: ME0SW1

DC-307: The following inorganic samples have no associated ICS analyses. Manual review of the data is required.

ME0SW1
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SW2
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SW3
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SW4
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SW5
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SW6
Aluminum, Antimony, Arsenic, Barium

Case Number : 30568
Site Name: Tamarack City/ Stamp Mill

SDG Number: ME0SW1
Laboratory: Compuchem

Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SW7
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SW8
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SW9
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SX0
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SX1
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SX2
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SX3
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SX4
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SX5
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium

Silver, Thallium, Vanadium, Zinc

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Serial Dilution Report

SDG NO: ME0SW1

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DC-295: The following inorganic samples are associated with an ICP serial dilution percent difference which is not in criteria. The serial dilution result is greater than the sample result, indicating a potential negative interference. The data must be qualified using professional judgement. Hits are qualified "J", non-detects "UJ".

Lead
ME0SW1, ME0SW2, ME0SW3, ME0SW4, ME0SW5, ME0SW6
ME0SW7, ME0SW8, ME0SW8D, ME0SW8S, ME0SW9, ME0SX0
ME0SX1, ME0SX2, ME0SX3, ME0SX4, ME0SX5

Zinc
ME0SW1, ME0SW2, ME0SW3, ME0SW4, ME0SW5, ME0SW6
ME0SW7, ME0SW8, ME0SW8D, ME0SW8S, ME0SW9, ME0SX0
ME0SX1, ME0SX2, ME0SX3, ME0SX4, ME0SX5

7. GFAA ANALYSIS

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Furnace AA QC Report

SDG NO: ME0SW1

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No problems found for this qualification.

8. SAMPLE RESULTS

All data, except those qualified above, are acceptable.

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Sample Result Verification Report

SDG NO: ME0SW1

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No problems found for this qualification.

Assembled By: ESAT
Date: June 20, 2002

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The data are unusable. (The compound may or may not be present)

Analytical Results (Qualified Data)

Case #: 30568 SDG : ME0SW1
Site : TAMARACK CITY / STAMP MILL Number of Soil Samples : 15
Lab. : LIBRTY Number of Water Samples : 0
Reviewer :
Date :

Sample Number :	ME0SW1		ME0SW2		ME0SW3		ME0SW4		ME0SW5	
Sampling Location :	SS-21		SS-22		SS-23		SS-24		SS-25	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	10:45		10:30		14:55		10:35		10:35	
%Solids :	92.6		94.1		90.8		92.4		88.3	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	6490		4180		7320		6910		10400	
ANTIMONY	0.47	UJ	0.45	UJ	0.48	UJ	0.46	UJ	0.48	UJ
ARSENIC	2.3	J	0.81	J	2.2	J	2.8	J	2.4	J
BARIUM	34.5		21.3		49.5		31.3		59.7	
BERYLLIUM	0.33		0.28		0.51		0.36		0.68	
CADMIUM	0.29		0.16		0.28		0.39		0.33	
CALCIUM	5420		2220		32700		11900		42100	
CHROMIUM	8.2		8.0		15.1		17.9		12.5	
COBALT	5.8		4.8		7.1		9.1		9.7	
COPPER	856	J	242	J	1380	J	1240	J	1450	J
IRON	9330	J	5330	J	12400	J	16500	J	11200	J
LEAD	17.5	J	12.3	J	24.7	J	81.4	J	70.0	J
MAGNESIUM	5280		2890		5830		6480		7790	
MANGANESE	269		110		299		248		672	
MERCURY	0.10		0.060		0.050	U	0.11		0.050	U
NICKEL	15.8		11.0		17.9		22.2		26.9	
POTASSIUM	583		539		716		522		596	
SELENIUM	0.44	U	0.43	U	0.46	U	0.69		0.46	U
SILVER	0.26		0.12		0.22		0.30		0.27	
SODIUM	103	J	57.3	J	55.9	J	33.1	U	192	J
THALLIUM	0.47	U	0.45	U	1.1	J	1.5	J	1.8	J
VANADIUM	15.5		18.2		23.1		25.9		21.5	
ZINC	47.4	J	25.5	J	37.6	J	57.4	J	45.0	J
CYANIDE	0.030	U	0.030	U	0.060		0.030	U	0.030	

Analytical Results (Qualified Data)

Case #: 30568 SDG : ME0SW1
Site : TAMARACK CITY / STAMP MILL
Lab. : LIBRTY
Reviewer :
Date :

Sample Number :	ME0SW6		ME0SW7		ME0SW8		ME0SW9		ME0SX0	
Sampling Location :	SB-1		SB-2		SB-3		SB-4		SB-5	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	10:05		18:10		17:40		17:15		16:55	
%Solids :	86.9		70.9		93.0		86.0		67.7	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	4960		6300		9710		4830		7560	
ANTIMONY	0.49	UJ	0.61	UJ	0.47	UJ	0.50	UJ	0.65	UJ
ARSENIC	0.85	J	1.8	J	4.3	J	2.3	J	1.6	J
BARIUM	27.7		38.5		13.3		39.2		31.8	
BERYLLIUM	0.31		0.53		0.38		0.40		0.61	
CADMIUM	0.25		0.29		0.34		0.29		0.23	
CALCIUM	1620		3780		25900		17300		3450	
CHROMIUM	8.5		14.6		22.2		8.5		18.1	
COBALT	5.3		6.2		15.6		3.9		7.6	
COPPER	32.3	J	165	J	3600	J	1390	J	69.8	J
IRON	11300	J	9480	J	13300	J	7620	J	7010	J
LEAD	1.4	J	37.3	J	17.4	J	5.0	J	2.6	J
MAGNESIUM	3030		4080		13400		2810		4520	
MANGANESE	286		149		297		176		120	
MERCURY	0.050	U	0.25		0.050	U	0.050	U	0.070	U
NICKEL	11.0		13.9		26.7		9.8		17.1	
POTASSIUM	567		1020		440		399		1260	
SELENIUM	0.64		0.67		0.45	U	0.48	U	0.62	U
SILVER	0.11	U	0.14	U	1.9		0.18		0.15	U
SODIUM	125	J	143	J	37.7	J	133	J	104	J
THALLIUM	0.49	U	0.61	U	4.6		0.50	U	0.65	U
VANADIUM	29.4		35.4		39.6		26.2		44.9	
ZINC	20.7	J	36.9	J	67.0	J	71.8	J	32.0	J
CYANIDE	0.030	U	0.040	U	0.060		0.11		0.040	U

DISCLAIMER: This package has been electronically assessed as an added service to our customer. It has not been either validated or approved by Region 5 and any subsequent use by the data user is strictly at the risk of the data user. Region 5 assumes no responsibility for use of unvalidated data.

Analytical Results (Qualified Data)

Case #: 30568 SDG : ME0SW1

Site : TAMARACK CITY / STAMP MILL

Lab. : LIBRTY

Reviewer :

Date :

Sample Number :	ME0SX1		ME0SX2		ME0SX3		ME0SX4		ME0SX5	
Sampling Location :	SB-6		SB-7		SB-8		SB-9		SB-10	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	mg/Kg		mg/Kg		mg/Kg		mg/Kg		mg/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	14:20		18:50		16:10		16:30		15:45	
%Solids :	70.5		87.5		68.8		85.8		83.8	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	7230		2980		6690		5050		6100	
ANTIMONY	0.61	UJ	0.49	UJ	0.64	UJ	0.50	UJ	0.51	UJ
ARSENIC	1.7	J	0.44	UJ	1.8	J	1.4	J	0.88	J
BARIUM	30.4		13.9		31.6		14.3		26.2	
BERYLLIUM	0.51		0.24	J	0.56		0.28	J	0.39	
CADMIUM	0.30		0.090		0.19		0.19		0.24	
CALCIUM	6350		580		2600		1110		1840	
CHROMIUM	16.8		4.7		16.1		8.0		9.2	
COBALT	7.7		1.9		6.6		5.3		5.4	
COPPER	435	J	19.8	J	60.1	J	173	J	33.9	J
IRON	8760	J	4020	J	7390	J	7570	J	8670	J
LEAD	16.3	J	1.3	J	2.4	J	3.8	J	1.4	J
MAGNESIUM	4760		1120		3920		3380		3320	
MANGANESE	173		85.1		117		94.3		204	
MERCURY	0.10		0.050	U	0.070	U	0.060	U	0.050	U
NICKEL	18.5		5.4		14.5		13.1		11.5	
POTASSIUM	1070		433		1150		432		756	
SELENIUM	0.66		0.47	U	0.61	U	0.48	U	0.70	J
SILVER	0.14	U	0.11	U	0.15	U	0.11	U	0.12	U
SODIUM	86.4	J	56.5	J	45.8	U	36.0	U	52.1	J
THALLIUM	0.61	U	0.49	U	0.64	U	0.50	U	0.51	U
VANADIUM	37.7		16.8		37.8		28.2		25.5	
ZINC	33.5	J	10.7	J	29.1	J	19.9	J	19.7	J
CYANIDE	0.040	U	0.050		0.040	U	0.030	U	0.040	

Analytical Results (Qualified Data)

Page ____ of ____

Case #: 30568 | SDG : ME0SW1
Site : TAMARACK CITY / STAMP MILL
Lab. : LIBRTY
Reviewer :
Date :

Sample Number :	ME0SW8D		ME0SW8S							
Sampling Location :	SB-3		SB-3							
Matrix :	Soil		Soil							
Units :	mg/Kg		mg/Kg							
Date Sampled :	06/04/2002		06/04/2002							
Time Sampled :	17:40		17:40							
%Solids :	93.0		93.0							
Dilution Factor :	1.0		1.0							
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	10700									
ANTIMONY	0.47	UJ	54.5							
ARSENIC	3.6	J	9.8							
BARIUM	11.2		378							
BERYLLIUM	0.47		9.6							
CADMIUM	0.50		9.1							
CALCIUM	22200									
CHROMIUM	28.6		63.7							
COBALT	18.4		107							
COPPER	2360		2230	J						
IRON	21400									
LEAD	21.3	J	22.0	J						
MAGNESIUM	15600									
MANGANESE	355		421							
MERCURY	0.060		0.47							
NICKEL	30.7		120							
POTASSIUM	426									
SELENIUM	0.45	U	2.4							
SILVER	1.7		10.9							
SODIUM	42.9	J								
THALLIUM	4.6		16.1							
VANADIUM	44.7		142							
ZINC	78.9	J	162	J						
CYANIDE	0.030	U	5.7							

JUN 1 8 2002

CompuChem
a Division of Liberty Analytical Corp.
501 Madison Avenue Cary, NC 27513

SDG NARRATIVE
CASE # 30568 SDG # ME0SW1
CONTRACT # 68W00082

The indicated Sample Delivery Group (SDG) consisting of fifteen (15) soil samples was received into the laboratory information management system (LIMS) on June 5 and 6, 2002 intact and in good condition. The temperature of the samples received on June 5, 2002 was 6.2°C. The temperature of the samples received on June 6, 2002 was 4°C. Cooler temperature indicator bottles were present with both shipments. Sample ME0SW6 was received by the Laboratory, but was not listed on the Traffic Report. The sample was analyzed for Total Metals and Cyanide as directed by the Region.

The samples were analyzed, in accordance with EPA CLP Statement of Work (SOW) document ILM04.1, for the complete Inorganic Target Analyte List (TAL).

The correlation coefficient for the mercury and cyanide analytical runs are confirmed to be ≥ 0.9950.

EQUATIONS FOR SOLID SAMPLE CALCULATIONS:

Equation for obtaining metals sample results in mg/kg as presented on FORM I data sheets from ICP instrument acquired results in µg/L (ppb).

$$\frac{C \times V}{W \times S}$$

Where

C = concentration (µg/L)

V = final volume in liters after sample preparation

W = weight in grams of wet sample

S = % solids/100

Example: aluminum result µg/l to mg/kg.

$$\frac{45165.86\ \mu g/L\ (C)\ \times\ 0.2\ L\ (V)}{1.0\ g\ (W)\ \times\ 0.930\ (S)} = 9713.088\ mg/kg \text{ reported as } 9710\ mg/kg$$

Equation for obtaining cyanide sample results in mg/kg as presented on FORM I data sheets from instrument acquired results in µg/L (ppb).

$$\frac{C \times D \times V}{W \times S}$$

Where

C = concentration of cyanide (µg/L)

W = wet weight of sample

D = dilution factor to bring sample into analysis range

S = % solids/100

V = final volume in liters

Example: cyanide result µg/L to mg/kg

$$\frac{1.09639\ \mu g/L\ (C) \times 1\ (D) \times 0.05\ L\ (V)}{1.0\ g\ (W) \times 0.930\ (S)} = 0.05895\ mg/kg \text{ reported as } 0.059\ mg/kg$$

Equation for obtaining mercury sample results in mg/kg as presented on FORM I data sheets from instrument acquired results in µg/L (ppb).

$$\frac{C \times D \times V}{W \times S}$$

Where

C = concentration (µg/L)

W = wet weight of sample

D = dilution factor to bring sample into analysis range

S = % solids/100

V = final volume in liters

Example: mercury result µg/L to mg/kg

$$\frac{0.0899\ \mu g/L\ (C) \times 1\ (D) \times 0.1\ L\ (V)}{0.2\ g\ (W) \times 0.930\ (S)} = 0.0483\ mg/kg \text{ reported as } 0.054\ mg/kg\ *$$

* This result reported down to the IDL.

SAMPLE IDs:

The following customer IDs are associated with this SDG:

ME0SW1 ME0SW2 ME0SW3 ME0SW4 ME0SW5 ME0SW6 ME0SW7 ME0SW8 ME0SW9 ME0SX0 ME0SX1 ME0SX2 ME0SX3 ME0SX4 ME0SX5

INSTRUMENTAL QUALITY CONTROL:

All calibration verification solutions (ICV & CCV), blanks (ICB, & CCB), and interference check samples (ICSA & ICSAB) associated with this data were confirmed to be within EPA CLP allowable limits.

SAMPLE PREPARATION QUALITY CONTROL:

The sample preparation procedure verifications (LCSS & PBS) were found to be within acceptable ranges and all field samples were prepared and analyzed within the contract specified holding times. The Sodium result for the Solid Laboratory Control Sample (LCSS) is above the upper control limit. The True Value for Sodium is below the CRDL and the control limits are stated to be advisory only.

MATRIX RELATED QUALITY CONTROL:

The sample matrix spike, CCN = WG18013-1 (ME0SW8S) was found to be outside CLP control limits for Antimony and Arsenic.

CLP control limits for matrix spike recoveries are set at 75% to 125% of the analyte quantity added unless original sample concentrations exceed the true values of these "spikes" by a factor of four or more. In this case, affected analytes are not flagged even if recoveries are outside percentage recovery control limits.

The sample matrix duplicate, CCN = WG18013-2 (ME0SW8D) was found to be outside CLP control limits for Chromium, Copper, Iron and Lead.

CLP control limits for duplicate determinations are +/- 20% Relative Percent Difference (RPD) for concentrations greater than or equal to five times the CRDL in both the original and duplicate samples, and +/- the CRDL for concentrations less than five times the CRDL. The RPD is not calculated if both the original and duplicate values fall below the IDL.

A five-fold serial dilution of sample, CCN = SDIME0SW1-8 (ME0SW8L) was performed in accordance with CLP requirements for ICP analysis.

The adjusted sample concentrations were outside CLP control limits for Lead and Zinc, which are flagged with an "E" on all associated Form I and Form IX.

CLP control limits for serial dilution are defined as a deviation less than or equal to 10% in the dilution adjusted concentrations from the original values for all analyte concentrations greater than fifty (50) times their respective Instrument Detection Limit (IDL) in the original sample.

An "E" flag indicates that a chemical or physical interference effect was encountered during the analysis of that analyte. As a result of the interference, all values for that analyte in the same matrix must be considered estimated values.

The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

James E. Medlin

James E. Medlin
Senior Chemist
June 14, 2002

U. S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

JUN 1 8 2002

Lab Name: COMPUCHEM Contract: 68W00082

I Code: LIBRTY Case No.: 30568 SAS No.: SDG No.: ME0SW1

SOW No.: ILM04.1

EPA Sample No.	Lab Sample ID.
ME0SW1	ME0SW1-1
ME0SW2	ME0SW1-2
ME0SW3	ME0SW1-3
ME0SW4	ME0SW1-4
ME0SW5	ME0SW1-5
ME0SW6	ME0SW1-6
ME0SW7	ME0SW1-7
ME0SW8	ME0SW1-8
ME0SW8D	WG18013-2
ME0SW8S	WG18013-1
ME0SW9	ME0SW1-9
ME0SX0	ME0SW1-10
ME0SX1	ME0SW1-11
ME0SX2	ME0SW1-12
ME0SX3	ME0SW1-13
ME0SX4	ME0SW1-14
ME0SX5	ME0SW1-15

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES

If yes-were raw data generated before application of background corrections? Yes/No NO

Comments: THE FOLLOWING ANALYTES HAVE BEEN FLAGGED WITH AN "E" TO INDICATE SERIAL DILUTION RESULTS WHICH ARE NOT WITHIN CONTROL LIMITS : LEAD and ZINC.

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: James Medlin Name: James Medlin

Date: 6/14/02 Title: Senior Chemist

Jung 1

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: 30568
DAS No:
SDG No: MEOSS1, MEOSW1 L

Date Shipped: 6/4/02
Carrier Name: UPS
Airbill: 1Z 549 OW4 22 1008 057 6
Shipped to: Liberty Analytical
501 Madison Avenue
Cary NC 27513
(919) 379-4100

Chain of Custody Record

Sampler Signature:

	Relinquished By	(Date / Time)	Received By	(Date / Time)
1	[signature]	6/4/02 16:30	[signature]	6-5-02 910
2				
3				
4				

For Lab Use Only
Lab Contract No: 68W00082
Unit Price: $79.57
Transfer To:
Lab Contract No:
Unit Price:

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
ME0SS4	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-4	6/4/02 - 13:00	E0SS4	Good
ME0SS5	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-5	13:20	E0SS5	
ME0SS6	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-6	13:30	E0SS6	
ME0SS1	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-1	10:10	E0SS1	
ME0SS2	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-2	10:15	E0SS2	
ME0SS3	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (2)	SS-3	11:45	E0SS3	
ME0SW5	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-25	10:35	E0SW5	
ME0SS7	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-7	13:25	E0SS7	
ME0SS8	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-8	13:10	E0SS8	

COPY
ORIGINAL DOCUMENTS INCLUDED IN CSF-MEOSS1
SIGNATURE [signature] DATE 6/5/02

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: ME0SS3	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt: 6.2°C	Chain of Custody Seal Number: 24265, 24266
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Custody Seal Intact? Y	Shipment Iced? Y

TM/CN = CLP Total Metals/Cyanide-Soil

TR Number: 5-462576586-050302-0015

LABORATORY COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Contract Laboratory Analytical Services Support, 2000 Edmund Halley Dr., Reston, VA. 20191-3436 Phone 703/264-9348 Fax 703/264-9222

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: 30568
DAS No:
SDG No: MEOSS1, MEOSW1 L

Date Shipped:
Carrier Name: UPS
Airbill: 1Z 549 OW4 22 1008 057 6
Shipped to: Liberty Analytical
501 Madison Avenue
Cary NC 27513
(919) 379-4100

Chain of Custody Record

Sampler Signature:

	Relinquished By	(Date / Time)	Received By	(Date / Time)
1	[signature]	6/4/02, 16:30	[signature]	6.5.02 910
2				
3				
4				

For Lab Use Only
Lab Contract No: 68W00082
Unit Price: $79.57
Transfer To:
Lab Contract No:
Unit Price:

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
ME0ST8	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-18	6/4/02 11:20	E0ST8	Good
ME0ST9	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-19	11:25	E0ST9	
ME0SW0	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-20	11:10	E0SW0	SDG Final Sample
ME0SW1	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-21	10:45	E0SW1	
ME0SW2	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-22	10:30	E0SW2	
ME0SW3	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-23	14:55	E0SW3	
ME0SW4	Surface Soil (0"-12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SS-24	10:35	E0SW4	

COPY
ORIGINAL DOCUMENTS INCLUDED IN CSF-MEOSS1
SIGNATURE [signature] DATE 6/5/02

Rec. sample MEOSW6 not listed on COC pp 6.5.04

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: ME0SS3	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt: 6.2°C	Chain of Custody Seal Number: 24265, 24266
Analysis Key: TM/CN = CLP Total Metals/Cyanide-Soil	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Custody Seal Intact? Y	Shipment Iced? Y

TR Number: 5-462576586-050302-0015

LABORATORY COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Contract Laboratory Analytical Services Support, 2000 Edmund Halley Dr., Reston, VA. 20191-3436 Phone 703/264-9348 Fax 703/264-9222

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: 30568
DAS No:
SDG No: MEOSW1

L

Date Shipped: 6/5/02
Carrier Name: UPS
Airbill: 1Z 549 OW4 22 1008 058 5
Shipped to: Liberty Analytical
501 Madison Avenue
Cary NC 27513
(919) 379-4100

Chain of Custody Record

Sampler Signature: John Spielberg

	Relinquished By	(Date / Time)	Received By	(Date / Time)
1	John Spielberg	6/5/02, 16:00	Jan Purdue	6/6/02 930
2				
3				
4				

For Lab Use Only
Lab Contract No: 68W00082
Unit Price: 79.57
Transfer To:
Lab Contract No:
Unit Price:

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
ME0SW6	Subsurface Soil (>12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SB-1	6/4/02, 10:05	E0SW6	Did not receive this sample JP 6-6-02 Good
ME0SW7	Subsurface Soil (>12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SB-2	18:10	E0SW7	
ME0SW8	Subsurface Soil (>12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (2)	SB-3	17:40	E0SW8	
ME0SW9	Subsurface Soil (>12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SB-4	17:15	E0SW9	
ME0SX0	Subsurface Soil (>12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SB-5	16:55	E0SX0	
ME0SX1	Subsurface Soil (>12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SB-6	6/4/02, 14:20	E0SX1	
ME0SX2	Subsurface Soil (>12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SB-7	" 18:50	E0SX2	
ME0SX3	Subsurface Soil (>12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SB-8	6/4/02, 16:10	E0SX3	
ME0SX4	Subsurface Soil (>12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SB-9	16:30	E0SX4	

ORIGINAL

Shipment for Case Complete? Y/N	Sample(s) to be used for laboratory QC: ME0SW8	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt: 4.0°	Chain of Custody Seal Number: 24267, 24268

Analysis Key: Concentration: L = Low, M = Low/Medium, H = High Type/Designate: Composite = C, Grab = G
Custody Seal Intact? Y Shipment Iced? Y
TM/CN = CLP Total Metals/Cyanide-Soil

TR Number: 5-462576586-050302-0016

LABORATORY COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Contract Laboratory Analytical Services Support, 2000 Edmund Halley Dr., Reston, VA. 20191-3436 Phone 703/264-9348 Fax 703/264-9222

EPA

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: 30568
DAS No:
SDG No: MEOSW1
L

Date Shipped: 6/5/02
Carrier Name: UPS
Airbill: 1Z 549 OW4 22 1008 058 5
Shipped to: Liberty Analytical
501 Madison Avenue
Cary NC 27513
(919) 379-4100

Chain of Custody Record

Sampler Signature: John Spielberg

Relinquished By (Date / Time)	Received By (Date / Time)
1 John Spielberg 6/5/02, 14:00	[signature] 6/6/02 930
2	
3	
4	

For Lab Use Only

Lab Contract No: 68W00082
Unit Price: 79.57
Transfer To:
Lab Contract No:
Unit Price:

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
ME0SX5	Subsurface Soil (>12")/ John Spielberg	L/G	TM/CN (21)	(Ice Only) (1)	SB-10	6/4/02, 15:45	E0SX5	GOOD SDG-FINAL SAMPLE

ORIGINAL

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: ME0SW8	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt: 4.0°C	Chain of Custody Seal Number: 24267, 24268
Analysis Key: TM/CN = CLP Total Metals/Cyanide-Soil	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G		Custody Seal Intact? Y Shipment Iced? Y

TR Number: 5-462576586-050302-0016

LABORATORY COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Contract Laboratory Analytical Services Support, 2000 Edmund Halley Dr., Reston, VA. 20191-3436 Phone 703/264-9348 Fax 703/264-9222

JUN 21 2002

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: June 20, 2002

SUBJECT: Review of Data
Received for Review on June 18, 2002

FROM: Stephen L. Ostrodka, Chief (SMF-4J)
Superfund Field Services Section

TO: Data User: MDEQ

The data in this case has not been validated.
We have compiled the CADRE files into a narrative format for the following case:

SITE NAME: Tamarack City/ Stamp Mill

CASE NUMBER: 30568 SDG NUMBER: ME0SX6

Number and Type of Samples: 9 waters

Sample Numbers: ME0SX6-9; ME0SY0-4

Laboratory: Compuchem Hrs. for Review: /

Following are our findings:

CC: Cecilia Moore
Region 5 TPO
Mail Code: SM-5J

Case Number : 30568
Site Name: Tamarack City/ Stamp Mill

SDG Number: ME0SX6
Laboratory: Compuchem

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

NUMBER (##) MATRIX samples numbered ##, were collected on DATE. The lab received the samples on DATE in good condition. All samples were analyzed for metals and cyanide. All samples were analyzed using CLP SOW ILM04.1 analysis procedures.

Mercury analysis was performed using a Cold Vapor AA Technique. Cyanide analysis was performed using the MIDI Distillation procedure. The remaining inorganic analyses were performed using an Inductively Coupled Plasma-Atomic Emission Spectrometric procedure.

Assembled By: ESAT
Date: June 20, 2002

Case Number : 30568
Site Name: Tamarack City/ Stamp Mill

SDG Number: ME0SX6
Laboratory: Compuchem

1. HOLDING TIME:

Holding Time Report

SDG NO: ME0SX6

HOLDING TIME CRITERIA

Inorganic

	-- Holding Time --		------- pH -------	
	Primary	Expanded	Primary	Expanded
Metals	180	0	2.0	0.0
Mercury	28	0	2.0	0.0
Cyanide	14	0	12.0	0.0

No problems found for this qualification.

2. CALIBRATIONS:

Calibration Report

SDG NO: ME0SX6

CALIBRATION CRITERIA

Inorganic

Percent Recovery Limits

	--- Primary ---		-- Expanded ---	
	Low	High	Low	High
Cyanide	85.00	115.00	70.00	130.00
AA	90.00	110.00	75.00	125.00
ICP	90.00	110.00	75.00	125.00
Mercury	80.00	120.00	65.00	135.00

No problems found for this qualification.

CRDL Standards Report

SDG NO: ME0SX6

Assembled By: ESAT
Date: June 20, 2002

DC-374: The following inorganic samples are associated with a CRDL standard with high percent recovery.
Hits and non-detects are flagged .

Lead
ME0SX6, ME0SX7, ME0SX8, ME0SX9, ME0SY0, ME0SY1
ME0SY2, ME0SY3, ME0SY4, PBW02

Mercury
ME0SX6, ME0SX7, ME0SX8, ME0SX9, ME0SY0, ME0SY1
ME0SY2, ME0SY3, ME0SY4, PBW03

Selenium
ME0SX6, ME0SX7, ME0SX8, ME0SX9, ME0SY0, ME0SY1
ME0SY2, ME0SY3, ME0SY4, PBW02

Zinc
ME0SX6, ME0SX7, ME0SX8, ME0SX9, ME0SY0, ME0SY1
ME0SY2, ME0SY3, ME0SY4, PBW02

3. BLANKS:

Laboratory Blanks Report

SDG NO: ME0SX6

LABORATORY BLANKS CRITERIA

DC-283: The following inorganic samples are associated with a blank analyte with negative concentration whose absolute value is greater than the instrument detection limit (IDL). Professional judgement should be used to qualify the data.

ME0SX6
Cadmium, Calcium, Nickel, Zinc
Cyanide

ME0SX7
Cadmium, Calcium, Nickel, Zinc
Cyanide

ME0SX8
Cadmium, Calcium, Nickel, Zinc
Cyanide

ME0SX9
Cadmium, Calcium, Nickel, Zinc
Cyanide

ME0SX9D
Cadmium, Calcium, Nickel, Zinc
Cyanide

ME0SX9S
Cadmium, Nickel, Zinc, Cyanide

ME0SY0
Cadmium, Calcium, Nickel, Zinc
Cyanide

ME0SY1
Cadmium, Calcium, Nickel, Zinc
Cyanide

ME0SY2
Cadmium, Calcium, Nickel, Zinc
Cyanide

ME0SY3
Cadmium, Calcium, Nickel, Zinc
Cyanide

ME0SY4
Cadmium, Calcium, Nickel, Zinc
Cyanide

DC-284: The following inorganic samples are associated with a blank concentration which is greater than the instrument detection limit (IDL). The sample concentration is also greater than the IDL and less than five times the blank concentration. Hits are qualified "J"; non-detects are not flagged.

Aluminum
ME0SY3, ME0SY4

Beryllium
ME0SX6, ME0SX9, ME0SY1, ME0SY2, ME0SY4

Manganese
ME0SY3

Selenium
ME0SX7, ME0SY0, ME0SY1, ME0SY4

Sodium
ME0SY3

Vanadium
ME0SX6

DC-338: During review of the following inorganic samples, the reported IDL/default CRDL value was used for cyanide.

ME0SX6, ME0SX7, ME0SX8, ME0SX9, ME0SX9D, ME0SX9S
ME0SY0, ME0SY1, ME0SY2, ME0SY3, ME0SY4

4. MATRIX SPIKE/MATRIX SPIKE DUPLICATE AND LAB CONTROL SAMPLE:

||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||

Matrix Spike Report

SDG NO: ME0SX6

||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||

MATRIX SPIKE CRITERIA

Case Number : 30568
Site Name: Tamarack City/ Stamp Mill

SDG Number: ME0SX6
Laboratory: Compuchem

Inorganic

Percent Recovery Limits

Upper	125.0
Lower	75.0
Extreme lower	30.0

DC-268: The following inorganic samples are associated with a matrix spike recovery which is low (30-74 %) indicating that sample results may be biased low.
Hits are qualified "J" and non-detects are qualified "UJ".

Thallium
ME0SX6, ME0SX7, ME0SX8, ME0SX9, ME0SX9A, ME0SX9D
ME0SY0, ME0SY1, ME0SY2, ME0SY3, ME0SY4

LCS Report

SDG NO: ME0SX6

No problems found for this qualification.

5. LABORATORY AND FIELD DUPLICATE

Duplicates Report

SDG NO: ME0SX6

DC-330: The following inorganic samples are associated with duplicate results which did not meet absolute difference criteria.
Hits are qualified "J" and non-detects are qualified "UJ".

Aluminum
ME0SX6, ME0SX7, ME0SX8, ME0SX9, ME0SX9S, ME0SY0
ME0SY1, ME0SY2, ME0SY3, ME0SY4

6. ICP ANALYSIS

ICS Report

SDG NO: ME0SX6

DC-307: The following inorganic samples have no associated ICS analyses.
Manual review of the data is required.

ME0SX6
Aluminum, Antimony, Arsenic, Barium

Assembled By: ESAT
Date: June 20, 2002

Case Number : 30568
Site Name: Tamarack City/ Stamp Mill

SDG Number: ME0SX6
Laboratory: Compuchem

Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SX7
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SX8
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SX9
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SY0
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SY1
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SY2
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SY3
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

ME0SY4
Aluminum, Antimony, Arsenic, Barium
Beryllium, Cadmium, Calcium, Chromium
Cobalt, Copper, Iron, Lead
Magnesium, Manganese, Nickel, Selenium
Silver, Thallium, Vanadium, Zinc

Serial Dilution Report

Assembled By: ESAT
Date: June 20, 2002

SDG NO: ME0SX6

DC-294: The analyte concentration is high (>50 X the IDL) and serial dilution percent difference is not in criteria (>10%). Hits are qualified "J" and non-detects are qualified "UJ".

Potassium
ME0SX6, ME0SX7, ME0SX8, ME0SX9, ME0SX9D, ME0SY0
ME0SY1, ME0SY2, ME0SY3, ME0SY4

7. GFAA ANALYSIS

Furnace AA QC Report

SDG NO: ME0SX6

No problems found for this qualification.

8. SAMPLE RESULTS

All data, except those qualified above, are acceptable.

Sample Result Verification Report

SDG NO: ME0SX6

No problems found for this qualification.

Assembled By: ESAT
Date: June 20, 2002

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The analyte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
R	The data are unusable. (The compound may or may not be present)

Case #: 30568

SDG : ME0SX6

Site : TAMARACK CITY / STAMP MILL

Lab. : LIBRTY

Reviewer :

Date :

Number of Soil Samples : 0

Number of Water Samples : 9

Sample Number :	ME0SX6		ME0SX7		ME0SX8		ME0SX9		ME0SY0	
Sampling Location :	TMW-1		TMW-2		TMW-2D		TMW-3		TMW-4	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	12:25		15:35		15:35		13:50		16:00	
%Solids :	0.0		0.0		0.0		0.0		0.0	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	600	J	348	J	447	J	355	J	813	J
ANTIMONY	1.6	U	1.6	U	1.6	U	2.7		1.6	U
ARSENIC	4.2	U	4.2	U	4.2	U	4.2	U	4.2	U
BARIUM	107		133		133		102		79.5	
BERYLLIUM	0.23	J	0.20	U	0.20	U	0.28	J	0.20	U
CADMIUM	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U
CALCIUM	62100		56100		56400		40700		47200	
CHROMIUM	2.3		1.0		0.96		1.8		2.3	
COBALT	1.3		0.60	U	0.60	U	3.7		0.60	U
COPPER	5.9		21.7		18.0		7.8		6.3	
IRON	1290		3490		3650		2520		984	
LEAD	1.3	U	1.3	U	1.3	U	1.3	U	1.3	U
MAGNESIUM	8530		6410		6450		6100		3980	
MANGANESE	227		120		120		112		64.9	
MERCURY	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
NICKEL	1.5		0.76		0.68		2.7		1.1	
POTASSIUM	2100	J	9610	J	9710	J	4180	J	5410	J
SELENIUM	2.2	U	2.7	J	2.2	U	2.2	U	2.5	J
SILVER	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U
SODIUM	59400		55900		56100		32600		26500	
THALLIUM	3.3	UJ	3.3	UJ	3.3	UJ	3.3	UJ	3.3	UJ
VANADIUM	2.7	J	3.2		3.4		5.2		5.5	
ZINC	4.7		2.0		4.7		5.1		3.2	
CYANIDE	0.60	U	0.60	U	0.61		0.60	U	0.60	U

Analytical Results (Qualified Data)

Case #: 30568 SDG : ME0SX6
Site : TAMARACK CITY / STAMP MILL
Lab. : LIBRTY
Reviewer :
Date :

Sample Number :	ME0SY1		ME0SY2		ME0SY3		ME0SY4		ME0SX9D	
Sampling Location :	TMW-5		TMW-6		PB-1		FB-1		TMW-3	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	17:25		11:15		16:00		10:05		13:50	
%Solids :	0.0		0.0		0.0		0.0		0.0	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	3370	J	4690	J	19.9	J	15.8	J	638	
ANTIMONY	1.6	U	1.6	U	1.6	U	1.6	U	2.4	
ARSENIC	4.2	U	5.7		4.2	U	4.2	U	4.2	U
BARIUM	155		257		0.10	U	0.10	U	95.4	
BERYLLIUM	0.25	J	0.56	J	0.20	U	0.22	J	0.20	U
CADMIUM	0.30	U	0.30	U	0.30	U	0.30	U	0.30	U
CALCIUM	34300		35200		16.9	U	16.9	U	40600	
CHROMIUM	5.9		9.6		0.50	U	0.50	U	1.9	
COBALT	2.8		2.5		0.60	U	0.60	U	1.8	
COPPER	58.6		358		0.70	U	0.70	U	4.4	
IRON	2750		17400		11.4	U	11.4	U	2770	
LEAD	1.5		6.3		1.3	U	1.3	U	1.3	U
MAGNESIUM	14500		11500		12.1	U	12.1	U	6190	
MANGANESE	61.2		338		0.23	J	0.10	U	114	
MERCURY	0.10	U	0.14		0.10	U	0.10	U	0.10	U
NICKEL	6.2		7.0		0.50	U	0.50	U	1.7	
POTASSIUM	5270	J	4190	J	13.4	UJ	13.4	UJ	4210	J
SELENIUM	5.8	J	2.2		2.2	U	2.4	J	2.2	U
SILVER	0.70	U	0.70	U	0.70	U	0.70	U	0.70	U
SODIUM	25300		13700		159	J	146	U	32400	
THALLIUM	3.3	UJ	3.3	UJ	3.3	UJ	3.3	UJ	3.3	UJ
VANADIUM	8.7		34.6		0.50	U	0.50	U	3.8	
ZINC	12.0		12.8		1.4	U	1.4	U	2.2	
CYANIDE	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U

Analytical Results (Qualified Data)

Case #: 30568 SDG : ME0SX6
Site : TAMARACK CITY / STAMP MILL
Lab. : LIBRTY
Reviewer :
Date :

Sample Number :	ME0SX9S				
Sampling Location :	TMW-3				
Matrix :	Water				
Units :	ug/L				
Date Sampled :	06/04/2002				
Time Sampled :	13:50				
%Solids :	0.0				
Dilution Factor :	1.0				

ANALYTE	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
ALUMINUM	2260	J								
ANTIMONY	484									
ARSENIC	37.9									
BARIUM	2000									
BERYLLIUM	46.8									
CADMIUM	45.7									
CALCIUM										
CHROMIUM	190									
COBALT	470									
COPPER	234									
IRON	3570									
LEAD	18.5									
MAGNESIUM										
MANGANESE	586									
MERCURY	1.0									
NICKEL	467									
POTASSIUM										
SELENIUM	11.2									
SILVER	47.3									
SODIUM										
THALLIUM	36.4									
VANADIUM	488									
ZINC	467									
CYANIDE	99.6									

DISCLAIMER: This package has been electronically assessed as an added service to our customer. It has not been either validated or approved by Region 5 and any subsequent use by the data user is strictly at the risk of the data user. Region 5 assumes no responsibility for use of unvalidated data.

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

duog 3

Case No:	30568
DAS No:	
SDG No:	MEOSX6

L

Date Shipped: 6/5/02
Carrier Name: UPS
Airbill: 1Z 549 OW4 22 1008 059 4
Shipped to: Liberty Analytical
501 Madison Avenue
Cary NC 27513
(919) 379-4100

Chain of Custody Record

Sampler Signature: John Spielberg

	Relinquished By (Date / Time)	Received By (Date / Time)
1	~~John Spielberg 6/4/02 18:00~~	Joan Purdie 6/6/02 9:30
2	John Spielberg 6/5/02, 16:00	
3		
4		

For Lab Use Only
Lab Contract No: 68W00052
Unit Price: 79.57
Transfer To:
Lab Contract No:
Unit Price:

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
ME0SX6	Ground Water/ John Spielberg	L/G	TM (21)	(HNO3) (1)	TMW-1	6/4/02, 12:25	E0SX6	GOOD
ME0SX7	Ground Water/ John Spielberg	L/G	TM (21)	(HNO3) (1)	TMW-2	15:35	E0SX7	
ME0SX8	Ground Water/ John Spielberg	L/G	TM (21)	(HNO3) (1)	TMW-2D	15:35	E0SX8	
ME0SX9	Ground Water/ John Spielberg	L/G	TM (21)	(HNO3) (2)	TMW-3	13:50	E0SX9	
ME0SY0	Ground Water/ John Spielberg	L/G	TM (21)	(HNO3) (1)	TMW-4	16:00	E0SY0	

ORIGINAL

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: ME0SX9	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt: 4°	Chain of Custody Seal Number: 24269, 24270
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate:Composite = C, Grab = G		Custody Seal Intact? Y Shipment Iced? Y
TM = CLP Total Metals-Water				

TR Number: 5-462576586-050302-0017

LABORATORY COPY

PR provides ...minary results. Requests for preliminary results will increase analytical cos...
Send Copy to: ...ontract Laboratory Analytical Services Support, 2000 Edmund Halley Dr., Res..., VA. 20191-3436 Phone 703/264-9348 Fax 703/264-9222

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: 30568
DAS No:
SDG No: MEOSX6

L

Date Shipped: 6/5/02
Carrier Name: UPS
Airbill: 1Z 549 OW4 22 1008 059 4
Shipped to: Liberty Analytical
501 Madison Avenue
Cary NC 27513
(919) 379-4100

Chain of Custody Record

Sampler Signature: John Spielberg

	Relinquished By (Date / Time)	Received By (Date / Time)
1	~~John Spielberg 6/5/02 18:00~~	Joan Pardo 6/6/02 930
2	John Spielberg, 6/5/02, 16:00	
3		
4		

For Lab Use Only

Lab Contract No: 68W00082
Unit Price: 79.57
Transfer To:
Lab Contract No:
Unit Price:

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
ME0SX6	Ground Water/ John Spielberg	L/G	CN (21)	(NaOH) (1)	TMW-1	6/4/02, 12:25	E0SX6	Good
ME0SX7	Ground Water/ John Spielberg	L/G	CN (21)	(NaOH) (1)	TMW-2	15:35	E0SX7	
ME0SX8	Ground Water/ John Spielberg	L/G	CN (21)	(NaOH) (1)	TMW-2D	15:35	E0SX8	
ME0SX9	Ground Water/ John Spielberg	L/G	CN (21)	(NaOH) (2)	TMW-3	13:50	E0SX9	
ME0SY0	Ground Water/ John Spielberg	L/G	CN (21)	(NaOH) (1)	TMW-4	16:00	E0SY0	

ORIGINAL

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: ME0SX9	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt: 4.0°C	Chain of Custody Seal Number: 24269, 24270
Analysis Key: CN = CLP Cyanide-Water	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Custody Seal Intact? Y	Shipment Iced? Y

TR Number: 5-462576586-050302-0018

LABORATORY COPY

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EPA

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Case No: 30568
DAS No:
SDG No: MEOSX6

L

Date Shipped: 6/5/04
Carrier Name: UPS
Airbill: 1Z 549 OW4 22 1008 061 0
Shipped to: Liberty Analytical
501 Madison Avenue
Cary NC 27513
(919) 379-4100

Chain of Custody Record

Sampler Signature: John Spielberg

	Relinquished By	(Date / Time)	Received By	(Date / Time)
1	John Spielberg	6/5/02, 16:00	Joan Kurdie	6/6/02 930
2				
3				
4				

For Lab Use Only

Lab Contract No: 68W00082
Unit Price: 79.57
Transfer To:
Lab Contract No:
Unit Price:

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
ME0SY1	Ground Water/ John Spielberg	L/G	TM (21)	(HNO3) (1)	TMW-5	6/4/02, 17:25	E0SY1	GOOD
ME0SY2	Ground Water/ John Spielberg	L/G	TM (21)	(HNO3) (1)	TMW-6	11:15	E0SY2	
ME0SY3	Field QC/ John Spielberg	L/G	TM (21)	(HNO3) (1)	PB-1	16:00	E0SY3	
ME0SY4	Field QC/ John Spielberg	L/G	TM (21)	(HNO3) (1)	FB-1	10:05	E0SY4	SDG-FINAL SAMPLE
~~ME0SY5~~	~~Field QC/ John Spielberg~~	~~L/G~~	~~TM (21)~~	~~(HNO3) (1)~~	~~FB-2~~		~~E0SY5~~	

not collected
JEA, 6/4/02

ORIGINAL

JEA, 6/5/02

Shipment for Case Complete? N / Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt: 4.0°C	Chain of Custody Seal Number: 24271, 24272
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G		Custody Seal Intact? Y / Shipment Iced? Y

TM = CLP Total Metals-Water

TR Number: 5-462576586-050302-0019

LABORATORY COPY

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Send Copy to: Contract Laboratory Analytical Services Support, 2000 Edmund Halley Dr., Reston, VA. 20191-3436 Phone 703/264-9348 Fax 703/264-9222

USEPA Contract Laboratory Program
Inorganic Traffic Report & Chain of Custody Record

Dung 4

Case No: 30568
DAS No:
SDG No: MEOSX6

L

Date Shipped:	6/5/02
Carrier Name:	UPS
Airbill:	1Z 549 OW4 22 1008 061 0
Shipped to:	Liberty Analytical 501 Madison Avenue Cary NC 27513 (919) 379-4100

Chain of Custody Record

Sampler Signature: John Spielberg

	Relinquished By	(Date / Time)	Received By	(Date / Time)
1	John Spielberg	6/5/02, 16:00	[signature]	6/6/02 930
2				
3				
4				

For Lab Use Only

Lab Contract No:	68W00080
Unit Price:	79.57
Transfer To:	
Lab Contract No:	
Unit Price:	

INORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	ORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
ME0SY1	Ground Water/ John Spielberg	L/G	CN (21)	(NaOH) (1)	TMW-5	6/4/02, 17:25	E0SY1	Good
ME0SY2	Ground Water/ John Spielberg	L/G	CN (21)	(NaOH) (1)	TMW-6	11:15	E0SY2	
ME0SY3	Field QC/ John Spielberg	L/G	CN (21)	(NaOH) (1)	PB-1	16:00	E0SY3	
ME0SY4	Field QC/ John Spielberg	L/G	CN (21)	(NaOH) (1)	FB-1	10:05	E0SY4	SDG-FINAL SAMPLE
~~ME0SY5~~	~~Field QC/ John Spielberg~~	~~L/G~~	~~CN (21)~~	~~(NaOH) (1)~~	~~FB-2~~		~~E0SY5~~	

not collected
JES, 6/4/02

ORIGINAL

JES, 6/5/02

Shipment for Case Complete? (Y)	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt: 4.0°C	Chain of Custody Seal Number: 24271, 24272
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G		Custody Seal Intact? Y Shipment Iced? Y
CN = CLP Cyanide-Water				

TR Number: 5-462576586-050302-0020

LABORATORY COPY

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JUN 1 8 2002

CompuChem
a Division of Liberty Analytical Corp.
501 Madison Avenue Cary, NC 27513

SDG NARRATIVE
CASE # 30568 SDG # ME0SX6
CONTRACT # 68W00082

The indicated Sample Delivery Group (SDG) consisting of nine (9) water samples was received into the laboratory information management system (LIMS) on June 6, 2002; intact and in good condition. Chains of Custody (COC) Records are in order, unless otherwise noted in any attachments or Quality Assurance Notices. Sample ID's reported in this data package are noted by the receiving department on the COC if they differ from those listed by the samplers on the COC.

The samples were analyzed, in accordance with EPA - CLP Statement of Work (SOW) document ILM04.1 for CLP TAL total metals and cyanide.

The correlation coefficients for the mercury and cyanide analytical runs are confirmed to be $\geq$ 0.9950.

The cooler temperature bottle was present with samples received on June 6, 2002; and sample temperature was 4.0 degrees Celsius.

EQUATIONS FOR WATER SAMPLE CALCULATIONS:

Client sample ME0SX9 is used for illustration.

Any sample result that is $\leq$ the instrument detection limit (IDL) will be entered at the IDL for that analyte.

ICP Equation:

$$\text{ICP analyte, ug/L} = \frac{A \times D \times F}{B}$$

Where: A = ug/L (ppb) ICP analyte of sample from analysis
B = Liter of original sample for digestion (0.050 L)
D = any dilution factor necessary to bracket sample value within standard values
F = final sample solution volume (0.050 L)

Example: $\frac{40663.73 \text{ ppb(Ca)} \times 1 \times 0.050 \text{ L}}{0.050 \text{ L}}$ = 40663.73 ppb reported as 40700 ug/L of Ca

Mercury Equation:

$$\text{Hg, ug/L} = \frac{A \times D \times F}{B}$$

Where: A = ug/L (ppb) Hg of sample from analysis
B = Liter of original sample for digestion (0.10 L)
D = any dilution factor necessary to bracket sample value within standard values
F = final sample solution volume (0.10 L)

Example: $\frac{0.10 \text{ ppb}^* \times 1 \times 0.10 \text{ L}}{0.10 \text{ L}} = 0.10$ ppb reported as 0.10 ug/L* of Hg

* The result is reported down to the instrument detection limit.

Cyanide Equation:

$$\text{CN, ug/L} \quad \frac{A \times D \times F}{B}$$

Where: A = ug/L (ppb) CN of sample from analysis
B = Liter of original sample for distillation (0.050 L)
D = any dilution factor necessary to bracket sample value within standard values
F = sample receiving solution volume (0.050 L)

Example: $\frac{0.60 \text{ ppb}^* \times 1 \times 0.050 \text{ L}}{0.050 \text{ L}} = 0.60$ ppb reported as 0.60 ug/L* of CN

* The result is reported down to the instrument detection limit.

SAMPLE IDs:

The following customer IDs are associated with this SDG:

ME0SX6	ME0SX7	ME0SX8	ME0SX9	ME0SY0	ME0SY1
ME0SY2	ME0SY3	ME0SY4			

INSTRUMENTAL QUALITY CONTROL:

All calibration verification solutions (ICV & CCV), blanks (ICB, & CCB), and interference check samples (ICSA & ICSAB) associated with this data were confirmed to be within EPA CLP allowable limits.

SAMPLE PREPARATION QUALITY CONTROL:

The sample preparation procedure verifications (LCSW & PBW) were found to be within acceptable ranges and all field samples were prepared and analyzed within the contract specified holding times.

MATRIX RELATED QUALITY CONTROL:

The sample matrix spike, CCN = WG17964-1 (ME0SX9S) was found to be outside CLP control limits for thallium. The reported concentration for this analyte is flagged with an "N" on all associated Form 1 and on Form 5a.

An "N" indicates a matrix-related interference in the sample preparation procedure &/or analysis for the flagged analyte. This is normally the consequence of a relatively high anionic content in the sample or (for some sediments) an inconsistent sample matrix relative to that analyte.

CLP control limits for matrix spike recoveries are set at 75% to 125% of the analyte quantity added unless original sample concentrations exceed the true values of these "spikes" by a factor of four or more. In this case, affected analytes are not flagged even if recoveries are outside percentage recovery control limits.

Post-digestion spikes are mandatory for analytes demonstrating unsatisfactory matrix spike recoveries during ICP analysis (excluding silver). The results of such spikes are presented on Form 5b.

Unsatisfactory recovery of post-digestion spikes of this type do not have bearing upon the aforementioned "N" flags, but may indicate interference during analysis &/or a solution matrix which is hostile to the analyte in question.

Satisfactory recovery of an analyte in a post-digestion spike of this type implies interference by the required preparation procedure or in the sample matrix itself. Lack of uniformity for an analyte in sediments will also result in satisfactory recovery of post-digestion spikes after failure in the related matrix spike.

The sample matrix duplicate, CCN = WG17964-2 (ME0SX9D) was outside CLP control limits for aluminum. The reported concentration for this analyte is flagged with a "*" on all associated Form 1 and on Form 6.

A "*" indicates a non-homogeneous sample matrix in regard to the flagged analyte. This is normally the consequence of a relatively coarse texture or of a mixed-matrix in sediment samples.

CLP control limits for duplicate determinations are +/- 20% Relative Percent Difference (RPD) for concentrations greater than or equal to five times the CRDL in both the original and duplicate samples, and +/- the CRDL for concentrations less than five times the CRDL. The RPD is not calculated if both the original and duplicate values fall below the IDL.

A five-fold serial dilution of sample, CCN = ME0SX6-4 (ME0SX9L) was performed in accordance with CLP requirements for ICP analysis.

The adjusted sample concentrations were outside CLP control limits for potassium, which is flagged with an "E" on all associated Form 1, the Cover Page and Form 9.

An "E" indicates that a chemical or physical interference effect was encountered during the analysis of the flagged analyte. As a result of this interference, all values for the analyte in the same matrix must be considered to be estimated quantities.

CLP control limits for serial dilution are defined as a deviation less than or equal to 10% in the dilution-adjusted concentrations from the original values for all analyte concentrations with values greater than fifty (50) times their respective Instrument Detection Limit (IDL) in the original sample.

The laboratory manager or his designee, as verified by the following signature has authorized release of the data contained in this hard copy data package.

Thomas R. Cole

Thomas R. Cole
Data Reviewer II
June 13, 2002

U. S. EPA - CLP

COVER PAGE - INORGANIC ANALYSES DATA PACKAGE

JUN 1 8 2002

Lab Name: COMPUCHEM Contract: 68W00082

Lab Code: LIBRTY Case No.: 30568 SAS No.: SDG No.: ME0SX6

SOW No.: ILM04.1

EPA Sample No.	Lab Sample ID.
ME0SX6	ME0SX6-1
ME0SX7	ME0SX6-2
ME0SX8	ME0SX6-3
ME0SX9	ME0SX6-4
ME0SX9D	WG17964-2
ME0SX9S	WG17964-1
ME0SY0	ME0SX6-5
ME0SY1	ME0SX6-6
ME0SY2	ME0SX6-7
ME0SY3	ME0SX6-8
ME0SY4	ME0SX6-9

Were ICP interelement corrections applied? Yes/No YES

Were ICP background corrections applied? Yes/No YES
If yes-were raw data generated before
application of background corrections? Yes/No NO

Comments: THE FOLLOWING ANALYTES HAVE BEEN FLAGGED WITH AN "E" TO INDICATE SERIAL DILUTION RESULTS WHICH ARE NOT WITHIN CONTROL LIMITS:
POTASSIUM

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature.

Signature: Thomas R. Cole Name: Thomas R. Cole

Date: June 13, 2002 Title: Data Reviewer II

3

JUL 01 2002

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE: ____________

SUBJECT: Electronic (**Level 2**) Review of Data

Received for Review on June 26, 2002

FROM: Stephen L. Ostrodka, Chief (SMF-4J)
Superfund Field Services Section

TO: Data User: MDEQ

The following data has been electronically reviewed by CADRE. No review of the raw data, laboratory narrative, laboratory forms or chain-of-custody forms was performed.

SITE NAME: Tamarack City / Stamp Mill (MI)

CASE NUMBER: 30568 SDG NUMBER: E0SW7

Number and Type of Samples: 4 Soils

Sample Numbers: E0SX4, E0SX5, E0SW7, E0SW8

Laboratory: Ceimic Hrs. for Review: ____________

Following are our findings:

CC: Cecilia Moore
egion 5 TPO
Mail Code: SMF-4J

Case Number :	30568	SDG Number:	E0SW7
e Name:	TAMARACK CITY / STAMP MILL (MI)	Laboratory:	CEIMIC

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Four (4) soil samples, numbered *E0SX4, E0SX5, E0SW7* and *E0SW8,* were collected on *May 4, 2002*. The lab received the samples on *May 6, 2002* in good condition. All samples were analyzed for only the semivolatile and pesticide lists of organic analytes. All were analyzed according to CLP SOW *OLM04.2* 5/99.

Case Number : 30568 SDG Number: E0SW7
e Name: TAMARACK CITY / STAMP MILL (MI) Laboratory: CEIMIC

1. HOLDING TIME

No problems found for this qualification.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems found for this qualification.

3. CALIBRATION

CALIBRATION CRITERIA

Semivolatile

	Primary	Expanded
Minimum RRF	0.05	0.05
Maximum %RSD (initial calibration)	30	30
Maximum %D (continuing calibration)	25	25
Calibration time period	12	

Pesticide

Maximum %RSD (initial calibration) - TCL analytes	20
- surrogates	30
Maximum RPD (continuing calibration)	25
INDA/INDB percent resolution	90
Continuing calibration sequence time	12

DC-100: The following semivolatile samples are associated with a continuing calibration percent difference (%D) outside primary criteria. Hits are qualified "J" and non-detects are qualified "UJ".

Benzaldehyde
E0SW7, E0SW8, E0SW8MS, E0SW8MSD, E0SX4, E0SX5, SBLKDW

4-Nitrophenol
E0SW7, E0SW8, E0SW8MS, E0SW8MSD, E0SX4, E0SX5

DC-197: The following pesticide samples are not qualified for continuing calibration because of missing continuing calibration information. Manual review of the data is required.

Case Number :	30568	SDG Number:	E0SW7
e Name:	TAMARACK CITY / STAMP MILL (MI)	Laboratory:	CEIMIC

E0SW7, E0SW7DL, E0SW8, E0SW8MS, E0SW8MSD, E0SX4, E0SX4DL, E0SX5, E0SX5DL, PBLK01

4. BLANKS

LABORATORY BLANKS CRITERIA

Semivolatile

Method Blank Contamination Threshold Multipliers

	First	Expanded
Common contaminant compounds	10.00	10.00
Other compounds	5.00	5.00

DC-206: The following semivolatile samples have analyte concentrations reported below the CRQL and less than or equal to ten times (10X) the associated method blank concentration. Reported sample concentrations have been elevated to the CRQL. Hits are qualified "**U**" and non-detects are not flagged.

bis(2-Ethylhexyl)phthalate
E0SW7, E0SW8, E0SW8MS, E0SW8MSD, E0SX4, E0SX5

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

No problems found for this qualification.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MATRIX SPIKE CRITERIA

Semivolatile

Percent Recovery Limits & RPD

	Water			Soil		
	Lower	Upper	RPD	Lower	Upper	RPD
Phenol	12.0	110.0	42.0	26.0	90.0	35.0
2-Chlorophenol	27.0	123.0	40.0	25.0	102.0	50.0
Nitroso-di-n-propylamine	41.0	116.0	38.0	41.0	126.0	38.0

Case Number : 30568 **SDG Number:** E0SW7
e Name: TAMARACK CITY / STAMP MILL (MI) **Laboratory:** CEIMIC

4-Chloro-3-methylphenol	23.0	97.0	42.0	26.0	103.0	33.0
Acenaphthene	46.0	118.0	31.0	31.0	137.0	19.0
4-Nitrophenol	10.0	80.0	50.0	11.0	114.0	50.0
2,4-Dinitrotoluene	24.0	96.0	38.0	28.0	89.0	47.0
Pentachlorophenol	9.0	103.0	50.0	17.0	109.0	47.0
Pyrene	26.0	127.0	31.0	35.0	142.0	36.0

Pesticide

Percent Recovery Limits & RPD

	Water			Soil		
	Lower	Upper	RPD	Lower	Upper	RPD
gamma-BHC (Lindane)	56.0	123.0	15.0	46.0	127.0	50.0
Heptachlor	40.0	131.0	20.0	35.0	130.0	31.0
Aldrin	40.0	120.0	22.0	34.0	132.0	43.0
Dieldrin	52.0	126.0	18.0	31.0	134.0	38.0
Endrin	56.0	121.0	21.0	42.0	139.0	45.0
4,4'-DDT	38.0	127.0	27.0	23.0	134.0	50.0

DC-51: The following semivolatile matrix spike/matrix spike duplicate samples have percent recovery outside criteria. Results for the outlier compound in the unspiked sample, E0SW8, is estimated, "J" and a non-detect is estimated, "UJ".

E0SW8MS, E0SW8MSD
Pentachlorophenol

DC-169: The relative percent difference (RPD) between the following pesticide matrix spike and matrix spike duplicate recoveries is outside criteria. Results for the outlier compound in the unspiked sample, E0SW8, is estimated, "J" and a non-detect is estimated, "UJ".

E0SW8MS, E0SW8MSD
Heptachlor

DC-170: The following pesticide matrix spike/matrix spike duplicate samples have percent recovery outside criteria. Results for the outlier compound in the unspiked sample, E0SW8, is estimated, "J" and a non-detect is estimated, "UJ".

E0SW8MSD
Heptachlor

Case Number : 30568 SDG Number: E0SW7
e Name: TAMARACK CITY / STAMP MILL (MI) Laboratory: CEIMIC

7. FIELD BLANK AND FIELD DUPLICATE

No samples were identified as trip blanks, field blanks or field duplicates. Results are not qualified based upon the results of the field blank or field duplicates.

8. INTERNAL STANDARDS

No problems found for this qualification.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all VOA, SVOA, and Pesticide/PCB compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

CONTRACT REQUIRED SAMPLE QUANTITY

	Water	Low Soil	Med Soil
BNA	1000.0 (ML)	30.0 (G)	1.0 (G)
PES	1000.0 (ML)	30.0 (G)	

DC-110: The following semivolatile samples have analyte concentrations below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

E0SW7
Benzaldehyde, Caprolactam , Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(k)fluoranthene, Benzo(a)pyrene

E0SW8
Naphthalene, 2-Methylnaphthalene, Phenanthrene

E0SW8MS, E0SW8MSD
2-Methylnaphthalene, 4-Nitrophenol, Pentachlorophenol, Phenanthrene

SBLKDW
bis(2-Ethylhexyl)phthalate

DC-422: The following pesticide samples have analytes for which the percent difference between column results exceeds primary criteria. Professional judgement should be used to qualify the data.

E0SW8, E0SX4DL, E0SX5DL
Heptachlor

E0SX4
Endosulfan I

E0SX5
delta-BHC, Endosulfan I, 4,4'-DDT

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance. The GC baseline for the pesticide analysis was acceptable.

12. ADDITIONAL INFORMATION

None.

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The anlayte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the present of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the present of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present)

Analytical Results (Qualified Data)

Case #: 30568 SDG : E0SW7
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Number of Soil Samples : 4
Number of Water Samples : 0

Sample Number :	E0SW7		E0SW8		E0SW8MS		E0SW8MSD		E0SX4	
Sampling Location :	SB-2		SB-3		SB-3		SB-3		SB-9	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	18:10		17:40		17:40		17:40		16:30	
%Moisture :	41		10		10		10		17	
pH :	5.4		5.1		5.1		5.1		5.6	
Dilution Factor :	1.0		2.0		2.0		2.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	110	J	720	UJ	730	UJ	730	UJ	400	UJ
Phenol	550	U	720	U	1300		1300		400	U
bis-(2-Chloroethyl) ether	550	U	720	U	730	U	730	U	400	U
2-Chlorophenol	550	U	720	U	1200		1200		400	U
2-Methylphenol	550	U	720	U	730	U	730	U	400	U
2,2'-oxybis(1-Chloropropane)	550	U	720	U	730	U	730	U	400	U
Acetophenone	550	U	720	U	730	U	730	U	400	U
4-Methylphenol	550	U	720	U	730	U	730	U	400	U
N-Nitroso-di-n-propylamine	550	U	720	U	900		940		400	U
Hexachloroethane	550	U	720	U	730	U	730	U	400	U
Nitrobenzene	550	U	720	U	730	U	730	U	400	U
Isophorone	550	U	720	U	730	U	730	U	400	U
2-Nitrophenol	550	U	720	U	730	U	730	U	400	U
2,4-Dimethylphenol	550	U	720	U	730	U	730	U	400	U
bis(2-Chloroethoxy)methane	550	U	720	U	730	U	730	U	400	U
2,4-Dichlorophenol	550	U	720	U	730	U	730	U	400	U
Naphthalene	550	U	95	J	730	U	730	U	400	U
4-Chloroaniline	550	U	720	U	730	U	730	U	400	U
Hexachlorobutadiene	550	U	720	U	730	U	730	U	400	U
Caprolactam	56	J	720	U	730	U	730	U	400	U
4-Chloro-3-methylphenol	550	U	720	U	1400		1600		400	U
2-Methylnaphthalene	550	U	170	J	110	J	95	J	400	U
Hexachlorocyclopentadiene	550	U	720	U	730	U	730	U	400	U
2,4,6-Trichlorophenol	550	U	720	U	730	U	730	U	400	U
2,4,5-Trichlorophenol	1400	U	1800	U	1800	U	1800	U	1000	U
1,1'-Biphenyl	550	U	720	U	730	U	730	U	400	U
2-Chloronaphthalene	550	U	720	U	730	U	730	U	400	U
2-Nitroaniline	1400	U	1800	U	1800	U	1800	U	1000	U
Dimethylphthalate	550	U	720	U	730	U	730	U	400	U
2,6-Dinitrotoluene	550	U	720	U	730	U	730	U	400	U
Acenaphthylene	550	U	720	U	730	U	730	U	400	U
3-Nitroaniline	1400	U	1800	U	1800	U	1800	U	1000	U
Acenaphthene	550	U	720	U	960		1100		400	U

DISCLAIMER: This package has been electronically assessed as an added service to our customer. It has not been either validated or approved by Region 5 and any subsequent use by the data user is strictly at the risk of the data user. Region 5 assumes no responsibility for use of unvalidated data.

Analytical Results (Qualified Data)

Case #: 30568 SDG : E0SW7
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	E0SW7		E0SW8		E0SW8MS		E0SW8MSD		E0SX4	
Sampling Location :	SB-2		SB-3		SB-3		SB-3		SB-9	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	18:10		17:40		17:40		17:40		16:30	
%Moisture :	41		10		10		10		17	
pH :	5.4		5.1		5.1		5.1		5.6	
Dilution Factor :	1.0		2.0		2.0		2.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	1400	U	1800	U	1800	U	1800	U	1000	U
4-Nitrophenol	1400	UJ	1800	UJ	1100	J	1200	J	1000	UJ
Dibenzofuran	550	U	720	U	730	U	730	U	400	U
2,4-Dinitrotoluene	550	U	720	U	930		1100		400	U
Diethylphthalate	550	U	720	U	730	U	730	U	400	U
Fluorene	550	U	720	U	730	U	730	U	400	U
4-Chlorophenyl-phenyl ether	550	U	720	U	730	U	730	U	400	U
4-Nitroaniline	1400	U	1800	U	1800	U	1800	U	1000	U
4,6-Dinitro-2-methylphenol	1400	U	1800	U	1800	U	1800	U	1000	U
N-Nitrosodiphenylamine	550	U	720	U	730	U	730	U	400	U
4-Bromophenyl-phenylether	550	U	720	U	730	U	730	U	400	U
Hexachlorobenzene	550	U	720	U	730	U	730	U	400	U
Atrazine	550	U	720	U	730	U	730	U	400	U
Pentachlorophenol	1400	U	1800	UJ	100	J	86	J	1000	U
Phenanthrene	80	J	140	J	100	J	110	J	400	U
Anthracene	550	U	720	U	730	U	730	U	400	U
Carbazole	550	U	720	U	730	U	730	U	400	U
Di-n-butylphthalate	550	U	720	U	730	U	730	U	400	U
Fluoranthene	150	J	720	U	730	U	730	U	400	U
Pyrene	120	J	720	U	1100		1300		400	U
Butylbenzylphthalate	550	U	720	U	730	U	730	U	400	U
3,3'-Dichlorobenzidine	550	U	720	U	730	U	730	U	400	U
Benzo(a)anthracene	66	J	720	U	730	U	730	U	400	U
Chrysene	71	J	720	U	730	U	730	U	400	U
bis(2-Ethylhexyl)phthalate	550	U	720	U	730	U	730	U	400	U
Di-n-octylphthalate	550	U	720	U	730	U	730	U	400	U
Benzo(b)fluoranthene	550	U	720	U	730	U	730	U	400	U
Benzo(k)fluoranthene	63	J	720	U	730	U	730	U	400	U
Benzo(a)pyrene	65	J	720	U	730	U	730	U	400	U
Indeno(1,2,3-cd)pyrene	550	U	720	U	730	U	730	U	400	U
Dibenzo(a,h)anthracene	550	U	720	U	730	U	730	U	400	U
Benzo(g,h,i)perylene	550	U	720	U	730	U	730	U	400	U

Case #: 30568 SDG : E0SW7

Site : TAMARACK CITY / STAMP MILL

Lab. : CEIMIC

Reviewer :

Date :

Sample Number :	E0SX5		SBLKDW							
Sampling Location :	SB-10									
Matrix :	Soil		Soil							
Units :	ug/Kg		ug/Kg							
Date Sampled :	06/04/2002									
Time Sampled :	15:45									
%Moisture :	20		N/A							
pH :	5.7									
Dilution Factor :	1.0		1.0							
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	410	UJ	330	UJ						
Phenol	410	U	330	U						
bis-(2-Chloroethyl) ether	410	U	330	U						
2-Chlorophenol	410	U	330	U						
2-Methylphenol	410	U	330	U						
2,2'-oxybis(1-Chloropropane)	410	U	330	U						
Acetophenone	410	U	330	U						
4-Methylphenol	410	U	330	U						
N-Nitroso-di-n-propylamine	410	U	330	U						
Hexachloroethane	410	U	330	U						
Nitrobenzene	410	U	330	U						
Isophorone	410	U	330	U						
2-Nitrophenol	410	U	330	U						
2,4-Dimethylphenol	410	U	330	U						
bis(2-Chloroethoxy)methane	410	U	330	U						
2,4-Dichlorophenol	410	U	330	U						
Naphthalene	410	U	330	U						
4-Chloroaniline	410	U	330	U						
Hexachlorobutadiene	410	U	330	U						
Caprolactam	410	U	330	U						
4-Chloro-3-methylphenol	410	U	330	U						
2-Methylnaphthalene	410	U	330	U						
Hexachlorocyclopentadiene	410	U	330	U						
2,4,6-Trichlorophenol	410	U	330	U						
2,4,5-Trichlorophenol	1000	U	830	U						
1,1'-Biphenyl	410	U	330	U						
2-Chloronaphthalene	410	U	330	U						
2-Nitroaniline	1000	U	830	U						
Dimethylphthalate	410	U	330	U						
2,6-Dinitrotoluene	410	U	330	U						
Acenaphthylene	410	U	330	U						
3-Nitroaniline	1000	U	830	U						
Acenaphthene	410	U	330	U						

Analytical Results (Qualified Data)

Case #: 30568 SDG : E0SW7
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	E0SX5		SBLKDW							
Sampling Location :	SB-10									
Matrix :	Soil		Soil							
Units :	ug/Kg		ug/Kg							
Date Sampled :	06/04/2002									
Time Sampled :	15:45									
%Moisture :	20		N/A							
pH :	5.7									
Dilution Factor :	1.0		1.0							
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	1000	U	830	U						
4-Nitrophenol	1000	UJ	830	U						
Dibenzofuran	410	U	330	U						
2,4-Dinitrotoluene	410	U	330	U						
Diethylphthalate	410	U	330	U						
Fluorene	410	U	330	U						
4-Chlorophenyl-phenyl ether	410	U	330	U						
4-Nitroaniline	1000	U	830	U						
4,6-Dinitro-2-methylphenol	1000	U	830	U						
N-Nitrosodiphenylamine	410	U	330	U						
4-Bromophenyl-phenylether	410	U	330	U						
Hexachlorobenzene	410	U	330	U						
Atrazine	410	U	330	U						
Pentachlorophenol	1000	U	830	U						
Phenanthrene	410	U	330	U						
Anthracene	410	U	330	U						
Carbazole	410	U	330	U						
Di-n-butylphthalate	410	U	330	U						
Fluoranthene	410	U	330	U						
Pyrene	410	U	330	U						
Butylbenzylphthalate	410	U	330	U						
3,3'-Dichlorobenzidine	410	U	330	U						
Benzo(a)anthracene	410	U	330	U						
Chrysene	410	U	330	U						
bis(2-Ethylhexyl)phthalate	410	U	61	J						
Di-n-octylphthalate	410	U	330	U						
Benzo(b)fluoranthene	410	U	330	U						
Benzo(k)fluoranthene	410	U	330	U						
Benzo(a)pyrene	410	U	330	U						
Indeno(1,2,3-cd)pyrene	410	U	330	U						
Dibenzo(a,h)anthracene	410	U	330	U						
Benzo(g,h,i)perylene	410	U	330	U						

Analytical Results (Qualified Data)

Case #: 30568
Site :
Lab. :
Reviewer :
Date :

SDG : E0SW7
TAMARACK CITY / STAMP MILL
CEIMIC

Number of Soil Samples : 4
Number of Water Samples : 0

Sample Number :	E0SW7		E0SW7DL		E0SW8		E0SW8MS		E0SW8MSD	
Sampling Location :	SB-2		SB-2		SB-3		SB-3		SB-3	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	18:10		18:10		17:40		17:40		17:40	
%Moisture :	41		41		10		10		10	
pH :	5.4		5.4		9.1		9.1		9.1	
Dilution Factor :	1.0		10.0		1.0		1.0		1.0	
Pesticide/PCB Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	2.9	U	29	U	1.9	U	1.9	U	1.9	U
beta-BHC	2.9	U	29	U	1.9	U	1.9	U	1.9	U
delta-BHC	2.9	U	29	U	1.9	U	1.9	U	1.9	U
gamma-BHC (Lindane)	2.9	U	29	U	1.9	U	12		12	
Heptachlor	36		46		5.1	J	19		34	
Aldrin	2.9	U	29	U	1.9	U	12		14	
Heptachlor epoxide	2.9	U	29	U	1.9	U	1.9	U	1.9	U
Endosulfan I	2.9	U	29	U	1.9	U	1.9	U	1.9	U
Dieldrin	5.6	U	56	U	3.6	U	25		27	
4,4'-DDE	5.6	U	56	U	3.6	U	3.6	U	3.6	U
Endrin	5.6	U	56	U	3.6	U	31		35	
Endosulfan II	5.6	U	56	U	3.6	U	3.6	U	3.6	U
4,4'-DDD	5.6	U	56	U	3.6	U	3.6	U	3.6	U
Endosulfan sulfate	5.6	U	56	U	3.6	U	3.6	U	3.6	U
4,4'-DDT	5.6	U	56	U	3.6	U	29		31	
Methoxychlor	29	U	290	U	19	U	19	U	19	U
Endrin ketone	5.6	U	56	U	3.6	U	3.6	U	3.6	U
Endrin aldehyde	5.6	U	56	U	3.6	U	3.6	U	3.6	U
alpha-Chlordane	48		62		10		9.4		31	
gamma-Chlordane	53		68		12		11		34	
Toxaphene	290	U	2900	U	190	U	190	U	190	U
Aroclor-1016	56	U	560	U	36	U	36	U	36	U
Aroclor-1221	110	U	1100	U	74	U	74	U	74	U
Aroclor-1232	56	U	560	U	36	U	36	U	36	U
Aroclor-1242	56	U	560	U	36	U	36	U	36	U
Aroclor-1248	56	U	560	U	36	U	36	U	36	U
Aroclor-1254	56	U	560	U	36	U	36	U	36	U
Aroclor-1260	56	U	560	U	36	U	36	U	36	U

Case #: 30568 SDG : E0SW7
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	E0SX4		E0SX4DL		E0SX5		E0SX5DL		PBLK01	
Sampling Location :	SB-9		SB-9		SB-10		SB-10			
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002			
Time Sampled :	16:30		16:30		15:45		15:45			
%Moisture :	17		17		20		20		N/A	
pH :	5.6		5.6		5.7		5.7			
Dilution Factor :	1.0		10.0		1.0		10.0		1.0	
Pesticide/PCB Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	2.0	U	20	U	2.1	U	21	U	1.7	U
beta-BHC	2.0	U	20	U	2.1	U	21	U	1.7	U
delta-BHC	2.0	U	20	U	3.6		21	U	1.7	U
gamma-BHC (Lindane)	2.0	U	20	U	2.1	U	21	U	1.7	U
Heptachlor	18		23		41		46		1.7	U
Aldrin	2.0	U	20	U	2.1	U	21	U	1.7	U
Heptachlor epoxide	2.0	U	20	U	2.1	U	21	U	1.7	U
Endosulfan I	2.2		20	U	6.1		21	U	1.7	U
Dieldrin	4.0	U	39	U	4.1	U	41	U	3.3	U
4,4'-DDE	4.0	U	39	U	4.1	U	41	U	3.3	U
Endrin	4.0	U	39	U	4.1	U	41	U	3.3	U
Endosulfan II	4.0	U	39	U	4.1	U	41	U	3.3	U
4,4'-DDD	4.0	U	39	U	4.1	U	41	U	3.3	U
Endosulfan sulfate	4.0	U	39	U	4.1	U	41	U	3.3	U
4,4'-DDT	4.0	U	39	U	4.2		41	U	3.3	U
Methoxychlor	20	U	200	U	21	U	210	U	17	U
Endrin ketone	4.0	U	39	U	4.1	U	41	U	3.3	U
Endrin aldehyde	4.0	U	39	U	4.1	U	41	U	3.3	U
alpha-Chlordane	30		37		85		100		1.7	U
gamma-Chlordane	33		38		92		100		1.7	U
Toxaphene	200	U	2000	U	210	U	2100	U	170	U
Aroclor-1016	39	U	390	U	41	U	410	U	33	U
Aroclor-1221	80	U	800	U	83	U	830	U	67	U
Aroclor-1232	39	U	390	U	41	U	410	U	33	U
Aroclor-1242	39	U	390	U	41	U	410	U	33	U
Aroclor-1248	39	U	390	U	41	U	410	U	33	U
Aroclor-1254	39	U	390	U	41	U	410	U	33	U
Aroclor-1260	39	U	390	U	41	U	410	U	33	U

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE:

SUBJECT: Review of Data
Received for Review on 6-26-02

FROM: Stephen L. Ostrodka, Chief (SMF-4J)
Superfund Field Services Section

TO: Data User: MDEQ

We have reviewed the data for the following case:

SITE NAME: TAMARACK CITY / STAMP HILL (MI)

CASE NUMBER: 30568 SDG NUMBER: E0SW7

Number and Type of Samples: 4 (Soil)

Sample Numbers: E0SX4-5, E0SW7-8

Laboratory: Ceimic Hrs for Review:

Following are our findings:

CC: Cecilia Moore
Region 5 TPO
Mail Code: SMF-4J

SAMPLE DELIVERY GROUP (SDG)
TRAFFIC REPORT (TR) COVERSHEET

Lab Name: Ceimic Corporation **Lab Code:** CEIMIC

Case No.: 30568 **Bid Lot:** A

Contract No: 68-W-99-065 **Full Sample Analysis Price:** $275.00

First Sample in SDG: E0SX4 **Sample Receipt Date:** 6/6/02

(Lowest EPA Sample Number in the first shipment of samples received under SDG.)

Last Sample in SDG: E0SW8 **Sample Receipt Date:** 6/6/02

(Highest EPA Sample Number in the last shipment of samples received under SDG.)

EPA Sample Numbers in the SDG (listed in alphanumeric order by date received)

1. E0SX4	**11.**
2. E0SX5	**12.**
3. E0SW7	**13.**
4. E0SW8	**14.**
5.	**15.**
6.	**16.**
7.	**17.**
8.	**18.**
9.	**19.**
10.	**20.**

Note: There are a maximum of 20 field samples in an SDG.

Attach Traffic Reports to this form in alphanumeric order by date received.
(i.e. The order listed on this form)

Jessica Robinson
Signature

6/10/02
Date

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Org 020548 (23)

Case No: 30568
DAS No:
SDG No: ~~E0SW7~~ E0SS7 L

Date Shipped: 6/5/02
Carrier Name: UPS
Airbill: 1Z 549 OW4 22 1008 051 2
Shipped to: Ceimic Corporation
10 Dean Knauss Drive
Narragansett RI 02882
(401) 782-8900

Chain of Custody Record

Sampler Signature: John Spielberg

	Relinquished By	(Date / Time)	Received By	(Date / Time)
1	John Spielberg	6/5/02, 16:00	[illegible]	6/6/02 11:00
2				
3				
4				

For Lab Use Only
Lab Contract No: 68W99085
Unit Price: A
Transfer To: 6/6/02 MP
Lab Contract No:
Unit Price:

	ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
	E0SW9	Subsurface Soil (>12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SB-4	6/4/02, 17:15	ME0SW9	
	E0SX0	Subsurface Soil (>12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SB-5	16:55	ME0SX0	
	E0SX1	Subsurface Soil (>12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SB-6	14:20	ME0SX1	
	E0SX2	Subsurface Soil (>12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SB-7	18:50	ME0SX2	
	E0SX3	Subsurface Soil (>12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SB-8	16:10	ME0SX3	
01	E0SX4	Subsurface Soil (>12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SB-9	16:30	ME0SX4	
02	E0SX5	Subsurface Soil (>12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SB-10	15:45	ME0SX5	
RE 03	E0SW6	Subsurface Soil (>12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SB-1	10:05	ME0SW6	SAMPLE RECEIVED ON 6/05/02 BEFORE THIS TRAFFIC REPORT.
04	E0SW7	Subsurface Soil (>12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SB-2	18:10	ME0SW7	

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: E0SW8	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number: 24251, 24252
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Custody Seal Intact?	Shipment Iced?

BNA/PEST = CLP BNA/Pest/PCBs-Soils

TR Number: 5-462576586-050302-0002

LABORATORY COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Contract Laboratory Analytical Services Support, 2000 Edmund Halley Dr., Reston, VA. 20191-3436 Phone 703/264-9348 Fax 703/264-9222

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No: 30568
DAS No:
SOG No: E0557

L

Date Shipped: 6/5/02
Carrier Name: UPS
Airbill: 1Z 549 OW4 22 1008 051 2
Shipped to: Ceimic Corporation
10 Dean Knauss Drive
Narragansett RI 02882
(401) 782-8900

Chain of Custody Record

Sampler Signature: John Spielberg

	Relinquished By	(Date / Time)	Received By	(Date / Time)
1	John Spielberg	6/5/02, 16:00	[illegible]	6/6/02 11:00
2				
3				
4				

For Lab Use Only
Lab Contract No: 68W99065
Unit Price: A
Transfer To: 6/6/02
Lab Contract No:
Unit Price:

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
E0SW8	Subsurface Soil (>12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (2)	SB-3	6/4/02, 17:40	ME0SW8	

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: E0SW8	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number: 24251, 24252
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G		Custody Seal Intact? ___ Shipment Iced? ___

BNA/PEST = CLP BNA/Pest/PCBs-Soils

TR Number: 5-462576586-050302-0002

LABORATORY COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Contract Laboratory Analytical Services Support, 2000 Edmund Halley Dr., Reston, VA. 20191-3436 Phone 703/264-9348 Fax 703/264-9222

JUN 2 6 2002

SDG Narrative

The enclosed data package is in response to USEPA, Region V, Case No. 30568, SDG No. E0SW7, Contract No. 68-W-99-065. Under this SDG there are 4 SVOA, and 4 PEST/PCB analyses for 4 samples which were received at Ceimic Corporation on June 6, 2002.

This data package includes the analyses for the following samples from SDG No. E0SW7, all of which are billable:

(1)

EPA ID	Ceimic ID	Analyses
E0SX7	020548-01	SVOA, PEST/PCB
E0SX5	020548-02	SVOA, PEST/PCB
E0SW7	020548-03	SVOA, PEST/PCB
E0SW8	020548-04	SVOA, PEST/PCB

Sample Receipt

Cooler Temperatures upon receipt were 5°C.

(2) Instrumentation and Column Identification

The following instruments were used for the analyses:

GC/MS Analysis

A. SVOA

MS4 HP5970B GC/MS,30 m,25 mm ID, ZB-5 fused silica capillary column

B. PEST/PCB

AD6: HP5890II Using 30m x 0.53mm ID, DB5 megabore column GC-8
AD7: HP5890II Using 30m x 0.53mm ID, RTX1701 megabore column GC-8

(3) Sample Information

An "x" qualifier is flagged by Target Thru-put software whenever the data is manually edited. The letters "M" for GC/MS and "FF" for GC are used on the raw data of the quantitation report whenever a manual integration is performed. Manual integrations are performed on GC/MS and GC standards and samples when computer generated integration picks up only a portion of the chromatographic peak, due to software limitations. When manual integrations are required, these integrations are performed using sound defensible professional judgment, in order to report accurate data. Each manual integration is signed and dated, and reviewed by both the lab supervisor and the GC/MS Interpretation Specialist for GC/MS or the Organic Lab Manager for Pest/PCB.

A. SVOA Fraction (Method CLP SOW OLM04.2)

The quantitation ion for bis-(2-chloroethyl)ether was changed to the secondary ion 63, rather than the primary ion 93, because there is interference with the ion 93 from aniline, which is present in the standard mix.

The following samples were analyzed at a dilution as a result of GC/FID screening and the dark color and viscosity of the extract:

EPA ID:	CEIMIC ID:	DILUTION:
E0SW8	020548-05	1:2
E0SW8MS	020548-05MS	1:2
E0SW8MSD	020548-05MSD	1:2

Samples E0SW8MS (020548-05MS) and E0SW8MSD (020548-05MSD) had low spike recoveries for Pentachlorophenol.

B. PEST/PCB Fraction (Method CLP SOW OLM04.2)

All samples were extracted and analyzed within their respective holding times.

The following samples contained target analytes (alpha- and gamma-Chlordane) at concentrations exceeding the linearity range of the initial calibration. They were diluted and re-analyzed:

Sample	Dilution Factor
E0SW7	10
E0SX4	10
E0SX5	10

Heptachlor recovery (161%) and RPD (71%) are high in E0SW8MSD.

Deviations from the SOW

None other than specified above.

End of SDG Narrative

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the laboratory manager or his/her designee, as verified by the following signature.

Alfred Kwolek, GC/MS Specialist

6/25/02

Date

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE: ____________

SUBJECT: **Electronic (Level 2) Review of Data**

Received for Review on June 26, 2002

FROM: Stephen L. Ostrodka, Chief (SMF-4J)
Superfund Field Services Section

TO: Data User: MDEQ

The following data has been electronically reviewed by CADRE. No review of the raw data, laboratory narrative, laboratory forms or chain-of-custody forms was performed.

SITE NAME: Tamarack City / Stamp Mill (MI)

CASE NUMBER: 30568 SDG NUMBER: E0SS1

Number and Type of Samples: 20 (soil)

Sample Numbers: E0SS1-6, E0ST0-9, E0SW0-3

Laboratory: Ceimic Hrs. for Review: ____________

Following are our findings:

CC: Cecilia Moore
Region 5 TPO
Mail Code: SMF-4J

Case Number : 30568 **SDG Number: E0SS1**
Name: Tamarack City/Stamp Mill (MI) **Laboratory: Ceimic**

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Twenty (20) soil samples, numbered E0SS1-6, E0ST0-9, and E0SW0-3, were collected on June 4, 2002. The lab received the samples on June 5, 2002 in good condition. All samples were analyzed for the semivolatile and pesticide list of organic analytes. All were analyzed according to CLP SOW OLM04.2 5/99.

Case Number : 30568 **SDG Number: E0SS1**
Name: Tamarack City/Stamp Mill (MI) **Laboratory: Ceimic**

1. HOLDING TIME

No problems found for this qualification.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems found for this qualification.

3. CALIBRATION

Semivolatile

	Primary	Expanded
Minimum RRF	0.05	0.05
Maximum %RSD (initial calibration)	30	30
Maximum %D (continuing calibration)	25	25
Calibration time period	12	

Pesticide

Maximum %RSD (initial calibration) - TCL analytes	20
- surrogates	30
Maximum RPD (continuing calibration)	25
INDA/INDB percent resolution	90
Continuing calibration sequence time	12

DC-97: The following semivolatile samples are associated with a continuing calibration whose corresponding initial calibration has relative response factors (RRFs) outside primary criteria. Hits are flagged "J" and non-detects are qualified "R".

Atrazine
E0SW3, SBLKKB

DC-98: The following semivolatile samples are associated with a continuing calibration whose corresponding initial calibration has percent relative standard deviation (%RSD) outside primary criteria. Hits are qualified "J" and non-detects are flagged "UJ".

Benzaldehyde
E0SW3, SBLKKB

Case Number : 30568 **SDG Number: E0SS1**
'e Name: Tamarack City/Stamp Mill (MI) **Laboratory: Ceimic**

DC-100: The following semivolatile samples are associated with a continuing calibration percent difference (%D) outside primary criteria. Hits are qualified "J" and non-detects are qualified "UJ".

Benzaldehyde, bis(2-Chloroethyl)ether, 2,4-Dimethylphenol, 4-Chloroaniline, 2-Nitroaniline, 4-Nitroaniline, Atrazine, Butylbenzylphthalate, bis(2-Ethylhexyl)phthalate, Di-n-octylphthalate
E0SW3, SBLKKB

DC-197: The following pesticide samples are not qualified for continuing calibration because of missing continuing calibration information. Manual review of the data is required.

E0SS1, E0SS1DL, E0SS2, E0SS3, E0SS3MS, E0SS3MSD
E0SS4, E0SS5, E0SS6, E0ST0, E0ST1, E0ST2
E0ST3, E0ST4, E0ST5, E0ST6, E0ST7, E0ST8
E0ST9, E0SW0, E0SW1, E0SW2, E0SW3, PBLK01
PBLK02

4. BLANKS

Semivolatile

Method Blank Contamination Threshold Multipliers

	First	Expanded
Common contaminant compounds	10.00	10.00
Other compounds	5.00	5.00

Pesticide

Method Blank Contamination Threshold Multipliers

	First	Expanded
All compounds	5.00	5.00

DC-72: The blank associated with the following sample was qualified "R" during a previous qualification. Hits and non-detects are not flagged.

Case Number : 30568 **SDG Number: E0SS1**
Name: Tamarack City/Stamp Mill (MI) **Laboratory: Ceimic**

"R" during a previous qualification. Hits and non-detects are not flagged.

E0SW3
Atrazine

DC-206: The following semivolatile samples have analyte concentrations reported below the CRQL and less than or equal to ten times (10X) the associated method blank concentration. Reported sample concentrations have been elevated to the CRQL.
Hits are qualified "U" and non-detects are not flagged.

bis(2-Ethylhexyl)phthalate
E0SS3, E0SS3MS, E0SS3MSD, E0SS4, E0SS6, E0ST7, E0SW1

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

Pesticide

Percent Recovery Limits

	--- Water ---		---- Soil ---	
	Lower	Upper	Lower	Upper
Tetrachloro-m-xylene	30.0	150.0	30.0	150.0
Decachlorobiphenyl	30.0	150.0	30.0	150.0

DC-176: The following diluted pesticide samples have surrogate percent recoveries of less than 10%. Professional judgement is recommended. Professional judgement should be used to qualify the data.

E0SS1DL

DC-178: The following pesticide samples are not fully qualified for surrogate RT because of missing RT information. Hits and non-detects are not flagged.

E0SS1DL

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

mivolatile

Case Number : 30568 **SDG Number: E0SS1**
Name: Tamarack City/Stamp Mill (MI) **Laboratory: Ceimic**

Percent Recovery Limits & RPD

	Water Lower	Water Upper	Water RPD	Soil Lower	Soil Upper	Soil RPD
Phenol	12.0	110.0	42.0	26.0	90.0	35.0
2-Chlorophenol	27.0	123.0	40.0	25.0	102.0	50.0
N-Nitroso-di-n-propylamine	41.0	116.0	38.0	41.0	126.0	38.0
4-Chloro-3-methylphenol	23.0	97.0	42.0	26.0	103.0	33.0
Acenaphthene	46.0	118.0	31.0	31.0	137.0	19.0
4-Nitrophenol	10.0	80.0	50.0	11.0	114.0	50.0
2,4-Dinitrotoluene	24.0	96.0	38.0	28.0	89.0	47.0
Pentachlorophenol	9.0	103.0	50.0	17.0	109.0	47.0
Pyrene	26.0	127.0	31.0	35.0	142.0	36.0

DC-48: The relative percent difference (RPD) between the following semivolatile matrix spike and matrix spike duplicate recoveries is outside criteria. Results for the outlier compound(s) in the unspiked sample E0SS3 are estimated "J" and non-detects are estimated "UJ".

E0SS3MS, E0SS3MSD
Pyrene

7. FIELD BLANK AND FIELD DUPLICATE

There are no field blanks or field duplicates in this package. Results are not qualified based upon the results of the field blank or field duplicates.

8. INTERNAL STANDARDS

No problems found for this qualification.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all SVOA and Pesticide/PCB compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

Water	Low Soil	Med Soil

Case Number : 30568 **SDG Number: E0SS1**
Name: Tamarack City/Stamp Mill (MI) **Laboratory: Ceimic**

	------	----	----
BNA	1000.0 (ML)	30.0 (G)	1.0 (G)
PES	1000.0 (ML)	30.0 (G)	

DC-110: The following semivolatile samples have analyte concentrations below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

E0SS1
Phenanthrene, Anthracene, Carbazole, Benzo(a)anthracene
Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene
Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

E0SS2
Naphthalene, 2-Methylnaphthalene, Acenaphthene, Dibenzofuran
Fluorene, Anthracene, Carbazole, Benzo(b)fluoranthene
Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene
Benzo(g,h,i)perylene

E0SS3
Phenanthrene, Anthracene, Benzo(a)anthracene, Chrysene
Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene
Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

E0SS3MS
Phenol, 2-Chlorophenol, N-Nitroso-di-n-propylamine, Acenaphthene
4-Nitrophenol, 2,4-Dinitrotoluene, Pentachlorophenol, Phenanthrene
Fluoranthene, Benzo(a)anthracene, Chrysene,
Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

E0SS3MSD
Phenol, 2-Chlorophenol, N-Nitroso-di-n-propylamine, Acenaphthene
4-Nitrophenol, 2,4-Dinitrotoluene, Pentachlorophenol, Phenanthrene
Anthracene, Benzo(a)anthracene, Chrysene,
Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

E0SS4
Phenanthrene, Carbazole, Pyrene, Benzo(a)anthracene
Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene
Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene
Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene
Benzo(g,h,i)perylene

E0SS6
2-Methylnaphthalene, Phenanthrene, Fluoranthene, Pyrene
Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene
Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene
Benzo(g,h,i)perylene

E0ST0, E0ST3, E0ST5, E0ST6, E0ST9
Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene
Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene
Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

E0ST1
Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene
Benzo(b)fluoranthene

E0ST2
Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene
Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene
Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

E0ST4
Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene
Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene

E0ST7
2-Methylnaphthalene, Phenanthrene, Anthracene, Carbazole,
Pyrene, Benzo(a)anthracene, Chrysene,
Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene
Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

E0ST8
Naphthalene, 2-Methylnaphthalene, Acenaphthene, Dibenzofuran
Fluorene, Anthracene, Carbazole

E0SW0
Naphthalene, 2-Methylnaphthalene, Phenanthrene, Fluoranthene
Pyrene, Butylbenzylphthalate, Benzo(a)anthracene, Chrysene
Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene
Benzo(g,h,i)perylene

Case Number : 30568 **SDG Number: E0SS1**
Site Name: Tamarack City/Stamp Mill (MI) **Laboratory: Ceimic**

E0SW1
Naphthalene, Caprolactam , 2-Methylnaphthalene, Dibenzofuran
Phenanthrene, Fluoranthene, Pyrene, Chrysene
Benzo(b)fluoranthene, Benzo(a)pyrene

E0SW2
Di-n-butylphthalate

E0SW3
Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene
Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene
Benzo(g,h,i)perylene

SBLKAA, SBLKAB, SBLKAD, SBLKDV, SBLKKB
bis(2-Ethylhexyl)phthalate

DC-422: The following pesticide samples have analytes for which the percent difference between column results exceeds primary criteria.
Professional judgement should be used to qualify the data.

E0SS1
beta-BHC, 4,4'-DDE

E0SS3
gamma-BHC (Lindane)

E0SS3MS
Dieldrin, Endrin, 4,4'-DDT

E0SS3MSD
gamma-BHC (Lindane), Dieldrin, 4,4'-DDT

E0ST1
Heptachlor epoxide, 4,4'-DDT

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance. The GC baseline for the pesticide analysis was acceptable.

12. ADDITIONAL INFORMATION

Level 2 - Assembled By: Ricard Baltrus/IITRI-ESAT
Date: July 2, 2002

Case Number : 30568
Site Name: Tamarack City/Stamp Mill (MI)

SDG Number: E0SS1
Laboratory: Ceimic

12. ADDITIONAL INFORMATION

None.

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The anlayte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the present of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the present of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present)

Case #: 30568
SDG : E0SS1
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Number of Soil Samples : 20
Number of Water Samples : 0

Sample Number :	E0SS1		E0SS2		E0SS3		E0SS3MS		E0SS3MSD	
Sampling Location :	SS-1		SS-2		SS-3		SS-3		SS-3	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	10:10		10:15		11:45		11:45		11:45	
%Moisture :	18		12		23		23		23	
pH :	6.3		5.9		5.8		5.6		5.6	
Dilution Factor :	10.0		10.0		5.0		5.0		5.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	4000	U	3700	U	2100	U	2100	U	2100	U
Phenol	4000	U	3700	U	2100	U	1700	J	2000	J
bis-(2-Chloroethyl) ether	4000	U	3700	U	2100	U	2100	U	2100	U
2-Chlorophenol	4000	U	3700	U	2100	U	1500	J	1700	J
2-Methylphenol	4000	U	3700	U	2100	U	2100	U	2100	U
2,2'-oxybis(1-Chloropropane)	4000	U	3700	U	2100	U	2100	U	2100	U
Acetophenone	4000	U	3700	U	2100	U	2100	U	2100	U
4-Methylphenol	4000	U	3700	U	2100	U	2100	U	2100	U
N-Nitroso-di-n-propylamine	4000	U	3700	U	2100	U	990	J	1200	J
Hexachloroethane	4000	U	3700	U	2100	U	2100	U	2100	U
Nitrobenzene	4000	U	3700	U	2100	U	2100	U	2100	U
Isophorone	4000	U	3700	U	2100	U	2100	U	2100	U
2-Nitrophenol	4000	U	3700	U	2100	U	2100	U	2100	U
2,4-Dimethylphenol	4000	U	3700	U	2100	U	2100	U	2100	U
is(2-Chloroethoxy)methane	4000	U	3700	U	2100	U	2100	U	2100	U
2,4-Dichlorophenol	4000	U	3700	U	2100	U	2100	U	2100	U
Naphthalene	4000	U	1300	J	2100	U	2100	U	2100	U
4-Chloroaniline	4000	U	3700	U	2100	U	2100	U	2100	U
Hexachlorobutadiene	4000	U	3700	U	2100	U	2100	U	2100	U
Caprolactam	4000	U	3700	U	2100	U	2100	U	2100	U
4-Chloro-3-methylphenol	4000	U	3700	U	2100	U	2200		2500	
2-Methylnaphthalene	4000	U	650	J	2100	U	2100	U	2100	U
Hexachlorocyclopentadiene	4000	U	3700	U	2100	U	2100	U	2100	U
2,4,6-Trichlorophenol	4000	U	3700	U	2100	U	2100	U	2100	U
2,4,5-Trichlorophenol	10000	U	9300	U	5300	U	5300	U	5300	U
1,1'-Biphenyl	4000	U	3700	U	2100	U	2100	U	2100	U
2-Chloronaphthalene	4000	U	3700	U	2100	U	2100	U	2100	U
2-Nitroaniline	10000	U	9300	U	5300	U	5300	U	5300	U
Dimethylphthalate	4000	U	3700	U	2100	U	2100	U	2100	U
2,6-Dinitrotoluene	4000	U	3700	U	2100	U	2100	U	2100	U
Acenaphthylene	4000	U	3700	U	2100	U	2100	U	2100	U
3-Nitroaniline	10000	U	9300	U	5300	U	5300	U	5300	U
Acenaphthene	4000	U	850	J	2100	U	1400	J	1700	J

Analytical Results (Qualified Data)

Case #: 30568 SDG : E0SS1
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	E0SS1		E0SS2		E0SS3		E0SS3MS		E0SS3MSD	
Sampling Location :	SS-1		SS-2		SS-3		SS-3		SS-3	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	10:10		10:15		11:45		11:45		11:45	
%Moisture :	18		12		23		23		23	
pH :	6.3		5.9		5.6		5.6		5.6	
Dilution Factor :	10.0		10.0		5.0		5.0		5.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	10000	U	9300	U	5300	U	5300	U	5300	U
4-Nitrophenol	10000	U	9300	U	5300	U	2000	J	2200	J
Dibenzofuran	4000	U	850	J	2100	U	2100	U	2100	U
2,4-Dinitrotoluene	4000	U	3700	U	2100	U	1100	J	1200	J
Diethylphthalate	4000	U	3700	U	2100	U	2100	U	2100	U
Fluorene	4000	U	1300	J	2100	U	2100	U	2100	U
4-Chlorophenyl-phenyl ether	4000	U	3700	U	2100	U	2100	U	2100	U
4-Nitroaniline	10000	U	9300	U	5300	U	5300	U	5300	U
4,6-Dinitro-2-methylphenol	10000	U	9300	U	5300	U	5300	U	5300	U
N-Nitrosodiphenylamine	4000	U	3700	U	2100	U	2100	U	2100	U
4-Bromophenyl-phenylether	4000	U	3700	U	2100	U	2100	U	2100	U
Hexachlorobenzene	4000	U	3700	U	2100	U	2100	U	2100	U
Atrazine	4000	U	3700	U	2100	U	2100	U	2100	U
Pentachlorophenol	10000	U	9300	U	5300	U	1900	J	2300	J
Phenanthrene	2800	J	9000		1100	J	680	J	1500	J
Anthracene	660	J	2400	J	240	J	2100	U	250	J
Carbazole	710	J	1400	J	2100	U	2100	U	2100	U
Di-n-butylphthalate	4000	U	3700	U	2100	U	2100	U	2100	U
Fluoranthene	7000		9000		2400		1400	J	2800	
Pyrene	6300		7600		2200	J	3200		4300	
Butylbenzylphthalate	4000	U	3700	U	2100	U	2100	U	2100	U
3,3'-Dichlorobenzidine	4000	U	3700	U	2100	U	2100	U	2100	U
Benzo(a)anthracene	3700	J	4300		1200	J	930	J	1400	J
Chrysene	3700	J	4000		1200	J	1000	J	1500	J
bis(2-Ethylhexyl)phthalate	4000	U	3700	U	2100	U	2100	U	2100	U
Di-n-octylphthalate	4000	U	3700	U	2100	U	2100	U	2100	U
Benzo(b)fluoranthene	3100	J	3100	J	940	J	880	J	1200	J
Benzo(k)fluoranthene	3400	J	3300	J	1200	J	980	J	1100	J
Benzo(a)pyrene	3600	J	3600	J	1100	J	1000	J	1200	J
Indeno(1,2,3-cd)pyrene	2700	J	2300	J	740	J	740	J	620	J
Dibenzo(a,h)anthracene	890	J	940	J	2100	U	280	J	290	J
Benzo(g,h,i)perylene	2800	J	2200	J	680	J	780	J	840	J

Case #: 30568 SDG : E0SS1

Site : TAMARACK CITY / STAMP MILL

Lab. : CEIMIC

Reviewer :

Date :

Sample Number :	E0SS4		E0SS5		E0SS6		E0ST0		E0ST1	
Sampling Location :	SS-4		SS-5		SS-6		SS-10		SS-11	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	13:00		13:20		13:30		13:55		14:15	
%Moisture :	0		6		9		6		5	
pH :	8.0		7.1		6.4		6.3		6.0	
Dilution Factor :	2.0		5.0		2.0		10.0		5.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	650	U	1800	U	720	U	3500	U	1700	U
Phenol	650	U	1800	U	720	U	3500	U	1700	U
bis-(2-Chloroethyl) ether	650	U	1800	U	720	U	3500	U	1700	U
2-Chlorophenol	650	U	1800	U	720	U	3500	U	1700	U
2-Methylphenol	650	U	1800	U	720	U	3500	U	1700	U
2,2'-oxybis(1-Chloropropane)	650	U	1800	U	720	U	3500	U	1700	U
Acetophenone	650	U	1800	U	720	U	3500	U	1700	U
4-Methylphenol	650	U	1800	U	720	U	3500	U	1700	U
N-Nitroso-di-n-propylamine	650	U	1800	U	720	U	3500	U	1700	U
Hexachloroethane	650	U	1800	U	720	U	3500	U	1700	U
Nitrobenzene	650	U	1800	U	720	U	3500	U	1700	U
Isophorone	650	U	1800	U	720	U	3500	U	1700	U
2-Nitrophenol	650	U	1800	U	720	U	3500	U	1700	U
2,4-Dimethylphenol	650	U	1800	U	720	U	3500	U	1700	U
bis(2-Chloroethoxy)methane	650	U	1800	U	720	U	3500	U	1700	U
2,4-Dichlorophenol	650	U	1800	U	720	U	3500	U	1700	U
Naphthalene	650	U	250	J	720	U	3500	U	1700	U
4-Chloroaniline	650	U	1800	U	720	U	3500	U	1700	U
Hexachlorobutadiene	650	U	1800	U	720	U	3500	U	1700	U
Caprolactam	850	U	1800	U	720	U	3500	U	1700	U
4-Chloro-3-methylphenol	650	U	1800	U	720	U	3500	U	1700	U
2-Methylnaphthalene	650	U	470	J	90	J	3500	U	1700	U
Hexachlorocyclopentadiene	650	U	1800	U	720	U	3500	U	1700	U
2,4,6-Trichlorophenol	650	U	1800	U	720	U	3500	U	1700	U
2,4,5-Trichlorophenol	1600	U	4400	U	1800	U	8800	U	4300	U
1,1'-Biphenyl	650	U	1800	U	720	U	3500	U	1700	U
2-Chloronaphthalene	650	U	1800	U	720	U	3500	U	1700	U
2-Nitroaniline	1600	U	4400	U	1800	U	8800	U	4300	U
Dimethylphthalate	650	U	1800	U	720	U	3500	U	1700	U
2,6-Dinitrotoluene	650	U	1800	U	720	U	3500	U	1700	U
Acenaphthylene	650	U	1800	U	720	U	3500	U	1700	U
3-Nitroaniline	1600	U	4400	U	1800	U	8800	U	4300	U
Acenaphthene	650	U	1800	U	720	U	3500	U	1700	U

Case #: 30568 SDG : E0SS1

Site : TAMARACK CITY / STAMP MILL

Lab. : CEIMIC

Reviewer :

Date :

Sample Number :	E0SS4		E0SS5		E0SS6		E0ST0		E0ST1	
Sampling Location :	SS-4		SS-5		SS-6		SS-10		SS-11	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	13:00		13:20		13:30		13:55		14:15	
%Moisture :	0		6		9		6		5	
pH :	8.0		7.1		6.4		6.3		6.0	
Dilution Factor :	2.0		5.0		2.0		10.0		5.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	1600	U	4400	U	1800	U	8800	U	4300	U
4-Nitrophenol	1600	U	4400	U	1800	U	8800	U	4300	U
Dibenzofuran	650	U	1800	U	720	U	3500	U	1700	U
2,4-Dinitrotoluene	650	U	1800	U	720	U	3500	U	1700	U
Diethylphthalate	650	U	1800	U	720	U	3500	U	1700	U
Fluorene	650	U	1800	U	720	U	3500	U	1700	U
4-Chlorophenyl-phenyl ether	650	U	1800	U	720	U	3500	U	1700	U
4-Nitroaniline	1600	U	4400	U	1800	U	8800	U	4300	U
4,6-Dinitro-2-methylphenol	1600	U	4400	U	1800	U	8800	U	4300	U
N-Nitrosodiphenylamine	650	U	1800	U	720	U	3500	U	1700	U
4-Bromophenyl-phenylether	650	U	1800	U	720	U	3500	U	1700	U
Hexachlorobenzene	650	U	1800	U	720	U	3500	U	1700	U
Atrazine	650	U	1800	U	720	U	3500	U	1700	U
Pentachlorophenol	1600	U	4400	U	1800	U	8800	U	4300	U
Phenanthrene	410	J	990	J	230	J	530	J	1700	U
Anthracene	650	U	1800	U	720	U	3500	U	1700	U
Carbazole	86	J	1800	U	720	U	3500	U	1700	U
Di-n-butylphthalate	650	U	1800	U	720	U	3500	U	1700	U
Fluoranthene	670		1300	J	460	J	1700	J	310	J
Pyrene	630	J	1400	J	430	J	1600	J	310	J
Butylbenzylphthalate	650	U	1800	U	720	U	3500	U	1700	U
3,3'-Dichlorobenzidine	650	U	1800	U	720	U	3500	U	1700	U
Benzo(a)anthracene	340	J	810	J	260	J	960	J	190	J
Chrysene	450	J	920	J	290	J	940	J	200	J
bis(2-Ethylhexyl)phthalate	650	U	1800	U	720	U	3500	U	1700	U
Di-n-octylphthalate	650	U	1800	U	720	U	3500	U	1700	U
Benzo(b)fluoranthene	370	J	700	J	270	J	800	J	240	J
Benzo(k)fluoranthene	530	J	820	J	240	J	840	J	1700	U
Benzo(a)pyrene	400	J	730	J	230	J	900	J	1700	U
Indeno(1,2,3-cd)pyrene	350	J	550	J	190	J	630	J	1700	U
Dibenzo(a,h)anthracene	92	J	260	J	80	J	3500	U	1700	U
Benzo(g,h,i)perylene	360	J	580	J	170	J	730	J	1700	U

Analytical Results (Qualified Data)

Case #: 30568 SDG : E0SS1
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	E0ST2		E0ST3		E0ST4		E0ST5		E0ST6	
Sampling Location :	SS-12		SS-13		SS-14		SS-15		SS-16	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	14:05		14:10		14:25		14:40		14:30	
%Moisture :	10		11		54		18		7	
pH :	8.9		9.1		6.3		6.6		7.7	
Dilution Factor :	2.0		5.0		5.0		5.0		5.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	730	U	1800	U	3500	U	2000	U	1800	U
Phenol	730	U	1800	U	3500	U	2000	U	1800	U
bis-(2-Chloroethyl) ether	730	U	1800	U	3500	U	2000	U	1800	U
2-Chlorophenol	730	U	1800	U	3500	U	2000	U	1800	U
2-Methylphenol	730	U	1800	U	3500	U	2000	U	1800	U
2,2'-oxybis(1-Chloropropane)	730	U	1800	U	3500	U	2000	U	1800	U
Acetophenone	730	U	1800	U	3500	U	2000	U	1800	U
4-Methylphenol	730	U	1800	U	3500	U	2000	U	1800	U
N-Nitroso-di-n-propylamine	730	U	1800	U	3500	U	2000	U	1800	U
Hexachloroethane	730	U	1800	U	3500	U	2000	U	1800	U
Nitrobenzene	730	U	1800	U	3500	U	2000	U	1800	U
Isophorone	730	U	1800	U	3500	U	2000	U	1800	U
2-Nitrophenol	730	U	1800	U	3500	U	2000	U	1800	U
2,4-Dimethylphenol	730	U	1800	U	3500	U	2000	U	1800	U
bis(2-Chloroethoxy)methane	730	U	1800	U	3500	U	2000	U	1800	U
2,4-Dichlorophenol	730	U	1800	U	3500	U	2000	U	1800	U
Naphthalene	730	U	1800	U	3500	U	2000	U	1800	U
4-Chloroaniline	730	U	1800	U	3500	U	2000	U	1800	U
Hexachlorobutadiene	730	U	1800	U	3500	U	2000	U	1800	U
Caprolactam	730	U	1800	U	3500	U	2000	U	1800	U
4-Chloro-3-methylphenol	730	U	1800	U	3500	U	2000	U	1800	U
2-Methylnaphthalene	730	U	1800	U	3500	U	2000	U	1800	U
Hexachlorocyclopentadiene	730	U	1800	U	3500	U	2000	U	1800	U
2,4,6-Trichlorophenol	730	U	1800	U	3500	U	2000	U	1800	U
2,4,5-Trichlorophenol	1800	U	4600	U	8900	U	5000	U	4400	U
1,1'-Biphenyl	730	U	1800	U	3500	U	2000	U	1800	U
2-Chloronaphthalene	730	U	1800	U	3500	U	2000	U	1800	U
2-Nitroaniline	1800	U	4600	U	8900	U	5000	U	4400	U
Dimethylphthalate	730	U	1800	U	3500	U	2000	U	1800	U
2,6-Dinitrotoluene	730	U	1800	U	3500	U	2000	U	1800	U
Acenaphthylene	730	U	1800	U	3500	U	2000	U	1800	U
3-Nitroaniline	1800	U	4600	U	8900	U	5000	U	4400	U
Acenaphthene	730	U	1800	U	3500	U	2000	U	1800	U

Analytical Results (Qualified Data)

Case #: 30568 SDG : E0SS1
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	E0ST2		E0ST3		E0ST4		E0ST5		E0ST6	
Sampling Location :	SS-12		SS-13		SS-14		SS-15		SS-16	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	14:05		14:10		14:25		14:40		14:30	
%Moisture :	10		11		54		18		7	
pH :	8.9		9.1		6.3		6.6		7.7	
Dilution Factor :	2.0		5.0		5.0		5.0		5.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	1800	U	4600	U	8900	U	5000	U	4400	U
4-Nitrophenol	1800	U	4600	U	8900	U	5000	U	4400	U
Dibenzofuran	730	U	1800	U	3500	U	2000	U	1800	U
2,4-Dinitrotoluene	730	U	1800	U	3500	U	2000	U	1800	U
Diethylphthalate	730	U	1800	U	3500	U	2000	U	1800	U
Fluorene	730	U	1800	U	3500	U	2000	U	1800	U
4-Chlorophenyl-phenyl ether	730	U	1800	U	3500	U	2000	U	1800	U
4-Nitroaniline	1800	U	4600	U	8900	U	5000	U	4400	U
4,6-Dinitro-2-methylphenol	1800	U	4600	U	8900	U	5000	U	4400	U
N-Nitrosodiphenylamine	730	U	1800	U	3500	U	2000	U	1800	U
4-Bromophenyl-phenylether	730	U	1800	U	3500	U	2000	U	1800	U
Hexachlorobenzene	730	U	1800	U	3500	U	2000	U	1800	U
Atrazine	730	U	1800	U	3500	U	2000	U	1800	U
Pentachlorophenol	1800	U	4600	U	8900	U	5000	U	4400	U
Phenanthrene	190	J	240	J	590	J	470	J	290	J
Anthracene	730	U	1800	U	3500	U	2000	U	1800	U
Carbazole	730	U	1800	U	3500	U	2000	U	1800	U
Di-n-butylphthalate	730	U	1800	U	3500	U	2000	U	1800	U
Fluoranthene	290	J	360	J	970	J	960	J	650	J
Pyrene	330	J	350	J	890	J	800	J	620	J
Butylbenzylphthalate	730	U	1800	U	3500	U	2000	U	1800	U
3,3'-Dichlorobenzidine	730	U	1800	U	3500	U	2000	U	1800	U
Benzo(a)anthracene	140	J	190	J	460	J	420	J	360	J
Chrysene	280	J	310	J	550	J	480	J	390	J
bis(2-Ethylhexyl)phthalate	730	U	1800	U	3500	U	2000	U	1800	U
Di-n-octylphthalate	730	U	1800	U	3500	U	2000	U	1800	U
Benzo(b)fluoranthene	260	J	270	J	490	J	360	J	380	J
Benzo(k)fluoranthene	300	J	290	J	420	J	360	J	270	J
Benzo(a)pyrene	210	J	260	J	490	J	360	J	330	J
Indeno(1,2,3-cd)pyrene	230	J	280	J	3500	U	210	J	200	J
Dibenzo(a,h)anthracene	76	J	1800	U	3500	U	2000	U	1800	U
Benzo(g,h,i)perylene	200	J	250	J	3500	U	230	J	180	J

Case #: 30568 SDG : E0SS1

Site : TAMARACK CITY / STAMP MILL

Lab. : CEIMIC

`eviewer :

Jate :

Sample Number :	E0ST7		E0ST8		E0ST9		E0SW0		E0SW1	
Sampling Location :	SS-17		SS-18		SS-19		SS-20		SS-21	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	11:35		11:20		11:25		11:10		10:45	
%Moisture :	16		10		10		7		7	
pH :	6.6		8.7		7.3		6.8		8.3	
Dilution Factor :	2.0		5.0		2.0		2.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	790	U	1800	U	730	U	700	U	350	U
Phenol	790	U	1800	U	730	U	700	U	350	U
bis-(2-Chloroethyl) ether	790	U	1800	U	730	U	700	U	350	U
2-Chlorophenol	790	U	1800	U	730	U	700	U	350	U
2-Methylphenol	790	U	1800	U	730	U	700	U	350	U
2,2'-oxybis(1-Chloropropane)	790	U	1800	U	730	U	700	U	350	U
Acetophenone	790	U	1800	U	730	U	700	U	350	U
4-Methylphenol	790	U	1800	U	730	U	700	U	350	U
N-Nitroso-di-n-propylamine	790	U	1800	U	730	U	700	U	350	U
Hexachloroethane	790	U	1800	U	730	U	700	U	350	U
Nitrobenzene	790	U	1800	U	730	U	700	U	350	U
Isophorone	790	U	1800	U	730	U	700	U	350	U
2-Nitrophenol	790	U	1800	U	730	U	700	U	350	U
2,4-Dimethylphenol	790	U	1800	U	730	U	700	U	350	U
is(2-Chloroethoxy)methane	790	U	1800	U	730	U	700	U	350	U
2,4-Dichlorophenol	790	U	1800	U	730	U	700	U	350	U
Naphthalene	790	U	300	J	730	U	79	J	100	J
4-Chloroaniline	790	U	1800	U	730	U	700	U	350	U
Hexachlorobutadiene	790	U	1800	U	730	U	700	U	350	U
Caprolactam	790	U	1800	U	730	U	700	U	42	J
4-Chloro-3-methylphenol	790	U	1800	U	730	U	700	U	350	U
2-Methylnaphthalene	110	J	250	J	730	U	110	J	170	J
Hexachlorocyclopentadiene	790	U	1800	U	730	U	700	U	350	U
2,4,6-Trichlorophenol	790	U	1800	U	730	U	700	U	350	U
2,4,5-Trichlorophenol	2000	U	4600	U	1800	U	1800	U	890	U
1,1'-Biphenyl	790	U	1800	U	730	U	700	U	350	U
2-Chloronaphthalene	790	U	1800	U	730	U	700	U	350	U
2-Nitroaniline	2000	U	4600	U	1800	U	1800	U	890	U
Dimethylphthalate	790	U	1800	U	730	U	700	U	350	U
2,6-Dinitrotoluene	790	U	1800	U	730	U	700	U	350	U
Acenaphthylene	790	U	1800	U	730	U	700	U	350	U
3-Nitroaniline	2000	U	4600	U	1800	U	1800	U	890	U
Acenaphthene	790	U	810	J	730	U	700	U	350	U

Case #: 30568 SDG : E0SS1
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	E0ST7		E0ST8		E0ST9		E0SW0		E0SW1	
Sampling Location :	SS-17		SS-18		SS-19		SS-20		SS-21	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	11:35		11:20		11:25		11:10		10:45	
%Moisture :	16		10		10		7		7	
pH :	6.6		8.7		7.3		6.8		8.3	
Dilution Factor :	2.0		5.0		2.0		2.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	2000	U	4600	U	1800	U	1800	U	890	U
4-Nitrophenol	2000	U	4600	U	1800	U	1800	U	890	U
Dibenzofuran	790	U	390	J	730	U	700	U	48	J
2,4-Dinitrotoluene	790	U	1800	U	730	U	700	U	350	U
Diethylphthalate	790	U	1800	U	730	U	700	U	350	U
Fluorene	790	U	760	J	730	U	700	U	350	U
4-Chlorophenyl-phenyl ether	790	U	1800	U	730	U	700	U	350	U
4-Nitroaniline	2000	U	4600	U	1800	U	1800	U	890	U
4,6-Dinitro-2-methylphenol	2000	U	4600	U	1800	U	1800	U	890	U
N-Nitrosodiphenylamine	790	U	1800	U	730	U	700	U	350	U
4-Bromophenyl-phenylether	790	U	1800	U	730	U	700	U	350	U
Hexachlorobenzene	790	U	1800	U	730	U	700	U	350	U
Atrazine	790	U	1800	U	730	U	700	U	350	U
Pentachlorophenol	2000	U	4600	U	1800	U	1800	U	890	U
Phenanthrene	650	J	7400		190	J	300	J	140	J
Anthracene	90	J	1600	J	730	U	700	U	350	U
Carbazole	84	J	770	J	730	U	700	U	350	U
Di-n-butylphthalate	790	U	1800	U	730	U	700	U	350	U
Fluoranthene	850		9800		600	J	600	J	52	J
Pyrene	780	J	8700		590	J	510	J	52	J
Butylbenzylphthalate	790	U	1800	U	730	U	72	J	350	U
3,3'-Dichlorobenzidine	790	U	1800	U	730	U	700	U	350	U
Benzo(a)anthracene	390	J	4500		320	J	270	J	350	U
Chrysene	480	J	5100		360	J	300	J	52	J
bis(2-Ethylhexyl)phthalate	790	U	1800	U	730	U	700	U	350	U
Di-n-octylphthalate	790	U	1800	U	730	U	700	U	350	U
Benzo(b)fluoranthene	420	J	4200		290	J	270	J	36	J
Benzo(k)fluoranthene	360	J	3400		340	J	220	J	350	U
Benzo(a)pyrene	390	J	4100		300	J	230	J	36	J
Indeno(1,2,3-cd)pyrene	220	J	2000		180	J	130	J	350	U
Dibenzo(a,h)anthracene	81	J	1800	U	82	J	700	U	350	U
Benzo(g,h,i)perylene	220	J	1800		180	J	130	J	350	U

Case #: 30568 SDG : E0SS1
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	E0SW2		E0SW3		SBLKAA		SBLKAB		SBLKAD	
Sampling Location :	SS-22		SS-23							
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002							
Time Sampled :	10:30		14:55							
%Moisture :	5		9		N/A		N/A		N/A	
pH :	7.1		8.8							
Dilution Factor :	5.0		1.0		1.0		1.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	1700	U	360	UJ	330	U	330	U	330	U
Phenol	1700	U	360	U	330	U	330	U	330	U
bis-(2-Chloroethyl) ether	1700	U	360	UJ	330	U	330	U	330	U
2-Chlorophenol	1700	U	360	U	330	U	330	U	330	U
2-Methylphenol	1700	U	360	U	330	U	330	U	330	U
2,2'-oxybis(1-Chloropropane)	1700	U	360	U	330	U	330	U	330	U
Acetophenone	1700	U	360	U	330	U	330	U	330	U
4-Methylphenol	1700	U	360	U	330	U	330	U	330	U
N-Nitroso-di-n-propylamine	1700	U	360	U	330	U	330	U	330	U
Hexachloroethane	1700	U	360	U	330	U	330	U	330	U
Nitrobenzene	1700	U	360	U	330	U	330	U	330	U
Isophorone	1700	U	360	U	330	U	330	U	330	U
2-Nitrophenol	1700	U	360	U	330	U	330	U	330	U
2,4-Dimethylphenol	1700	U	360	UJ	330	U	330	U	330	U
bis(2-Chloroethoxy)methane	1700	U	360	U	330	U	330	U	330	U
2,4-Dichlorophenol	1700	U	360	U	330	U	330	U	330	U
Naphthalene	1700	U	360	U	330	U	330	U	330	U
4-Chloroaniline	1700	U	360	UJ	330	U	330	U	330	U
Hexachlorobutadiene	1700	U	360	U	330	U	330	U	330	U
Caprolactam	1700	U	360	U	330	U	330	U	330	U
4-Chloro-3-methylphenol	1700	U	360	U	330	U	330	U	330	U
2-Methylnaphthalene	1700	U	360	U	330	U	330	U	330	U
Hexachlorocyclopentadiene	1700	U	360	U	330	U	330	U	330	U
2,4,6-Trichlorophenol	1700	U	360	U	330	U	330	U	330	U
2,4,5-Trichlorophenol	4400	U	900	U	830	U	830	U	830	U
1,1'-Biphenyl	1700	U	360	U	330	U	330	U	330	U
2-Chloronaphthalene	1700	U	360	U	330	U	330	U	330	U
2-Nitroaniline	4400	U	900	UJ	830	U	830	U	830	U
Dimethylphthalate	1700	U	360	U	330	U	330	U	330	U
2,6-Dinitrotoluene	1700	U	360	U	330	U	330	U	330	U
Acenaphthylene	1700	U	360	U	330	U	330	U	330	U
3-Nitroaniline	4400	U	900	U	830	U	830	U	830	U
Acenaphthene	1700	U	360	U	330	U	330	U	330	U

Case #: 30568 SDG : E0SS1
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	E0SW2		E0SW3		SBLKAA		SBLKAB		SBLKAD	
Sampling Location :	SS-22		SS-23							
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002							
Time Sampled :	10:30		14:55							
%Moisture :	5		9		N/A		N/A		N/A	
pH :	7.1		8.8							
Dilution Factor :	5.0		1.0		1.0		1.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	4400	U	900	U	830	U	830	U	830	U
4-Nitrophenol	4400	U	900	U	830	U	830	U	830	U
Dibenzofuran	1700	U	360	U	330	U	330	U	330	U
2,4-Dinitrotoluene	1700	U	360	U	330	U	330	U	330	U
Diethylphthalate	1700	U	360	U	330	U	330	U	330	U
Fluorene	1700	U	360	U	330	U	330	U	330	U
4-Chlorophenyl-phenyl ether	1700	U	360	U	330	U	330	U	330	U
4-Nitroaniline	4400	U	900	UJ	830	U	830	U	830	U
4,6-Dinitro-2-methylphenol	4400	U	900	U	830	U	830	U	830	U
N-Nitrosodiphenylamine	1700	U	360	U	330	U	330	U	330	U
4-Bromophenyl-phenylether	1700	U	360	U	330	U	330	U	330	U
Hexachlorobenzene	1700	U	360	U	330	U	330	U	330	U
Atrazine	1700	U	360	R	330	U	330	U	330	U
Pentachlorophenol	4400	U	900	U	830	U	830	U	830	U
Phenanthrene	1700	U	360	U	330	U	330	U	330	U
Anthracene	1700	U	360	U	330	U	330	U	330	U
Carbazole	1700	U	360	U	330	U	330	U	330	U
Di-n-butylphthalate	330	J	360	U	330	U	330	U	330	U
Fluoranthene	1700	U	140	J	330	U	330	U	330	U
Pyrene	1700	U	99	J	330	U	330	U	330	U
Butylbenzylphthalate	1700	U	360	UJ	330	U	330	U	330	U
3,3'-Dichlorobenzidine	1700	U	360	U	330	U	330	U	330	U
Benzo(a)anthracene	1700	U	93	J	330	U	330	U	330	U
Chrysene	1700	U	95	J	330	U	330	U	330	U
bis(2-Ethylhexyl)phthalate	1700	U	2000	J	78	J	56	J	87	J
Di-n-octylphthalate	1700	U	360	UJ	330	U	330	U	330	U
Benzo(b)fluoranthene	1700	U	88	J	330	U	330	U	330	U
Benzo(k)fluoranthene	1700	U	90	J	330	U	330	U	330	U
Benzo(a)pyrene	1700	U	76	J	330	U	330	U	330	U
Indeno(1,2,3-cd)pyrene	1700	U	48	J	330	U	330	U	330	U
Dibenzo(a,h)anthracene	1700	U	360	U	330	U	330	U	330	U
Benzo(g,h,i)perylene	1700	U	45	J	330	U	330	U	330	U

Analytical Results (Qualified Data)

Case #: 30568 SDG : E0SS1
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	SBLKDV		SBLKKB							
Sampling Location :										
Matrix :	Soil		Soil							
Units :	ug/Kg		ug/Kg							
Date Sampled :										
Time Sampled :										
%Moisture :	N/A		N/A							
pH :										
Dilution Factor :	1.0		1.0							
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	330	U	330	UJ						
Phenol	330	U	330	U						
bis-(2-Chloroethyl) ether	330	U	330	UJ						
2-Chlorophenol	330	U	330	U						
2-Methylphenol	330	U	330	U						
2,2'-oxybis(1-Chloropropane)	330	U	330	U						
Acetophenone	330	U	330	U						
4-Methylphenol	330	U	330	U						
N-Nitroso-di-n-propylamine	330	U	330	U						
Hexachloroethane	330	U	330	U						
Nitrobenzene	330	U	330	U						
Isophorone	330	U	330	U						
2-Nitrophenol	330	U	330	U						
2,4-Dimethylphenol	330	U	330	UJ						
bis(2-Chloroethoxy)methane	330	U	330	U						
2,4-Dichlorophenol	330	U	330	U						
Naphthalene	330	U	330	U						
4-Chloroaniline	330	U	330	UJ						
Hexachlorobutadiene	330	U	330	U						
Caprolactam	330	U	330	U						
4-Chloro-3-methylphenol	330	U	330	U						
2-Methylnaphthalene	330	U	330	U						
Hexachlorocyclopentadiene	330	U	330	U						
2,4,6-Trichlorophenol	330	U	330	U						
2,4,5-Trichlorophenol	830	U	830	U						
1,1'-Biphenyl	330	U	330	U						
2-Chloronaphthalene	330	U	330	U						
2-Nitroaniline	830	U	830	UJ						
Dimethylphthalate	330	U	330	U						
2,6-Dinitrotoluene	330	U	330	U						
Acenaphthylene	330	U	330	U						
3-Nitroaniline	830	U	830	U						
Acenaphthene	330	U	330	U						

Case #: 30568
Site :
Lab. :
Reviewer :
Date :

SDG : E0SS1
TAMARACK CITY / STAMP MILL
CEIMIC

Sample Number :	SBLKDV		SBLKKB							
Sampling Location :										
Matrix :	Soil		Soil							
Units :	ug/Kg		ug/Kg							
Date Sampled :										
Time Sampled :										
%Moisture :	N/A		N/A							
pH :										
Dilution Factor :	1.0		1.0							
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	830	U	830	U						
4-Nitrophenol	830	U	830	U						
Dibenzofuran	330	U	330	U						
2,4-Dinitrotoluene	330	U	330	U						
Diethylphthalate	330	U	330	U						
Fluorene	330	U	330	U						
4-Chlorophenyl-phenyl ether	330	U	330	U						
4-Nitroaniline	830	U	830	UJ						
4,6-Dinitro-2-methylphenol	830	U	830	U						
N-Nitrosodiphenylamine	330	U	330	U						
4-Bromophenyl-phenylether	330	U	330	U						
Hexachlorobenzene	330	U	330	U						
Atrazine	330	U	330	R						
Pentachlorophenol	830	U	830	U						
Phenanthrene	330	U	330	U						
Anthracene	330	U	330	U						
Carbazole	330	U	330	U						
Di-n-butylphthalate	330	U	330	U						
Fluoranthene	330	U	330	U						
Pyrene	330	U	330	U						
Butylbenzylphthalate	330	U	330	UJ						
3,3'-Dichlorobenzidine	330	U	330	U						
Benzo(a)anthracene	330	U	330	U						
Chrysene	330	U	330	U						
bis(2-Ethylhexyl)phthalate	72	J	84	J						
Di-n-octylphthalate	330	U	330	UJ						
Benzo(b)fluoranthene	330	U	330	U						
Benzo(k)fluoranthene	330	U	330	U						
Benzo(a)pyrene	330	U	330	U						
Indeno(1,2,3-cd)pyrene	330	U	330	U						
Dibenzo(a,h)anthracene	330	U	330	U						
Benzo(g,h,i)perylene	330	U	330	U						

Case #: 30568
SDG : E0SS1
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Number of Soil Samples : 20
Number of Water Samples : 0

Sample Number :	E0SS1		E0SS1DL		E0SS2		E0SS3		E0SS3MS	
Sampling Location :	SS-1		SS-1		SS-2		SS-3		SS-3	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	10:10		10:10		10:15		11:45		11:45	
%Moisture :	18		16		12		23		23	
pH :	6.3		6.3		5.9		5.6		5.6	
Dilution Factor :	1.0		10.0		1.0		1.0		1.0	
Pesticide/PCB Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	2.1	U	20	U	1.9	U	2.2	U	2.2	U
beta-BHC	12		20	U	1.9	U	2.2	U	2.2	U
delta-BHC	2.1	U	20	U	1.9	U	2.2	U	2.2	U
gamma-BHC (Lindane)	2.1	U	20	U	1.9	U	6.9		27	
Heptachlor	2.1	U	20	U	1.9	U	2.2	U	16	
Aldrin	2.1	U	20	U	1.9	U	2.2	U	17	
Heptachlor epoxide	2.1	U	20	U	1.9	U	2.2	U	2.2	U
Endosulfan I	2.1	U	20	U	1.9	U	2.2	U	2.2	U
Dieldrin	4.0	U	40	U	3.7	U	4.2	U	31	
4,4'-DDE	5.6		40	U	3.7	U	4.2	U	4.2	U
Endrin	4.0	U	40	U	3.7	U	4.2	U	33	
Endosulfan II	4.0	U	40	U	3.7	U	4.2	U	4.2	U
4,4'-DDD	4.0	U	40	U	3.7	U	4.2	U	4.2	U
Endosulfan sulfate	4.0	U	40	U	3.7	U	4.2	U	4.2	U
4,4'-DDT	4.0	U	40	U	3.7	U	4.2	U	25	
Methoxychlor	20	U	200	U	19	U	22	U	22	U
Endrin ketone	4.0	U	40	U	3.7	U	4.2	U	4.2	U
Endrin aldehyde	4.0	U	40	U	3.7	U	4.2	U	4.2	U
alpha-Chlordane	2.1	U	20	U	1.9	U	2.2	U	2.2	U
gamma-Chlordane	2.1	U	20	U	1.9	U	2.2	U	2.2	U
Toxaphene	200	U	2000	U	190	U	220	U	220	U
Aroclor-1016	40	U	400	U	37	U	42	U	42	U
Aroclor-1221	81	U	810	U	75	U	86	U	86	U
Aroclor-1232	40	U	400	U	37	U	42	U	42	U
Aroclor-1242	40	U	400	U	37	U	42	U	42	U
Aroclor-1248	40	U	400	U	37	U	42	U	42	U
Aroclor-1254	40	U	400	U	37	U	42	U	42	U
Aroclor-1260	40	U	400	U	37	U	42	U	42	U

Analytical Results (Qualified Data)

Case #: 30568 — SDG : E0SS1

Site : TAMARACK CITY / STAMP MILL

Lab. : CEIMIC

Reviewer :

Date :

Sample Number :	E0SS3MSD		E0SS4		E0SS5		E0SS6		E0ST0	
Sampling Location :	SS-3		SS-4		SS-5		SS-6		SS-10	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	11:45		13:00		13:20		13:30		13:55	
%Moisture :	23		0		6		9		6	
pH :	5.6		8.0		7.1		6.4		6.3	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Pesticide/PCB Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	2.2	U	1.7	U	1.8	U	1.9	U	1.8	U
beta-BHC	2.2	U	1.7	U	1.8	U	1.9	U	1.8	U
delta-BHC	2.2	U	1.7	U	1.8	U	1.9	U	1.8	U
gamma-BHC (Lindane)	20		1.7	U	1.8	U	1.9	U	1.8	U
Heptachlor	12		1.7	U	1.8	U	1.9	U	1.8	U
Aldrin	13		1.7	U	1.8	U	1.9	U	1.8	U
Heptachlor epoxide	2.2	U	1.7	U	1.8	U	1.9	U	1.8	U
Endosulfan I	2.2	U	1.7	U	1.8	U	1.9	U	1.8	U
Dieldrin	23		3.3	U	3.5	U	3.6	U	3.5	U
4,4'-DDE	4.2	U	3.3	U	3.5	U	3.6	U	3.5	U
Endrin	25		3.3	U	3.5	U	3.6	U	3.5	U
Endosulfan II	4.2	U	3.3	U	3.5	U	3.6	U	3.5	U
4,4'-DDD	4.2	U	3.3	U	3.5	U	3.6	U	3.5	U
Endosulfan sulfate	4.2	U	3.3	U	3.5	U	3.6	U	3.5	U
4,4'-DDT	20		3.3	U	3.5	U	3.6	U	3.5	U
Methoxychlor	22	U	17	U	18	U	19	U	18	U
Endrin ketone	4.2	U	3.3	U	3.5	U	3.6	U	3.5	U
Endrin aldehyde	4.2	U	3.3	U	4.3		3.6	U	3.5	U
alpha-Chlordane	2.2	U	1.7	U	1.8	U	1.9	U	1.8	U
gamma-Chlordane	2.2	U	1.7	U	1.8	U	1.9	U	1.8	U
Toxaphene	220	U	170	U	180	U	190	U	180	U
Aroclor-1016	42	U	33	U	35	U	36	U	35	U
Aroclor-1221	86	U	66	U	70	U	73	U	71	U
Aroclor-1232	42	U	33	U	35	U	36	U	35	U
Aroclor-1242	42	U	33	U	35	U	36	U	35	U
Aroclor-1248	42	U	33	U	35	U	36	U	35	U
Aroclor-1254	42	U	33	U	35	U	36	U	35	U
Aroclor-1260	42	U	33	U	35	U	36	U	35	U

DISCLAIMER: This package has been electronically assessed as an added service to our customer. It has not been either validated or approved by Region 5 and any subsequent use by the data user is strictly at the risk of the data user. Region 5 assumes no responsibility for use of unvalidated data.

Analytical Results (Qualified Data)

Case #: 30568
SDG : E0SS1
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	E0ST1		E0ST2		E0ST3		E0ST4		E0ST5	
Sampling Location :	SS-11		SS-12		SS-13		SS-14		SS-15	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	14:15		14:05		14:10		14:25		14:40	
%Moisture :	5		10		11		54		18	
pH :	6.0		8.9		9.1		6.3		6.6	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Pesticide/PCB Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	1.8	U	1.9	U	1.9	U	3.7	U	2.1	U
beta-BHC	1.8	U	1.9	U	1.9	U	3.7	U	2.1	U
delta-BHC	1.8	U	1.9	U	1.9	U	3.7	U	2.1	U
gamma-BHC (Lindane)	1.8	U	1.9	U	1.9	U	3.7	U	2.1	U
Heptachlor	1.8	U	1.9	U	1.9	U	3.7	U	2.1	U
Aldrin	1.8	U	1.9	U	1.9	U	3.7	U	2.1	U
Heptachlor epoxide	2.2		1.9	U	1.9	U	3.7	U	2.1	U
Endosulfan I	1.8	U	1.9	U	1.9	U	3.7	U	2.1	U
Dieldrin	3.4	U	3.6	U	3.7	U	7.1	U	4.0	U
4,4'-DDE	5.3		3.6	U	3.7	U	7.1	U	4.0	U
Endrin	3.4	U	3.6	U	3.7	U	7.1	U	4.0	U
Endosulfan II	3.4	U	3.6	U	3.7	U	7.1	U	4.0	U
4,4'-DDD	3.4	U	3.6	U	3.7	U	7.1	U	4.0	U
Endosulfan sulfate	3.4	U	3.6	U	3.7	U	7.1	U	4.0	U
4,4'-DDT	7.7		3.6	U	3.7	U	7.1	U	4.0	U
Methoxychlor	18	U	19	U	19	U	37	U	21	U
Endrin ketone	3.4	U	3.6	U	3.7	U	7.1	U	4.0	U
Endrin aldehyde	3.4	U	3.6	U	3.7	U	7.1	U	4.0	U
alpha-Chlordane	6.5		1.9	U	1.9	U	3.7	U	2.1	U
gamma-Chlordane	6.8		1.9	U	1.9	U	3.7	U	2.1	U
Toxaphene	180	U	190	U	190	U	370	U	210	U
Aroclor-1016	34	U	36	U	37	U	71	U	40	U
Aroclor-1221	70	U	73	U	75	U	140	U	82	U
Aroclor-1232	34	U	36	U	37	U	71	U	40	U
Aroclor-1242	34	U	36	U	37	U	71	U	40	U
Aroclor-1248	34	U	36	U	37	U	71	U	40	U
Aroclor-1254	34	U	36	U	37	U	71	U	40	U
Aroclor-1260	34	U	36	U	37	U	71	U	40	U

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Case #: 30568
SDG : E0SS1
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	E0ST6		E0ST7		E0ST8		E0ST9		E0SW0	
Sampling Location :	SS-16		SS-17		SS-18		SS-19		SS-20	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	14:30		11:35		11:20		11:25		11:10	
%Moisture :	7		16		10		10		7	
pH :	7.7		6.6		8.7		7.3		6.8	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Pesticide/PCB Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	1.8	U	2.0	U	1.9	U	1.9	U	1.8	U
beta-BHC	1.8	U	2.0	U	1.9	U	1.9	U	1.8	U
delta-BHC	1.8	U	2.0	U	1.9	U	1.9	U	1.8	U
gamma-BHC (Lindane)	1.8	U	2.0	U	1.9	U	1.9	U	1.8	U
Heptachlor	1.8	U	2.0	U	1.9	U	1.9	U	1.8	U
Aldrin	1.8	U	2.0	U	1.9	U	1.9	U	1.8	U
Heptachlor epoxide	1.8	U	2.0	U	1.9	U	1.9	U	1.8	U
Endosulfan I	1.8	U	2.0	U	1.9	U	1.9	U	1.8	U
Dieldrin	3.5	U	3.9	U	3.6	U	3.7	U	3.5	U
4,4'-DDE	3.5	U	3.9	U	3.6	U	3.7	U	3.5	U
Endrin	3.5	U	3.9	U	3.6	U	3.7	U	3.5	U
Endosulfan II	3.5	U	3.9	U	3.6	U	3.7	U	3.5	U
4,4'-DDD	3.5	U	3.9	U	3.6	U	3.7	U	3.5	U
Endosulfan sulfate	3.5	U	3.9	U	3.6	U	3.7	U	3.5	U
4,4'-DDT	3.5	U	3.9	U	3.6	U	3.7	U	3.5	U
Methoxychlor	18	U	20	U	19	U	19	U	18	U
Endrin ketone	3.5	U	3.9	U	3.6	U	3.7	U	3.5	U
Endrin aldehyde	3.5	U	3.9	U	3.6	U	3.7	U	3.5	U
alpha-Chlordane	1.8	U	2.0	U	1.9	U	1.9	U	1.8	U
gamma-Chlordane	1.8	U	2.0	U	1.9	U	1.9	U	1.8	U
Toxaphene	180	U	200	U	190	U	190	U	180	U
Aroclor-1016	35	U	39	U	36	U	37	U	35	U
Aroclor-1221	71	U	79	U	74	U	74	U	71	U
Aroclor-1232	35	U	39	U	36	U	37	U	35	U
Aroclor-1242	35	U	39	U	36	U	37	U	35	U
Aroclor-1248	35	U	39	U	36	U	37	U	35	U
Aroclor-1254	35	U	39	U	36	U	37	U	35	U
Aroclor-1260	35	U	39	U	36	U	37	U	35	U

Case #: 30568 SDG : E0SS1
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
'eviewer :
Jate :

Sample Number :	E0SW1		E0SW2		E0SW3		PBLK01		PBLK02	
Sampling Location :	SS-21		SS-22		SS-23					
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002					
Time Sampled :	10:45		10:30		14:55					
%Moisture :	7		5		9		N/A		N/A	
pH :	8.3		7.1		8.8					
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Pesticide/PCB Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	1.8	U	1.8	U	1.8	U	1.7	U	1.7	U
beta-BHC	1.8	U	1.8	U	1.8	U	1.7	U	1.7	U
delta-BHC	1.8	U	1.8	U	1.8	U	1.7	U	1.7	U
gamma-BHC (Lindane)	1.8	U	1.8	U	1.8	U	1.7	U	1.7	U
Heptachlor	1.8	U	1.8	U	1.8	U	1.7	U	1.7	U
Aldrin	1.8	U	1.8	U	1.8	U	1.7	U	1.7	U
Heptachlor epoxide	1.8	U	1.8	U	1.8	U	1.7	U	1.7	U
Endosulfan I	1.8	U	1.8	U	1.8	U	1.7	U	1.7	U
Dieldrin	3.5	U	3.5	U	3.6	U	3.3	U	3.3	U
4,4'-DDE	3.5	U	3.5	U	3.6	U	3.3	U	3.3	U
Endrin	3.5	U	3.5	U	3.6	U	3.3	U	3.3	U
Endosulfan II	3.5	U	3.5	U	3.6	U	3.3	U	3.3	U
4,4'-DDD	3.5	U	3.5	U	3.6	U	3.3	U	3.3	U
Endosulfan sulfate	3.5	U	3.5	U	3.6	U	3.3	U	3.3	U
,4'-DDT	3.5	U	3.5	U	3.6	U	3.3	U	3.3	U
Methoxychlor	18	U	18	U	18	U	17	U	17	U
Endrin ketone	3.5	U	3.5	U	3.6	U	3.3	U	3.3	U
Endrin aldehyde	3.5	U	3.5	U	3.6	U	3.3	U	3.3	U
alpha-Chlordane	1.8	U	1.8	U	1.8	U	1.7	U	1.7	U
gamma-Chlordane	1.8	U	1.8	U	1.8	U	1.7	U	1.7	U
Toxaphene	180	U	180	U	180	U	170	U	170	U
Aroclor-1016	35	U	35	U	36	U	33	U	33	U
Aroclor-1221	71	U	70	U	73	U	67	U	67	U
Aroclor-1232	35	U	35	U	36	U	33	U	33	U
Aroclor-1242	35	U	35	U	36	U	33	U	33	U
Aroclor-1248	35	U	35	U	36	U	33	U	33	U
Aroclor-1254	35	U	35	U	36	U	33	U	33	U
Aroclor-1260	35	U	35	U	36	U	33	U	33	U

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE:

SUBJECT: Review of Data
Received for Review on 6-26-02

FROM: Stephen L. Ostrodka, Chief (SMF-4J)
Superfund Field Services Section

TO: Data User: MDEQ

We have reviewed the data for the following case:

SITE NAME: TAMARACK CITY / STAMP MILL (MI)

CASE NUMBER: 30568 SDG NUMBER: E0SS1

Number and Type of Samples: 20 (Soil)

Sample Numbers: E0SS1-6, E0ST0-9, E0SW0-3

Laboratory: CEIMIC Hrs for Review:

Following are our findings:

CC: Cecilia Moore
Region 5 TPO
Mail Code: SMF-4J

SAMPLE DELIVERY GROUP (SDG)
TRAFFIC REPORT (TR) COVERSHEET

Lab Name: Ceimic Corporation **Lab Code:** CEIMIC

Case No.: 30568 **Bid Lot:** A

Contract No: 68-W-99-065 **Full Sample Analysis Price:** $275.00

First Sample in SDG: E0SS1 **Sample Receipt Date:** 6/5/02
(Lowest EPA Sample Number in the first shipment of samples received under SDG.)

Last Sample in SDG: E0SW3 **Sample Receipt Date:** 6/5/02
(Highest EPA Sample Number in the last shipment of samples received under SDG.)

EPA Sample Numbers in the SDG (listed in alphanumeric order by date received)

1. E0SS1	**11.** E0ST4
2. E0SS2	**12.** E0ST5
3. E0SS3	**13.** E0ST6
4. E0SS4	**14.** E0ST7
5. E0SS5	**15.** E0ST8
6. E0SS6	**16.** E0ST9
7. E0ST0	**17.** E0SW0
8. E0ST1	**18.** E0SW1
9. E0ST2	**19.** E0SW2
10. E0ST3	**20.** E0SW3

Note: There are a maximum of 20 field samples in an SDG.

Attach Traffic Reports to this form in alphanumeric order by date received.
(i.e. The order listed on this form)

Jessica Robinson
Signature

6/7/02
Date

Org 1

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No: 30568
DAS No:
SDG No:

L

Date Shipped: 6/4/02
Carrier Name: UPS
Airbill: 1Z 549 OW4 22 1008 060 1
Shipped to: Ceimic Corporation
10 Dean Knauss Drive
Narragansett RI 02882
(401) 782-8900

Chain of Custody Record

Sampler Signature: [signature]

	Relinquished By	(Date / Time)	Received By	(Date / Time)
1	[signature]	6/4/02, 16:30	[signature]	6/5/02 11:00
2				
3				
4				

For Lab Use Only

Lab Contract No: 68W99065
Unit Price: A
Transfer To: 6/5/02 MP
Lab Contract No:
Unit Price:

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
E0SS1	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-1	6/4/02 10:10	ME0SS1	
E0SS2	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-2	10:15	ME0SS2	
E0SS3	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (2)	SS-3	11:45	ME0SS3	
E0SS4	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-4	13:00	ME0SS4	
E0SS5	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-5	13:20	ME0SS5	
E0SS6	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-6	13:30	ME0SS6	
E0ST0	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-10	13:55	ME0ST0	
E0ST1	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-11	14:15	ME0ST1	
E0ST2	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-12	14:05	ME0ST2	

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: E0SS3	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number: 24249, 24250
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G		Custody Seal Intact? __ Shipment Iced? __

BNA/PEST = CLP BNA/Pest/PCBs-Soils

TR Number: 5-462576586-050302-0001

LABORATORY COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Contract Laboratory Analytical Services Support, 2000 Edmund Halley Dr., Reston, VA. 20191-3436 Phone 703/264-9348 Fax 703/264-9222

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No: 30568
DAS No:
SDG No: E0SS3

L

Date Shipped: 6/4/02
Carrier Name: UPS
Airbill: 1Z 549 OW4 22 1008 060 1
Shipped to: Ceimic Corporation
10 Dean Knauss Drive
Narragansett RI 02882
(401) 782-8900

Chain of Custody Record

Sampler Signature: John Spielberg

	Relinquished By	(Date / Time)	Received By	(Date / Time)
1	John Spielberg	6/4/02, 16:30	Lloyd Nichols	6/5/02 11:00
2				
3				
4				

For Lab Use Only
Lab Contract No: 68W99065
Unit Price: A
Transfer To: 6/5/02 MP
Lab Contract No:
Unit Price:

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
E0ST3	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-13	6/4/02, 14:10	ME0ST3	
E0ST4	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-14	14:25	ME0ST4	
E0ST5	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-15	14:40	ME0ST5	
E0ST6	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-16	14:30	ME0ST6	
E0ST7	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-17	11:35	ME0ST7	
E0ST8	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-18	11:20	ME0ST8	
E0ST9	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-19	11:25	ME0ST9	
E0SW0	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-20	11:10	ME0SW0	
E0SW1	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-21	10:45	ME0SW1	

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: E0SS3	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number: 24249, 24250
Analysis Key: BNA/PEST = CLP BNA/Pest/PCBs-Soils	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G		Custody Seal Intact? ___ Shipment Iced? ___

TR Number: 5-462576586-050302-0001

LABORATORY COPY

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Contract Laboratory Analytical Services Support, 2000 Edmund Halley Dr., Reston, VA. 20191-3436 Phone 703/264-9348 Fax 703/264-9222

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No:	30568
DAS No:	
SDG No:	

L

Date Shipped: 6/4/02
Carrier Name: UPS
Airbill: 1Z 549 OW4 22 1008 060 1
Shipped to: Ceimic Corporation
10 Dean Knauss Drive
Narragansett RI 02882
(401) 782-8900

Chain of Custody Record

Sampler Signature: [signature]

Relinquished By (Date / Time)	Received By (Date / Time)
1 [signature] 6/4/02, 16:30	[signature] 6/5/02 11:00
2	
3	
4	

For Lab Use Only
Lab Contract No: 68W99065
Unit Price: A
Transfer To: 6/5/02 MP
Lab Contract No:
Unit Price:

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
E0SW2	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-22	6/4/02, 10:30	ME0SW2	
E0SW3	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-23	14:55	ME0SW3	
E0SW4	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-24	10:35	ME0SW4	
E0SW5	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-25	10:35	ME0SW5	
E0SS7	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-7	13:25	ME0SS7	
E0SS8	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-8	13:10	ME0SS8	
E0SS9	Surface Soil (0"-12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SS-9	13:45	ME0SS9	

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: E0SS3	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number: 24249, 24250
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Custody Seal Intact?	Shipment Iced?

BNA/PEST = CLP BNA/Pest/PCBs-Soils

PR Number: 5-462576586-050302-0001

PR provides preliminary results. Requests for preliminary results will increase analytical costs.
Send Copy to: Contract Laboratory Analytical Services Support, 2000 Edmund Halley Dr., Reston, VA. 20191-3436 Phone 703/264-9348 Fax 703/264-9222

LABORATORY COPY

JUN 26 2002

SDG Narrative

The enclosed data package is in response to USEPA, Region V, Case No. 30568, SDG No. E0SS1, Contract No. 68-W-99-065. Under this SDG there are 20 SVOA, and 20 PEST/PCB analyses for 20 samples which were received at Ceimic Corporation on June 5, 2002.

This data package includes the analyses for the following samples from SDG No. E0SS1, all of which are billable:

(1)

EPA ID	Ceimic ID	Analyses
E0SS1	020535-01	SVOA, PEST/PCB
E0SS2	020535-02	SVOA, PEST/PCB
E0SS3	020535-03	SVOA, PEST/PCB
E0SS4	020535-04	SVOA, PEST/PCB
E0SS5	020535-05	SVOA, PEST/PCB
E0SS6	020535-06	SVOA, PEST/PCB
E0ST0	020535-07	SVOA, PEST/PCB
E0ST1	020535-08	SVOA, PEST/PCB
E0ST2	020535-09	SVOA, PEST/PCB
E0ST3	020535-10	SVOA, PEST/PCB
E0ST4	020535-11	SVOA, PEST/PCB
E0ST5	020535-12	SVOA, PEST/PCB
E0ST6	020535-13	SVOA, PEST/PCB
E0ST7	020535-14	SVOA, PEST/PCB
E0ST8	020535-15	SVOA, PEST/PCB
E0ST9	020535-16	SVOA, PEST/PCB
E0SW0	020535-17	SVOA, PEST/PCB
E0SW1	020535-18	SVOA, PEST/PCB
E0SW2	020535-19	SVOA, PEST/PCB
E0SW3	020535-20	SVOA, PEST/PCB

Sample Receipt

Cooler Temperatures on receipt were 6°C.

(2) Instrumentation and Column Identification

The following instruments were used for the analyses:

GC/MS Analysis

A. SVOA

MS1 HP5970B GC/MS,30 m,25 mm ID, ZB-5 fused silica capillary column
MS4 HP5970B GC/MS,30 m,25 mm ID, ZB-5 fused silica capillary column
MS11 HP5973 GC/MS,30 m,25 mm ID, ZB-5 fused silica capillary column

B. PEST/PCB

AD17: HP5890II Using 30m x 0.53mm ID, DB5 megabore column GC-6
AD18: HP5890II Using 30m x 0.53mm ID, DB35 megabore column GC-6

(3) Sample Information

An "x" qualifier is flagged by Target Thru-put software whenever the data is manually edited. The letters "M" for GC/MS and "FF" for GC are used on the raw data of the quantitation report whenever a manual integration is performed. Manual integrations are performed on GC/MS and GC standards and samples when computer generated integration picks up only a portion of the chromatographic peak, due to software limitations. When manual integrations are required, these integrations are performed using sound defensible professional judgment, in order to report accurate data. Each manual integration is signed and dated, and reviewed by both the lab supervisor and the GC/MS Interpretation Specialist for GC/MS or the Organic Lab Manager for Pest/PCB.

A. SVOA Fraction (Method CLP SOW OLM04.2)

The quantitation ion for bis-(2-chloroethyl)ether was changed to the secondary ion 63, rather than the primary ion 93, because there is interference with the ion 93 from aniline, which is present in the standard mix.

The following samples were analyzed at a dilution as a result of GC/FID screening and the dark color and viscosity of the extract:

EPA ID:	CEIMIC ID:	DILUTION:
E0SS1	020535-01	1:10
E0SS2	020535-02	1:10
E0SS3	020535-03	1:5
E0SS3MS	020535-03MS	1:5
E0SS3MSD	020535-03MSD	1:5
E0SS4	020535-04	1:2
E0SS5	020535-05	1:5
E0SS6	020535-06	1:2
E0ST0	020535-07	1:5
E0ST1	020535-08	1:5
E0ST2	020535-09	1:2
E0ST3	020535-10	1:5
E0ST4	020535-11	1:5
E0ST5	020535-12	1:5
E0ST6	020535-13	1:5
E0ST7	020535-14	1:2

E0ST8	020535-15	1:5
E0ST9	020535-16	1:2
E0SW0	020535-17	1:2
E0SW2	020535-19	1:5

Samples E0SS3MS (020535-03MS) and E0SS3MSD (020535-03MSD) had a high %RPD for Pyrene.

B. PEST/PCB Fraction (Method CLP SOW OLM04.2)

No non-compliances noted

Deviations from the SOW

None other than specified above.

End of SDG Narrative

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the laboratory manager or his/her designee, as verified by the following signature.

Alfred Kwolek

Alfred Kwolek, GC/MS Specialist

6/24/02

Date

1A
VOLATILE ORGANICS ANALYSIS DATA SHEET AUG 16 2002

EPA SAMPLE NO.

E0SX9

Lab Name: CEIMIC CORP Contract: 68-W-99-065

Lab Code: CEIMIC Case No.: 30568 SAS No.: SDG No.: E0SS7

Matrix: (soil/water) WATER Lab Sample ID: 020536-09

Sample wt/vol: 5.000 (g/mL) ML Lab File ID: OK565

Level: (low/med) LOW Date Received: 06/05/02

% Moisture: not dec. ________ Date Analyzed: 07/09/02

GC Column: RTX-VOL ID: 0.53 (mm) Dilution Factor: 1.0

Soil Extract Volume: __________ (uL) Soil Aliquot Volume: ________ (uL)

CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L

CAS NO.	COMPOUND		Q
75-71-8	Dichlorodifluoromethane	10	U
74-87-3	Chloromethane	10	U
75-01-4	Vinyl Chloride	10	U
74-83-9	Bromomethane	10	U
75-00-3	Chloroethane	10	U
75-69-4	Trichlorofluoromethane	10	U
75-35-4	1,1-Dichloroethene	10	U
76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	10	U
67-64-1	Acetone	9	J
75-15-0	Carbon Disulfide	10	U
79-20-9	Methyl Acetate	10	U
75-09-2	Methylene Chloride	12	
156-60-5	trans-1,2-Dichloroethene	10	U
1634-04-4	Methyl tert-Butyl Ether	10	U
75-34-3	1,1-Dichloroethane	10	U
156-59-2	cis-1,2-Dichloroethene	10	U
78-93-3	2-Butanone	10	U
67-66-3	Chloroform	10	U
71-55-6	1,1,1-Trichloroethane	10	U
110-82-7	Cyclohexane	10	U
56-23-5	Carbon Tetrachloride	10	U
71-43-2	Benzene	10	U
107-06-2	1,2-Dichloroethane	10	U

SEP - 4 2002

1B
VOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

E0SX9

Lab Name: CEIMIC CORP   Contract: 68-W-99-065

Lab Code: CEIMIC   Case No.: 30568   SAS No.:   SDG No.: E0SS7

Matrix: (soil/water) WATER   Lab Sample ID: 020536-09

Sample wt/vol: 5.000 (g/mL) ML   Lab File ID: OK565

Level: (low/med) LOW   Date Received: 06/05/02

% Moisture: not dec. ________   Date Analyzed: 07/09/02

GC Column: RTX-VOL   ID: 0.53 (mm)   Dilution Factor: 1.0

Soil Extract Volume:__________(uL)   Soil Aliquot Volume: ________(uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
79-01-6	Trichloroethene	2	J
108-87-2	Methylcyclohexane	10	U
78-87-5	1,2-Dichloropropane	10	U
75-27-4	Bromodichloromethane	10	U
10061-01-5	cis-1,3-Dichloropropene	10	U
108-10-1	4-Methyl-2-Pentanone	10	U
108-88-3	Toluene	10	U
10061-02-6	trans-1,3-Dichloropropene	10	U
79-00-5	1,1,2-Trichloroethane	10	U
127-18-4	Tetrachloroethene	10	U
591-78-6	2-Hexanone	10	U
124-48-1	Dibromochloromethane	10	U
106-93-4	1,2-Dibromoethane	10	U
108-90-7	Chlorobenzene	10	U
100-41-4	Ethylbenzene	10	U
1330-20-7	Xylene (Total)	10	U
100-42-5	Styrene	10	U
75-25-2	Bromoform	10	U
98-82-8	Isopropylbenzene	10	U
79-34-5	1,1,2,2-Tetrachloroethane	10	U
541-73-1	1,3-Dichlorobenzene	10	U
106-46-7	1,4-Dichlorobenzene	10	U
95-50-1	1,2-Dichlorobenzene	10	U
96-12-8	1,2-Dibromo-3-chloropropane	10	U
120-82-1	1,2,4-Trichlorobenzene	10	U

JUL 08 2002

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE: ____________

SUBJECT: **Electronic (Level 2) Review of Data**

Received for Review on June 26, 2002

FROM: Stephen L. Ostrodka, Chief (SMF-4J)
Superfund Field Services Section

TO: Data User: MDEQ

The following data has been electronically reviewed by CADRE. No review of the raw data, laboratory narrative, laboratory forms or chain-of-custody forms was performed.

SITE NAME: Tamarack City / Stamp Mill (MI)

CASE NUMBER: 30568 SDG NUMBER: E0SS7

Number and Type of Samples: 9 Waters / 11 Soils

Sample Numbers: E0SS7 - E0SS9, E0SW4 - E0SW6, E0SW9, E0SX0 - E0SX3, E0SX6 - E0SX9, E0SY0 - E0SY4

Laboratory: Ceimic Hrs. for Review: ____________

Following are our findings:

RECEIVED
JUL 18 2002
ERD-SUPERFUND

CC: Cecilia Moore
Rc-ion 5 TPO
M. . Code: SMF-4J

Case Number : 30568 SDG Number: E0SS7
Site Name: TAMARACK CITY / STAMP MILL (MI) Laboratory: CEIMIC

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Nine (9) water samples and *eleven (11) soil* samples, numbered *E0SS7* through *E0SS9, E0SW4* through *E0SW6, E0SW9, E0SX0* through *E0SX3, E0SX6* through *E0SX9,* and *E0SY0* through *E0SY4,* were collected on *June 4, 2002*. The lab received the samples *June 5 - 6, 2002* in good condition. Eight (8) water samples; E0SX6 - E0SX8 and E0SY0 - E0SY4 were analyzed for the full list of organic analytes. The remaining water sample, E0SX9 and all soil samples were analyzed for only the semivolatile and pesticide lists of organic analytes. All were analyzed according to CLP SOW *OLM04.2* 5/99.

Level 2 - Assembled By: Allison Harvey/IITRI-ESAT
Date: July 8, 2002

Case Number :	30568	SDG Number:	E0SS7
Site Name:	TAMARACK CITY / STAMP MILL (MI)	Laboratory:	CEIMIC

1. HOLDING TIME

HOLDING TIME CRITERIA

Volatile

Preserved	Primary	Expanded
Water	14	28
Soil	14	28

	Aromatic		Non-aromatic	
Unpreserved	Primary	Expanded	Primary	Expanded
Water	7	14	14	28
Soil	7	14	14	28

DC-11: The following preserved volatile water samples are outside primary holding time criteria. Hits are qualified "J" and non-detects are qualified "UJ".

E0SY1, E0SY2

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No problems found for this qualification.

3. CALIBRATION

CALIBRATION CRITERIA

Volatile

	Primary	Expanded
Minimum RRF	0.05	0.05
Maximum %RSD (initial calibration)	30	30
Maximum %D (continuing calibration)	25	25
Calibration time period	12	

Semivolatile

	Primary	Expanded

Case Number : 30568 SDG Number: E0SS7
Site Name: TAMARACK CITY / STAMP MILL (MI) Laboratory: CEIMIC

Minimum RRF	0.05	0.05
Maximum %RSD (initial calibration)	30	30
Maximum %D (continuing calibration)	25	25
Calibration time period	12	

Pesticide

Maximum %RSD (initial calibration) - TCL analytes	20
- surrogates	30
Maximum RPD (continuing calibration)	25
INDA/INDB percent resolution	90
Continuing calibration sequence time	12

DC-18: The following volatile samples are associated with a continuing calibration whose corresponding initial calibration has relative response factors (RRFs) outside primary criteria. Hits are flagged "J" and non-detects are qualified "R".

1,2-Dibromo-3-chloropropane
E0SX6, E0SX7, E0SX8, E0SX8MS, E0SX8MSD, E0SY0, E0SY1, E0SY2, E0SY3, E0SY4, VBLKOQ, VBLKOS, VBLKOW, VHBLK01

DC-22: The following volatile samples are associated with a continuing calibration whose corresponding initial calibration has percent relative standard deviation (%RSD) outside primary criteria. Hits are qualified "J" and non-detects are flagged "UJ".

1,2,4-Trichlorobenzene
E0SX6, E0SX7, E0SX8, E0SX8MS, E0SX8MSD, E0SY0, E0SY1, E0SY2, E0SY3, E0SY4, VBLKOQ, VBLKOS, VBLKOW, VHBLK01

DC-23: The following volatile samples are associated with a continuing calibration percent difference (%D) outside primary criteria. Hits are qualified "J" and non-detects are qualified "UJ".

Acetone
E0SX6, E0SX7, E0SX8, E0SY0, E0SY3, E0SY4, VBLKOQ

DC-100: The following semivolatile samples are associated with a continuing calibration percent difference (%D) outside primary criteria. Hits are qualified "J" and non-detects are qualified "UJ".

Benzaldehyde
E0SX6, E0SX7, E0SX8, E0SX9, E0SX9MS, E0SX9MSD, E0SY0, E0SY1, E0SY2, E0SY3, E0SY4, SBLKDB, SBLKDC

Case Number :	30568	SDG Number:	E0SS7
Site Name:	TAMARACK CITY / STAMP MILL (MI)	Laboratory:	CEIMIC

2,2'-oxybis(1-Chloropropane), N-Nitroso-di-n-propylamine
E0SX9MS, E0SX9MSD

DC-197: The following pesticide samples are not qualified for continuing calibration because of missing continuing calibration information. Manual review of the data is required.

E0SS7, E0SS8, E0SS9, E0SW4, E0SW5, E0SW5MS, E0SW5MSD, E0SW6, E0SW9, E0SX0, E0SX1, E0SX2, E0SX3, E0SX6, E0SX7, E0SX8, E0SX9, E0SX9MS, E0SX9MSD, E0SY0, E0SY1, E0SY2, E0SY3, E0SY4, PBLK01, PBLK02, PBLK03, PBLK04

4. BLANKS

LABORATORY BLANKS CRITERIA

Volatile

Method Blank Contamination Threshold Multipliers

	First	Expanded
Common contaminant compounds	10.00	10.00
Other compounds	5.00	5.00

Semivolatile

Method Blank Contamination Threshold Multipliers

	First	Expanded
Common contaminant compounds	10.00	10.00
Other compounds	5.00	5.00

DC-200: The following volatile samples have analyte concentrations reported below the CRQL and less than or equal to ten times (10X) the associated method blank concentration. Reported sample concentrations have been elevated to the CRQL. Hits are qualified "U" and non-detects are not flagged.

Methylene Chloride
E0SX6, E0SX7, E0SX8, E0SY0, E0SY3, E0SY4

DC-206: The following semivolatile samples have analyte concentrations reported below the CRQL and less than or equal to ten times (10X) the associated method blank concentration.

Case Number :	30568	SDG Number:	E0SS7
Site Name:	TAMARACK CITY / STAMP MILL (MI)	Laboratory:	CEIMIC

Reported sample concentrations have been elevated to the CRQL. Hits are qualified "U" and non-detects are not flagged.

bis(2-Ethylhexyl)phthalate
E0SS7, E0SS8, E0SW5, E0SW5MS, E0SW5MSD, E0SW6, E0SW9, E0SX0, E0SX3, E0SX6 E0SX8, E0SX9MS, E0SX9MSD, E0SY0, E0SY1, E0SY2, E0SY3, E0SY4

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

No problems found for this qualification.

6. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

MATRIX SPIKE CRITERIA

Semivolatile

Percent Recovery Limits & RPD

	Water			Soil		
	Lower	Upper	RPD	Lower	Upper	RPD
Phenol	12.0	110.0	42.0	26.0	90.0	35.0
2-Chlorophenol	27.0	123.0	40.0	25.0	102.0	50.0
N-Nitroso-di-n-propylamine	41.0	116.0	38.0	41.0	126.0	38.0
4-Chloro-3-methylphenol	23.0	97.0	42.0	26.0	103.0	33.0
Acenaphthene	46.0	118.0	31.0	31.0	137.0	19.0
4-Nitrophenol	10.0	80.0	50.0	11.0	114.0	50.0
2,4-Dinitrotoluene	24.0	96.0	38.0	28.0	89.0	47.0
Pentachlorophenol	9.0	103.0	50.0	17.0	109.0	47.0
Pyrene	26.0	127.0	31.0	35.0	142.0	36.0

DC-51: The following semivolatile matrix spike/matrix spike duplicate samples have percent recovery outside criteria. Results for the outlier in the unspiked sample E0SX9 is estimated, "J" and a non-detect is estimated, "UJ".

E0SX9MSD
4-Nitrophenol

7. FIELD BLANK AND FIELD DUPLICATE

No samples were identified as trip blanks. Samples *E0SY3* and *E0SY4* are field blanks. Sample *E0SX8* is

Case Number :	30568	SDG Number:	E0SS7
꜀ ·e Name:	TAMARACK CITY / STAMP MILL (MI)	Laboratory:	CEIMIC

a field duplicate of Sample *E0SX7*. Results are not qualified based upon the results of the field blank or field duplicates.

8. INTERNAL STANDARDS

No problems found for this qualification.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all VOA, SVOA, and Pesticide/PCB compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

CONTRACT REQUIRED SAMPLE QUANTITY

	Water	Low Soil	Med Soil
VOA	5.0 (ML)	5.0 (G)	4.0 (G)
·IA	1000.0 (ML)	30.0 (G)	1.0 (G)
PES	1000.0 (ML)	30.0 (G)	

DC-45: The following volatile samples have analyte concentrations below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

E0SX7
Xylenes (total)

E0SX8MS, E0SX8MSD, E0SY1, VBLKOQ
Methylene Chloride

VBLKOS
1,2,4-Trichlorobenzene

VBLKOW
Chloromethane, 1,2,4-Trichlorobenzene

DC-110: The following semivolatile samples have analyte concentrations below the quantitation limit (CRQL). All results below the CRQL are qualified "J".

E0SS7
Benzaldehyde, Naphthalene, 2-Methylnaphthalene, Phenanthrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Benzo(g,h,i)perylene

E0SS8
Naphthalene, 2-Methylnaphthalene, Phenanthrene, Anthracene, Carbazole, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

E0SS9
Phenanthrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Indeno(1,2,3-cd)pyrene, Dibenz(a,h)anthracene, Benzo(g,h,i)perylene

E0SW4
2-Methylnaphthalene, Phenanthrene, Chrysene

E0SW5
Naphthalene, 2-Methylnaphthalene, Dibenzofuran, Phenanthrene, Fluoranthene, Pyrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene

E0SW5MS
Naphthalene, 2-Methylnaphthalene, Phenanthrene, Benzo(a)anthracene, Chrysene

E0SW5MSD
Naphthalene, 2-Methylnaphthalene, Phenanthrene, Benzo(a)anthracene, Chrysene, Benzo(b)fluoranthene

E0SW9
Fluoranthene, Pyrene

E0SX0, E0SX3
Benzo(a)pyrene

SBLKAI, SBLKDC
bis(2-Ethylhexyl)phthalate

SBLKDB
Caprolactam

DC-422: The following pesticide samples have analytes for which the percent difference between column results exceeds primary criteria. Professional judgement should be used to qualify the data.

E0SW5MS
gamma-BHC (Lindane), Dieldrin, Endrin

E0SW5MSD
gamma-BHC (Lindane), Heptachlor, Endrin, gamma-Chlordane

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance. The GC baseline for the pesticide analysis was acceptable.

12. ADDITIONAL INFORMATION

None.

CADRE Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The anlayte was positively identified; the associated numerical value is an approximate concentration of the analyte in the sample.
UJ	The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the action limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
N	The analysis indicates the present of an analyte for which there is presumptive evidence to make a tentative identification.
NJ	The analysis indicates the present of an analyte for which there is presumptive evidence to make a tentative identification and the associated numerical value represents its approximate concentration.
R	The data are unusable. (The compound may or may not be present)

Case #: 30568
SDG : E0SS7
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Number of Soil Samples : 0
Number of Water Samples : 8

Sample Number :	E0SX6		E0SX7		E0SX8		E0SX8MS		E0SX8MSD	
Sampling Location :	TMW-1		TMW-2		TMW-2D		TMW-2D		TMW-2D	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	12:25		15:35		15:35		15:35		15:35	
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :										
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	10	U	10	U	10	U	10	U	10	U
Chloromethane	10	U	10	U	10	U	10	U	10	U
Vinyl Chloride	10	U	10	U	10	U	10	U	10	U
Bromomethane	10	U	10	U	10	U	10	U	10	U
Chloroethane	10	U	10	U	10	U	10	U	10	U
Trichlorofluoromethane	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethene	10	U	10	U	10	U	42		46	
1,1,2-Trichloro-1,2,2-trifluoroethane	10	U	10	U	10	U	10	U	10	U
Acetone	10	UJ	10	UJ	10	UJ	10	U	10	U
Carbon Disulfide	10	U	10	U	10	U	10	U	10	U
Methyl Acetate	10	U	10	U	10	U	10	U	10	U
Methylene Chloride	10	U	10	U	10	U	1	J	3	J
trans-1,2-Dichloroethene	10	U	10	U	10	U	10	U	10	U
Methyl tert-Butyl Ether	10	U	10	U	10	U	10	U	10	U
1,1-Dichloroethane	10	U	10	U	10	U	10	U	10	U
cis-1,2-Dichloroethene	10	U	10	U	10	U	10	U	10	U
2-Butanone	10	U	10	U	10	U	10	U	10	U
Chloroform	10	U	10	U	10	U	10	U	10	U
1,1,1-Trichloroethane	10	U	10	U	10	U	10	U	10	U
Cyclohexane	10	U	10	U	10	U	10	U	10	U
Carbon Tetrachloride	10	U	10	U	10	U	10	U	10	U
Benzene	10	U	10	U	10	U	49		50	
1,2-Dichloroethane	10	U	10	U	10	U	10	U	10	U
Trichloroethene	10	U	10	U	10	U	46		47	
Methylcyclohexane	10	U	10	U	10	U	10	U	10	U
1,2-Dichloropropane	10	U	10	U	10	U	10	U	10	U
Bromodichloromethane	10	U	10	U	10	U	10	U	10	U
cis-1,3-Dichloropropene	10	U	10	U	10	U	10	U	10	U
4-Methyl-2-pentanone	10	U	10	U	10	U	10	U	10	U
Toluene	10	U	10	U	10	U	49		48	
trans-1,3-Dichloropropene	10	U	10	U	10	U	10	U	10	U
1,1,2-Trichloroethane	10	U	10	U	10	U	10	U	10	U
Tetrachloroethene	10	U	10	U	10	U	10	U	10	U

Case #: 30568
Site :
Lab. :
Reviewer :
Date :

SDG : E0SS7
TAMARACK CITY / STAMP MILL
CEIMIC

Sample Number :	E0SX6		E0SX7		E0SX8		E0SX8MS		E0SX8MSD	
Sampling Location :	TMW-1		TMW-2		TMW-2D		TMW-2D		TMW-2D	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	12:25		15:35		15:35		15:35		15:35	
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :										
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2-Hexanone	10	U	10	U	10	U	10	U	10	U
Dibromochloromethane	10	U	10	U	10	U	10	U	10	U
1,2-Dibromoethane	10	U	10	U	10	U	10	U	10	U
Chlorobenzene	10	U	10	U	10	U	45		46	
Ethylbenzene	10	U	10	U	10	U	10	U	10	U
Xylenes (total)	10	U	1	J	10	U	10	U	10	U
Styrene	10	U	10	U	10	U	10	U	10	U
Bromoform	10	U	10	U	10	U	10	U	10	U
Isopropylbenzene	10	U	10	U	10	U	10	U	10	U
1,1,2,2-Tetrachloroethane	10	U	10	U	10	U	10	U	10	U
1,3-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U
1,4-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U
1,2-Dichlorobenzene	10	U	10	U	10	U	10	U	10	U
1,2-Dibromo-3-chloropropane	10	R	10	R	10	R	10	R	10	R
1,2,4-Trichlorobenzene	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ

Case #: 30568 SDG : E0SS7

Site : TAMARACK CITY / STAMP MILL

Lab. : CEIMIC

Reviewer :

Date :

Sample Number :	E0SY0		E0SY1		E0SY2		E0SY3		E0SY4	
Sampling Location :	TMW-4		TMW-5		TMW-6		PB-1		FB-1	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	16:00		17:25		11:15		16:00		10:05	
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :										
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	10	U	10	UJ	10	UJ	10	U	10	U
Chloromethane	10	U	10	UJ	10	UJ	10	U	10	U
Vinyl Chloride	10	U	10	UJ	10	UJ	10	U	10	U
Bromomethane	10	U	10	UJ	10	UJ	10	U	10	U
Chloroethane	10	U	10	UJ	10	UJ	10	U	10	U
Trichlorofluoromethane	10	U	10	UJ	10	UJ	10	U	10	U
1,1-Dichloroethene	10	U	10	UJ	10	UJ	10	U	10	U
1,1,2-Trichloro-1,2,2-trifluoroethane	10	U	10	UJ	10	UJ	10	U	10	U
Acetone	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ
Carbon Disulfide	10	U	10	UJ	10	UJ	10	U	10	U
Methyl Acetate	10	U	10	UJ	10	UJ	10	U	10	U
Methylene Chloride	10	U	1	J	10	UJ	10	U	10	U
trans-1,2-Dichloroethene	10	U	10	UJ	10	UJ	10	U	10	U
Methyl tert-Butyl Ether	10	U	10	UJ	10	UJ	10	U	10	U
1,1-Dichloroethane	10	U	10	UJ	10	UJ	10	U	10	U
cis-1,2-Dichloroethene	10	U	10	UJ	10	UJ	10	U	10	U
2-Butanone	10	U	10	UJ	10	UJ	10	U	10	U
Chloroform	10	U	10	UJ	10	UJ	10	U	10	U
1,1,1-Trichloroethane	10	U	10	UJ	10	UJ	10	U	10	U
Cyclohexane	10	U	10	UJ	10	UJ	10	U	10	U
Carbon Tetrachloride	10	U	10	UJ	10	UJ	10	U	10	U
Benzene	10	U	10	UJ	10	UJ	10	U	10	U
1,2-Dichloroethane	10	U	10	UJ	10	UJ	10	U	10	U
Trichloroethene	10	U	10	UJ	10	UJ	10	U	10	U
Methylcyclohexane	10	U	10	UJ	10	UJ	10	U	10	U
1,2-Dichloropropane	10	U	10	UJ	10	UJ	10	U	10	U
Bromodichloromethane	10	U	10	UJ	10	UJ	10	U	10	U
cis-1,3-Dichloropropene	10	U	10	UJ	10	UJ	10	U	10	U
4-Methyl-2-pentanone	10	U	10	UJ	10	UJ	10	U	10	U
Toluene	10	U	10	UJ	10	UJ	10	U	10	U
trans-1,3-Dichloropropene	10	U	10	UJ	10	UJ	10	U	10	U
1,1,2-Trichloroethane	10	U	10	UJ	10	UJ	10	U	10	U
Tetrachloroethene	10	U	10	UJ	10	UJ	10	U	10	U

Case #: 30568 SDG : E0SS7
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	E0SY0		E0SY1		E0SY2		E0SY3		E0SY4	
Sampling Location :	TMW-4		TMW-5		TMW-6		PB-1		FB-1	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	16:00		17:25		11:15		16:00		10:05	
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :										
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2-Hexanone	10	U	10	UJ	10	UJ	10	U	10	U
Dibromochloromethane	10	U	10	UJ	10	UJ	10	U	10	U
1,2-Dibromoethane	10	U	10	UJ	10	UJ	10	U	10	U
Chlorobenzene	10	U	10	UJ	10	UJ	10	U	10	U
Ethylbenzene	10	U	10	UJ	10	UJ	10	U	10	U
Xylenes (total)	10	U	10	UJ	10	UJ	10	U	10	U
Styrene	10	U	10	UJ	10	UJ	10	U	10	U
Bromoform	10	U	10	UJ	10	UJ	10	U	10	U
Isopropylbenzene	10	U	10	UJ	10	UJ	10	U	10	U
1,1,2,2-Tetrachloroethane	10	U	10	UJ	10	UJ	10	U	10	U
1,3-Dichlorobenzene	10	U	10	UJ	10	UJ	10	U	10	U
1,4-Dichlorobenzene	10	U	10	UJ	10	UJ	10	U	10	U
1,2-Dichlorobenzene	10	U	10	UJ	10	UJ	10	U	10	U
1,2-Dibromo-3-chloropropane	10	R	10	R	10	R	10	R	10	R
1,2,4-Trichlorobenzene	10	UJ	10	UJ	10	UJ	10	UJ	10	UJ

Case #: 30568 SDG : E0SS7
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	VBLKOQ		VBLKOS		VBLKOW		VHBLK01			
Sampling Location :										
Matrix :	Water		Water		Water		Water			
Units :	ug/L		ug/L		ug/L		ug/L			
Date Sampled :										
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A			
pH :										
Dilution Factor :	1.0		1.0		1.0		1.0			
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Dichlorodifluoromethane	10	U	10	U	10	U	10	U		
Chloromethane	10	U	10	U	1	J	10	U		
Vinyl Chloride	10	U	10	U	10	U	10	U		
Bromomethane	10	U	10	U	10	U	10	U		
Chloroethane	10	U	10	U	10	U	10	U		
Trichlorofluoromethane	10	U	10	U	10	U	10	U		
1,1-Dichloroethene	10	U	10	U	10	U	10	U		
1,1,2-Trichloro-1,2,2-trifluoroethane	10	U	10	U	10	U	10	U		
Acetone	10	UJ	10	U	10	U	10	U		
Carbon Disulfide	10	U	10	U	10	U	10	U		
Methyl Acetate	10	U	10	U	10	U	10	U		
Methylene Chloride	3	J	10	U	10	U	10	U		
trans-1,2-Dichloroethene	10	U	10	U	10	U	10	U		
Methyl tert-Butyl Ether	10	U	10	U	10	U	10	U		
1,1-Dichloroethane	10	U	10	U	10	U	10	U		
cis-1,2-Dichloroethene	10	U	10	U	10	U	10	U		
2-Butanone	10	U	10	U	10	U	10	U		
Chloroform	10	U	10	U	10	U	10	U		
1,1,1-Trichloroethane	10	U	10	U	10	U	10	U		
Cyclohexane	10	U	10	U	10	U	10	U		
Carbon Tetrachloride	10	U	10	U	10	U	10	U		
Benzene	10	U	10	U	10	U	10	U		
1,2-Dichloroethane	10	U	10	U	10	U	10	U		
Trichloroethene	10	U	10	U	10	U	10	U		
Methylcyclohexane	10	U	10	U	10	U	10	U		
1,2-Dichloropropane	10	U	10	U	10	U	10	U		
Bromodichloromethane	10	U	10	U	10	U	10	U		
cis-1,3-Dichloropropene	10	U	10	U	10	U	10	U		
4-Methyl-2-pentanone	10	U	10	U	10	U	10	U		
Toluene	10	U	10	U	10	U	10	U		
trans-1,3-Dichloropropene	10	U	10	U	10	U	10	U		
1,1,2-Trichloroethane	10	U	10	U	10	U	10	U		
Tetrachloroethene	10	U	10	U	10	U	10	U		

Case #: 30568
SDG : E0SS7
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	VBLKOQ		VBLKOS		VBLKOW		VHBLK01			
Sampling Location :										
Matrix :	Water		Water		Water		Water			
Units :	ug/L		ug/L		ug/L		ug/L			
Date Sampled :										
Time Sampled :										
%Moisture :	N/A		N/A		N/A		N/A			
pH :										
Dilution Factor :	1.0		1.0		1.0		1.0			
Volatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2-Hexanone	10	U	10	U	10	U	10	U		
Dibromochloromethane	10	U	10	U	10	U	10	U		
1,2-Dibromoethane	10	U	10	U	10	U	10	U		
Chlorobenzene	10	U	10	U	10	U	10	U		
Ethylbenzene	10	U	10	U	10	U	10	U		
Xylenes (total)	10	U	10	U	10	U	10	U		
Styrene	10	U	10	U	10	U	10	U		
Bromoform	10	U	10	U	10	U	10	U		
Isopropylbenzene	10	U	10	U	10	U	10	U		
1,1,2,2-Tetrachloroethane	10	U	10	U	10	U	10	U		
1,3-Dichlorobenzene	10	U	10	U	10	U	10	U		
1,4-Dichlorobenzene	10	U	10	U	10	U	10	U		
1,2-Dichlorobenzene	10	U	10	U	10	U	10	U		
1,2-Dibromo-3-chloropropane	10	R	10	R	10	R	10	R		
1,2,4-Trichlorobenzene	10	UJ	3	J	3	J	10	UJ		

Case #: 30568 SDG : E0SS7

Site : TAMARACK CITY / STAMP MILL

Lab. : CEIMIC

Reviewer :

Date :

Number of Soil Samples : 11

Number of Water Samples : 9

Sample Number :	E0SS7		E0SS8		E0SS9		E0SW4		E0SW5	
Sampling Location :	SS-7		SS-8		SS-9		SS-24		SS-25	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	13:25		13:10		13:45		10:55		10:35	
%Moisture :	11		11		7		10		12	
pH :	8.6		7.2		8.9		8.8		9.2	
Dilution Factor :	1.0		2.0		10.0		5.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	43	J	730	U	3500	U	1800	U	370	U
Phenol	370	U	730	U	3500	U	1800	U	370	U
bis-(2-Chloroethyl) ether	370	U	730	U	3500	U	1800	U	370	U
2-Chlorophenol	370	U	730	U	3500	U	1800	U	370	U
2-Methylphenol	370	U	730	U	3500	U	1800	U	370	U
2,2'-oxybis(1-Chloropropane)	370	U	730	U	3500	U	1800	U	370	U
Acetophenone	370	U	730	U	3500	U	1800	U	370	U
4-Methylphenol	370	U	730	U	3500	U	1800	U	370	U
N-Nitroso-di-n-propylamine	370	U	730	U	3500	U	1800	U	370	U
Hexachloroethane	370	U	730	U	3500	U	1800	U	370	U
Nitrobenzene	370	U	730	U	3500	U	1800	U	370	U
Isophorone	370	U	730	U	3500	U	1800	U	370	U
2-Nitrophenol	370	U	730	U	3500	U	1800	U	370	U
2,4-Dimethylphenol	370	U	730	U	3500	U	1800	U	370	U
bis(2-Chloroethoxy)methane	370	U	730	U	3500	U	1800	U	370	U
2,4-Dichlorophenol	370	U	730	U	3500	U	1800	U	370	U
Naphthalene	60	J	100	J	3500	U	1800	U	60	J
4-Chloroaniline	370	U	730	U	3500	U	1800	U	370	U
Hexachlorobutadiene	370	U	730	U	3500	U	1800	U	370	U
Caprolactam	370	U	730	U	3500	U	1800	U	370	U
4-Chloro-3-methylphenol	370	U	730	U	3500	U	1800	U	370	U
2-Methylnaphthalene	93	J	180	J	3500	U	320	J	130	J
Hexachlorocyclopentadiene	370	U	730	U	3500	U	1800	U	370	U
2,4,6-Trichlorophenol	370	U	730	U	3500	U	1800	U	370	U
2,4,5-Trichlorophenol	920	U	1800	U	8900	U	4600	U	930	U
1,1'-Biphenyl	370	U	730	U	3500	U	1800	U	370	U
2-Chloronaphthalene	370	U	730	U	3500	U	1800	U	370	U
2-Nitroaniline	920	U	1800	U	8900	U	4600	U	930	U
Dimethylphthalate	370	U	730	U	3500	U	1800	U	370	U
2,6-Dinitrotoluene	370	U	730	U	3500	U	1800	U	370	U
Acenaphthylene	370	U	730	U	3500	U	1800	U	370	U
3-Nitroaniline	920	U	1800	U	8900	U	4600	U	930	U
Acenaphthene	370	U	730	U	3500	U	1800	U	370	U

Case #: 30568 SDG : E0SS7
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	E0SS7		E0SS8		E0SS9		E0SW4		E0SW5	
Sampling Location :	SS-7		SS-8		SS-9		SS-24		SS-25	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	13:25		13:10		13:45		10:55		10:35	
%Moisture :	11		11		7		10		12	
pH :	8.6		7.2		8.9		8.8		9.2	
Dilution Factor :	1.0		2.0		10.0		5.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	920	U	1800	U	8900	U	4600	U	930	U
4-Nitrophenol	920	U	1800	U	8900	U	4600	U	930	U
Dibenzofuran	370	U	730	U	3500	U	1800	U	42	J
2,4-Dinitrotoluene	370	U	730	U	3500	U	1800	U	370	U
Diethylphthalate	370	U	730	U	3500	U	1800	U	370	U
Fluorene	370	U	730	U	3500	U	1800	U	370	U
4-Chlorophenyl-phenyl ether	370	U	730	U	3500	U	1800	U	370	U
4-Nitroaniline	920	U	1800	U	8900	U	4600	U	930	U
4,6-Dinitro-2-methylphenol	920	U	1800	U	8900	U	4600	U	930	U
N-Nitrosodiphenylamine	370	U	730	U	3500	U	1800	U	370	U
4-Bromophenyl-phenylether	370	U	730	U	3500	U	1800	U	370	U
Hexachlorobenzene	370	U	730	U	3500	U	1800	U	370	U
Atrazine	370	U	730	U	3500	U	1800	U	370	U
Pentachlorophenol	920	U	1800	U	8900	U	4600	U	930	U
Phenanthrene	210	J	570	J	900	J	270	J	180	J
Anthracene	370	U	79	J	3500	U	1800	U	370	U
Carbazole	370	U	81	J	3500	U	1800	U	370	U
Di-n-butylphthalate	370	U	730	U	3500	U	1800	U	370	U
Fluoranthene	430		1100		3900		1800	U	43	J
Pyrene	400		970		3500		1800	U	55	J
Butylbenzylphthalate	370	U	730	U	3500	U	1800	U	370	U
3,3'-Dichlorobenzidine	370	U	730	U	3500	U	1800	U	370	U
Benzo(a)anthracene	250	J	580	J	2600	J	1800	U	39	J
Chrysene	300	J	700	J	3000	J	190	J	73	J
bis(2-Ethylhexyl)phthalate	370	U	730	U	3500	U	1800	U	370	U
Di-n-octylphthalate	370	U	730	U	3500	U	1800	U	370	U
Benzo(b)fluoranthene	290	J	650	J	3300	J	1800	U	54	J
Benzo(k)fluoranthene	230	J	470	J	3000	J	1800	U	370	U
Benzo(a)pyrene	220	J	450	J	2400	J	1800	U	370	U
Indeno(1,2,3-cd)pyrene	96	J	210	J	1600	J	1800	U	370	U
Dibenzo(a,h)anthracene	370	U	85	J	590	J	1800	U	370	U
Benzo(g,h,i)perylene	76	J	150	J	1100	J	1800	U	370	U

Case #: 30568
SDG : E0SS7
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	E0SW5MS		E0SW5MSD		E0SW6		E0SW9		E0SX0	
Sampling Location :	SS-25		SS-25		SB-1		SB-4		SB-5	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	10:35		10:35		10:05		17:15		16:55	
%Moisture :	12		12		13		19		33	
pH :	9.2		9.2		6.3		8.2		6.2	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	380	U	370	U	380	U	400	U	490	U
Phenol	2000		1900		380	U	400	U	490	U
bis-(2-Chloroethyl) ether	380	U	370	U	380	U	400	U	490	U
2-Chlorophenol	1900		1800		380	U	400	U	490	U
2-Methylphenol	380	U	370	U	380	U	400	U	490	U
2,2'-oxybis(1-Chloropropane)	380	U	370	U	380	U	400	U	490	U
Acetophenone	380	U	370	U	380	U	400	U	490	U
4-Methylphenol	380	U	370	U	380	U	400	U	490	U
N-Nitroso-di-n-propylamine	1400		1300		380	U	400	U	490	U
Hexachloroethane	380	U	370	U	380	U	400	U	490	U
Nitrobenzene	380	U	370	U	380	U	400	U	490	U
Isophorone	380	U	370	U	380	U	400	U	490	U
2-Nitrophenol	380	U	370	U	380	U	400	U	490	U
2,4-Dimethylphenol	380	U	370	U	380	U	400	U	490	U
bis(2-Chloroethoxy)methane	380	U	370	U	380	U	400	U	490	U
2,4-Dichlorophenol	380	U	370	U	380	U	400	U	490	U
Naphthalene	58	J	85	J	380	U	400	U	490	U
4-Chloroaniline	380	U	370	U	380	U	400	U	490	U
Hexachlorobutadiene	380	U	370	U	380	U	400	U	490	U
Caprolactam	380	U	370	U	380	U	400	U	490	U
4-Chloro-3-methylphenol	2200		2400		380	U	400	U	490	U
2-Methylnaphthalene	130	J	190	J	380	U	400	U	490	U
Hexachlorocyclopentadiene	380	U	370	U	380	U	400	U	490	U
2,4,6-Trichlorophenol	380	U	370	U	380	U	400	U	490	U
2,4,5-Trichlorophenol	940	U	940	U	950	U	1000	U	1200	U
1,1'-Biphenyl	380	U	370	U	380	U	400	U	490	U
2-Chloronaphthalene	380	U	370	U	380	U	400	U	490	U
2-Nitroaniline	940	U	940	U	950	U	1000	U	1200	U
Dimethylphthalate	380	U	370	U	380	U	400	U	490	U
2,6-Dinitrotoluene	380	U	370	U	380	U	400	U	490	U
Acenaphthylene	380	U	370	U	380	U	400	U	490	U
3-Nitroaniline	940	U	940	U	950	U	1000	U	1200	U
Acenaphthene	1500		1500		380	U	400	U	490	U

Case #: 30568
SDG : E0SS7
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	E0SW5MS		E0SW5MSD		E0SW6		E0SW9		E0SX0	
Sampling Location :	SS-25		SS-25		SB-1		SB-4		SB-5	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	10:35		10:35		10:05		17:15		16:55	
%Moisture :	12		12		13		19		33	
pH :	9.2		9.2		6.3		8.2		6.2	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	940	U	940	U	950	U	1000	U	1200	U
4-Nitrophenol	2100		2300		950	U	1000	U	1200	U
Dibenzofuran	380	U	370	U	380	U	400	U	490	U
2,4-Dinitrotoluene	1600		1700		380	U	400	U	490	U
Diethylphthalate	380	U	370	U	380	U	400	U	490	U
Fluorene	380	U	370	U	380	U	400	U	490	U
4-Chlorophenyl-phenyl ether	380	U	370	U	380	U	400	U	490	U
4-Nitroaniline	940	U	940	U	950	U	1000	U	1200	U
4,6-Dinitro-2-methylphenol	940	U	940	U	950	U	1000	U	1200	U
N-Nitrosodiphenylamine	380	U	370	U	380	U	400	U	490	U
4-Bromophenyl-phenylether	380	U	370	U	380	U	400	U	490	U
Hexachlorobenzene	380	U	370	U	380	U	400	U	490	U
Atrazine	380	U	370	U	380	U	400	U	490	U
Pentachlorophenol	1200		1100		950	U	1000	U	1200	U
Phenanthrene	160	J	240	J	380	U	400	U	490	U
Anthracene	380	U	370	U	380	U	400	U	490	U
Carbazole	380	U	370	U	380	U	400	U	490	U
Di-n-butylphthalate	380	U	370	U	380	U	400	U	490	U
Fluoranthene	380	U	370	U	380	U	52	J	490	U
Pyrene	1700		1800		380	U	43	J	490	U
Butylbenzylphthalate	380	U	370	U	380	U	400	U	490	U
3,3'-Dichlorobenzidine	380	U	370	U	380	U	400	U	490	U
Benzo(a)anthracene	42	J	41	J	380	U	400	U	490	U
Chrysene	61	J	80	J	380	U	400	U	490	U
bis(2-Ethylhexyl)phthalate	380	U	370	U	380	U	400	U	490	U
Di-n-octylphthalate	380	U	370	U	380	U	400	U	490	U
Benzo(b)fluoranthene	380	U	56	J	380	U	400	U	490	U
Benzo(k)fluoranthene	380	U	370	U	380	U	400	U	490	U
Benzo(a)pyrene	380	U	370	U	380	U	400	U	330	J
Indeno(1,2,3-cd)pyrene	380	U	370	U	380	U	400	U	490	U
Dibenzo(a,h)anthracene	380	U	370	U	380	U	400	U	490	U
Benzo(g,h,i)perylene	380	U	370	U	380	U	400	U	490	U

Case #: 30568 SDG : E0SS7
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	E0SX1		E0SX2		E0SX3		SBLKAI			
Sampling Location :	SB-6		SB-7		SB-8					
Matrix :	Soil		Soil		Soil		Soil			
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg			
Date Sampled :	06/04/2002		06/04/2002		06/04/2002					
Time Sampled :	14:20		18:50		16:10					
%Moisture :	25		32		23		N/A			
pH :	7.8		6.9		5.8					
Dilution Factor :	10.0		5.0		1.0		1.0			
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	4300	U	2400	U	430	U	330	U		
Phenol	4300	U	2400	U	430	U	330	U		
bis-(2-Chloroethyl) ether	4300	U	2400	U	430	U	330	U		
2-Chlorophenol	4300	U	2400	U	430	U	330	U		
2-Methylphenol	4300	U	2400	U	430	U	330	U		
2,2'-oxybis(1-Chloropropane)	4300	U	2400	U	430	U	330	U		
Acetophenone	4300	U	2400	U	430	U	330	U		
4-Methylphenol	4300	U	2400	U	430	U	330	U		
N-Nitroso-di-n-propylamine	4300	U	2400	U	430	U	330	U		
Hexachloroethane	4300	U	2400	U	430	U	330	U		
Nitrobenzene	4300	U	2400	U	430	U	330	U		
Isophorone	4300	U	2400	U	430	U	330	U		
2-Nitrophenol	4300	U	2400	U	430	U	330	U		
2,4-Dimethylphenol	4300	U	2400	U	430	U	330	U		
bis(2-Chloroethoxy)methane	4300	U	2400	U	430	U	330	U		
2,4-Dichlorophenol	4300	U	2400	U	430	U	330	U		
Naphthalene	4300	U	2400	U	430	U	330	U		
4-Chloroaniline	4300	U	2400	U	430	U	330	U		
Hexachlorobutadiene	4300	U	2400	U	430	U	330	U		
Caprolactam	4300	U	2400	U	430	U	330	U		
4-Chloro-3-methylphenol	4300	U	2400	U	430	U	330	U		
2-Methylnaphthalene	4300	U	2400	U	430	U	330	U		
Hexachlorocyclopentadiene	4300	U	2400	U	430	U	330	U		
2,4,6-Trichlorophenol	4300	U	2400	U	430	U	330	U		
2,4,5-Trichlorophenol	11000	U	6000	U	1100	U	830	U		
1,1'-Biphenyl	4300	U	2400	U	430	U	330	U		
2-Chloronaphthalene	4300	U	2400	U	430	U	330	U		
2-Nitroaniline	11000	U	6000	U	1100	U	830	U		
Dimethylphthalate	4300	U	2400	U	430	U	330	U		
2,6-Dinitrotoluene	4300	U	2400	U	430	U	330	U		
Acenaphthylene	4300	U	2400	U	430	U	330	U		
3-Nitroaniline	11000	U	6000	U	1100	U	830	U		
Acenaphthene	4300	U	2400	U	430	U	330	U		

DISCLAIMER: This package has been electronically assessed as an added service to our customer. It has not been either validated or approved by Region 5 and any subsequent use by the data user is strictly at the risk of the data user. Region 5 assumes no responsibility for use of unvalidated data.

Case #: 30568 SDG : E0SS7
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	E0SX1		E0SX2		E0SX3		SBLKAI			
Sampling Location :	SB-6		SB-7		SB-8					
Matrix :	Soil		Soil		Soil		Soil			
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg			
Date Sampled :	06/04/2002		06/04/2002		06/04/2002					
Time Sampled :	14:20		18:50		16:10					
%Moisture :	25		32		23		N/A			
pH :	7.8		6.9		5.8					
Dilution Factor :	10.0		5.0		1.0		1.0			
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	11000	U	6000	U	1100	U	830	U		
4-Nitrophenol	11000	U	6000	U	1100	U	830	U		
Dibenzofuran	4300	U	2400	U	430	U	330	U		
2,4-Dinitrotoluene	4300	U	2400	U	430	U	330	U		
Diethylphthalate	4300	U	2400	U	430	U	330	U		
Fluorene	4300	U	2400	U	430	U	330	U		
4-Chlorophenyl-phenyl ether	4300	U	2400	U	430	U	330	U		
4-Nitroaniline	11000	U	6000	U	1100	U	830	U		
4,6-Dinitro-2-methylphenol	11000	U	6000	U	1100	U	830	U		
N-Nitrosodiphenylamine	4300	U	2400	U	430	U	330	U		
4-Bromophenyl-phenylether	4300	U	2400	U	430	U	330	U		
Hexachlorobenzene	4300	U	2400	U	430	U	330	U		
Atrazine	4300	U	2400	U	430	U	330	U		
Pentachlorophenol	11000	U	6000	U	1100	U	830	U		
Phenanthrene	4300	U	2400	U	430	U	330	U		
Anthracene	4300	U	2400	U	430	U	330	U		
Carbazole	4300	U	2400	U	430	U	330	U		
Di-n-butylphthalate	4300	U	2400	U	430	U	330	U		
Fluoranthene	4300	U	2400	U	430	U	330	U		
Pyrene	4300	U	2400	U	430	U	330	U		
Butylbenzylphthalate	4300	U	2400	U	430	U	330	U		
3,3'-Dichlorobenzidine	4300	U	2400	U	430	U	330	U		
Benzo(a)anthracene	4300	U	2400	U	430	U	330	U		
Chrysene	4300	U	2400	U	430	U	330	U		
bis(2-Ethylhexyl)phthalate	4300	U	2400	U	430	U	130	J		
Di-n-octylphthalate	4300	U	2400	U	430	U	330	U		
Benzo(b)fluoranthene	4300	U	2400	U	430	U	330	U		
Benzo(k)fluoranthene	4300	U	2400	U	430	U	330	U		
Benzo(a)pyrene	4300	U	2400	U	270	J	330	U		
Indeno(1,2,3-cd)pyrene	4300	U	2400	U	430	U	330	U		
Dibenzo(a,h)anthracene	4300	U	2400	U	430	U	330	U		
Benzo(g,h,i)perylene	4300	U	2400	U	430	U	330	U		

Case #: 30568

SDG : E0SS7

Site : TAMARACK CITY / STAMP MILL

Lab. : CEIMIC

Reviewer :

Date :

Sample Number :	E0SX6		E0SX7		E0SX8		E0SX9		E0SX9MS	
Sampling Location :	TMW-1		TMW-2		TMW-2D		TMW-3		TMW-3	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	12:25		15:35		15:35		13:50		13:50	
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :										
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	10	UJ	10	UJ	10	UJ	10	UJ	5000	UJ
Phenol	10	U	10	U	10	U	10	U	24000	
bis-(2-Chloroethyl) ether	10	U	10	U	10	U	10	U	5000	U
2-Chlorophenol	10	U	10	U	10	U	10	U	25000	
2-Methylphenol	10	U	10	U	10	U	10	U	5000	U
2,2'-oxybis(1-Chloropropane)	10	U	10	U	10	U	10	U	5000	UJ
Acetophenone	10	U	10	U	10	U	10	U	5000	U
4-Methylphenol	10	U	10	U	10	U	10	U	5000	U
N-Nitroso-di-n-propylamine	10	U	10	U	10	U	10	U	14000	J
Hexachloroethane	10	U	10	U	10	U	10	U	5000	U
Nitrobenzene	10	U	10	U	10	U	10	U	5000	U
Isophorone	10	U	10	U	10	U	10	U	5000	U
2-Nitrophenol	10	U	10	U	10	U	10	U	5000	U
2,4-Dimethylphenol	10	U	10	U	10	U	10	U	5000	U
bis(2-Chloroethoxy)methane	10	U	10	U	10	U	10	U	5000	U
2,4-Dichlorophenol	10	U	10	U	10	U	10	U	5000	U
Naphthalene	10	U	10	U	10	U	10	U	5000	U
4-Chloroaniline	10	U	10	U	10	U	10	U	5000	U
Hexachlorobutadiene	10	U	10	U	10	U	10	U	5000	U
Caprolactam	10	U	10	U	10	U	10	U	5000	U
4-Chloro-3-methylphenol	10	U	10	U	10	U	10	U	26000	
2-Methylnaphthalene	10	U	10	U	10	U	10	U	5000	U
Hexachlorocyclopentadiene	10	U	10	U	10	U	10	U	5000	U
2,4,6-Trichlorophenol	10	U	10	U	10	U	10	U	5000	U
2,4,5-Trichlorophenol	25	U	25	U	25	U	25	U	13000	U
1,1'-Biphenyl	10	U	10	U	10	U	10	U	5000	U
2-Chloronaphthalene	10	U	10	U	10	U	10	U	5000	U
2-Nitroaniline	25	U	25	U	25	U	25	U	13000	U
Dimethylphthalate	10	U	10	U	10	U	10	U	5000	U
2,6-Dinitrotoluene	10	U	10	U	10	U	10	U	5000	U
Acenaphthylene	10	U	10	U	10	U	10	U	5000	U
3-Nitroaniline	25	U	25	U	25	U	25	U	13000	U
Acenaphthene	10	U	10	U	10	U	10	U	18000	

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Analytical Results (Qualified Data)

Case #: 30568 SDG : E0SS7
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	E0SX6		E0SX7		E0SX8		E0SX9		E0SX9MS	
Sampling Location :	TMW-1		TMW-2		TMW-2D		TMW-3		TMW-3	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	12:25		15:35		15:35		13:50		13:50	
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :										
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	25	U	25	U	25	U	25	U	13000	U
4-Nitrophenol	25	U	25	U	25	U	25	UJ	29000	
Dibenzofuran	10	U	10	U	10	U	10	U	5000	U
2,4-Dinitrotoluene	10	U	10	U	10	U	10	U	21000	
Diethylphthalate	10	U	10	U	10	U	10	U	5000	U
Fluorene	10	U	10	U	10	U	10	U	5000	U
4-Chlorophenyl-phenyl ether	10	U	10	U	10	U	10	U	5000	U
4-Nitroaniline	25	U	25	U	25	U	25	U	13000	U
4,6-Dinitro-2-methylphenol	25	U	25	U	25	U	25	U	13000	U
N-Nitrosodiphenylamine	10	U	10	U	10	U	10	U	5000	U
4-Bromophenyl-phenylether	10	U	10	U	10	U	10	U	5000	U
Hexachlorobenzene	10	U	10	U	10	U	10	U	5000	U
Atrazine	10	U	10	U	10	U	10	U	5000	U
Pentachlorophenol	25	U	25	U	25	U	25	U	35000	
Phenanthrene	10	U	10	U	10	U	10	U	5000	U
Anthracene	10	U	10	U	10	U	10	U	5000	U
Carbazole	10	U	10	U	10	U	10	U	5000	U
Di-n-butylphthalate	10	U	10	U	10	U	10	U	5000	U
Fluoranthene	10	U	10	U	10	U	10	U	5000	U
Pyrene	10	U	10	U	10	U	10	U	20000	
Butylbenzylphthalate	10	U	10	U	10	U	10	U	5000	U
3,3'-Dichlorobenzidine	10	U	10	U	10	U	10	U	5000	U
Benzo(a)anthracene	10	U	10	U	10	U	10	U	5000	U
Chrysene	10	U	10	U	10	U	10	U	5000	U
bis(2-Ethylhexyl)phthalate	10	U	10	U	10	U	10	U	5000	U
Di-n-octylphthalate	10	U	10	U	10	U	10	U	5000	U
Benzo(b)fluoranthene	10	U	10	U	10	U	10	U	5000	U
Benzo(k)fluoranthene	10	U	10	U	10	U	10	U	5000	U
Benzo(a)pyrene	10	U	10	U	10	U	10	U	5000	U
Indeno(1,2,3-cd)pyrene	10	U	10	U	10	U	10	U	5000	U
Dibenzo(a,h)anthracene	10	U	10	U	10	U	10	U	5000	U
Benzo(g,h,i)perylene	10	U	10	U	10	U	10	U	5000	U

Case #: 30568 SDG : E0SS7

Site : TAMARACK CITY / STAMP MILL

Lab. : CEIMIC

Reviewer :

Date :

Sample Number :	E0SX9MSD		E0SY0		E0SY1		E0SY2		E0SY3	
Sampling Location :	TMW-3		TMW-4		TMW-5		TMW-6		PB-1	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	13:50		16:00		17:25		11:15		16:00	
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :										
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	5000	UJ	10	UJ	10	UJ	10	UJ	10	UJ
Phenol	24000		10	U	10	U	10	U	10	U
bis-(2-Chloroethyl) ether	5000	U	10	U	10	U	10	U	10	U
2-Chlorophenol	25000		10	U	10	U	10	U	10	U
2-Methylphenol	5000	U	10	U	10	U	10	U	10	U
2,2'-oxybis(1-Chloropropane)	5000	UJ	10	U	10	U	10	U	10	U
Acetophenone	5000	U	10	U	10	U	10	U	10	U
4-Methylphenol	5000	U	10	U	10	U	10	U	10	U
N-Nitroso-di-n-propylamine	15000	J	10	U	10	U	10	U	10	U
Hexachloroethane	5000	U	10	U	10	U	10	U	10	U
Nitrobenzene	5000	U	10	U	10	U	10	U	10	U
Isophorone	5000	U	10	U	10	U	10	U	10	U
2-Nitrophenol	5000	U	10	U	10	U	10	U	10	U
2,4-Dimethylphenol	5000	U	10	U	10	U	10	U	10	U
bis(2-Chloroethoxy)methane	5000	U	10	U	10	U	10	U	10	U
2,4-Dichlorophenol	5000	U	10	U	10	U	10	U	10	U
Naphthalene	5000	U	10	U	10	U	10	U	10	U
4-Chloroaniline	5000	U	10	U	10	U	10	U	10	U
Hexachlorobutadiene	5000	U	10	U	10	U	10	U	10	U
Caprolactam	5000	U	10	U	10	U	10	U	10	U
4-Chloro-3-methylphenol	28000		10	U	10	U	10	U	10	U
2-Methylnaphthalene	5000	U	10	U	10	U	10	U	10	U
Hexachlorocyclopentadiene	5000	U	10	U	10	U	10	U	10	U
2,4,6-Trichlorophenol	5000	U	10	U	10	U	10	U	10	U
2,4,5-Trichlorophenol	13000	U	25	U	25	U	25	U	25	U
1,1'-Biphenyl	5000	U	10	U	10	U	10	U	10	U
2-Chloronaphthalene	5000	U	10	U	10	U	10	U	10	U
2-Nitroaniline	13000	U	25	U	25	U	25	U	25	U
Dimethylphthalate	5000	U	10	U	10	U	10	U	10	U
2,6-Dinitrotoluene	5000	U	10	U	10	U	10	U	10	U
Acenaphthylene	5000	U	10	U	10	U	10	U	10	U
3-Nitroaniline	13000	U	25	U	25	U	25	U	25	U
Acenaphthene	20000		10	U	10	U	10	U	10	U

Case #: 30568 SDG : E0SS7
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	E0SX9MSD		E0SY0		E0SY1		E0SY2		E0SY3	
Sampling Location :	TMW-3		TMW-4		TMW-5		TMW-6		PB-1	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	13:50		16:00		17:25		11:15		16:00	
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :										
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	13000	U	25	U	25	U	25	U	25	U
4-Nitrophenol	32000		25	U	25	U	25	U	25	U
Dibenzofuran	5000	U	10	U	10	U	10	U	10	U
2,4-Dinitrotoluene	23000		10	U	10	U	10	U	10	U
Diethylphthalate	5000	U	10	U	10	U	10	U	10	U
Fluorene	5000	U	10	U	10	U	10	U	10	U
4-Chlorophenyl-phenyl ether	5000	U	10	U	10	U	10	U	10	U
4-Nitroaniline	13000	U	25	U	25	U	25	U	25	U
4,6-Dinitro-2-methylphenol	13000	U	25	U	25	U	25	U	25	U
N-Nitrosodiphenylamine	5000	U	10	U	10	U	10	U	10	U
4-Bromophenyl-phenylether	5000	U	10	U	10	U	10	U	10	U
Hexachlorobenzene	5000	U	10	U	10	U	10	U	10	U
Atrazine	5000	U	10	U	10	U	10	U	10	U
Pentachlorophenol	37000		25	U	25	U	25	U	25	U
Phenanthrene	5000	U	10	U	10	U	10	U	10	U
Anthracene	5000	U	10	U	10	U	10	U	10	U
Carbazole	5000	U	10	U	10	U	10	U	10	U
Di-n-butylphthalate	5000	U	10	U	10	U	10	U	10	U
Fluoranthene	5000	U	10	U	10	U	10	U	10	U
Pyrene	20000		10	U	10	U	10	U	10	U
Butylbenzylphthalate	5000	U	10	U	10	U	10	U	10	U
3,3'-Dichlorobenzidine	5000	U	10	U	10	U	10	U	10	U
Benzo(a)anthracene	5000	U	10	U	10	U	10	U	10	U
Chrysene	5000	U	10	U	10	U	10	U	10	U
bis(2-Ethylhexyl)phthalate	5000	U	10	U	10	U	10	U	10	U
Di-n-octylphthalate	5000	U	10	U	10	U	10	U	10	U
Benzo(b)fluoranthene	5000	U	10	U	10	U	10	U	10	U
Benzo(k)fluoranthene	5000	U	10	U	10	U	10	U	10	U
Benzo(a)pyrene	5000	U	10	U	10	U	10	U	10	U
Indeno(1,2,3-cd)pyrene	5000	U	10	U	10	U	10	U	10	U
Dibenzo(a,h)anthracene	5000	U	10	U	10	U	10	U	10	U
Benzo(g,h,i)perylene	5000	U	10	U	10	U	10	U	10	U

Case #: 30568 SDG : E0SS7
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Date :

Sample Number :	E0SY4		SBLKDB		SBLKDC					
Sampling Location :	FB-1									
Matrix :	Water		Water		Water					
Units :	ug/L		ug/L		ug/L					
Date Sampled :	06/04/2002									
Time Sampled :	10:05									
%Moisture :	N/A		N/A		N/A					
pH :										
Dilution Factor :	1.0		1.0		1.0					
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
Benzaldehyde	10	UJ	10	UJ	10	UJ				
Phenol	10	U	10	U	10	U				
bis-(2-Chloroethyl) ether	10	U	10	U	10	U				
2-Chlorophenol	10	U	10	U	10	U				
2-Methylphenol	10	U	10	U	10	U				
2,2'-oxybis(1-Chloropropane)	10	U	10	U	10	U				
Acetophenone	10	U	10	U	10	U				
4-Methylphenol	10	U	10	U	10	U				
N-Nitroso-di-n-propylamine	10	U	10	U	10	U				
Hexachloroethane	10	U	10	U	10	U				
Nitrobenzene	10	U	10	U	10	U				
Isophorone	10	U	10	U	10	U				
2-Nitrophenol	10	U	10	U	10	U				
2,4-Dimethylphenol	10	U	10	U	10	U				
bis(2-Chloroethoxy)methane	10	U	10	U	10	U				
2,4-Dichlorophenol	10	U	10	U	10	U				
Naphthalene	10	U	10	U	10	U				
4-Chloroaniline	10	U	10	U	10	U				
Hexachlorobutadiene	10	U	10	U	10	U				
Caprolactam	10	U	1	J	10	U				
4-Chloro-3-methylphenol	10	U	10	U	10	U				
2-Methylnaphthalene	10	U	10	U	10	U				
Hexachlorocyclopentadiene	10	U	10	U	10	U				
2,4,6-Trichlorophenol	10	U	10	U	10	U				
2,4,5-Trichlorophenol	25	U	25	U	25	U				
1,1'-Biphenyl	10	U	10	U	10	U				
2-Chloronaphthalene	10	U	10	U	10	U				
2-Nitroaniline	25	U	25	U	25	U				
Dimethylphthalate	10	U	10	U	10	U				
2,6-Dinitrotoluene	10	U	10	U	10	U				
Acenaphthylene	10	U	10	U	10	U				
3-Nitroaniline	25	U	25	U	25	U				
Acenaphthene	10	U	10	U	10	U				

Case #: 30568
Site :
Lab. :
Reviewer :
Date :

SDG : E0SS7
TAMARACK CITY / STAMP MILL
CEIMIC

Sample Number :	E0SY4		SBLKDB		SBLKDC					
Sampling Location :	FB-1									
Matrix :	Water		Water		Water					
Units :	ug/L		ug/L		ug/L					
Date Sampled :	06/04/2002									
Time Sampled :	10:05									
%Moisture :	N/A		N/A		N/A					
pH :										
Dilution Factor :	1.0		1.0		1.0					
Semivolatile Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
2,4-Dinitrophenol	25	U	25	U	25	U				
4-Nitrophenol	25	U	25	U	25	U				
Dibenzofuran	10	U	10	U	10	U				
2,4-Dinitrotoluene	10	U	10	U	10	U				
Diethylphthalate	10	U	10	U	10	U				
Fluorene	10	U	10	U	10	U				
4-Chlorophenyl-phenyl ether	10	U	10	U	10	U				
4-Nitroaniline	25	U	25	U	25	U				
4,6-Dinitro-2-methylphenol	25	U	25	U	25	U				
N-Nitrosodiphenylamine	10	U	10	U	10	U				
4-Bromophenyl-phenylether	10	U	10	U	10	U				
Hexachlorobenzene	10	U	10	U	10	U				
Atrazine	10	U	10	U	10	U				
Pentachlorophenol	25	U	25	U	25	U				
Phenanthrene	10	U	10	U	10	U				
Anthracene	10	U	10	U	10	U				
Carbazole	10	U	10	U	10	U				
Di-n-butylphthalate	10	U	10	U	10	U				
Fluoranthene	10	U	10	U	10	U				
Pyrene	10	U	10	U	10	U				
Butylbenzylphthalate	10	U	10	U	10	U				
3,3'-Dichlorobenzidine	10	U	10	U	10	U				
Benzo(a)anthracene	10	U	10	U	10	U				
Chrysene	10	U	10	U	10	U				
bis(2-Ethylhexyl)phthalate	10	U	15		1	J				
Di-n-octylphthalate	10	U	10	U	10	U				
Benzo(b)fluoranthene	10	U	10	U	10	U				
Benzo(k)fluoranthene	10	U	10	U	10	U				
Benzo(a)pyrene	10	U	10	U	10	U				
Indeno(1,2,3-cd)pyrene	10	U	10	U	10	U				
Dibenzo(a,h)anthracene	10	U	10	U	10	U				
Benzo(g,h,i)perylene	10	U	10	U	10	U				

Case #: 30568

SDG : E0SS7

Site : TAMARACK CITY / STAMP MILL

Number of Soil Samples : 11

Lab. : CEIMIC

Number of Water Samples : 9

Reviewer :

Date :

Sample Number :	E0SS7		E0SS8		E0SS9		E0SW4		E0SW5	
Sampling Location :	SS-7		SS-8		SS-9		SS-24		SS-25	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	13:25		13:10		13:45		10:55		10:35	
%Moisture :	11		11		7		10		12	
pH :	8.6		7.2		8.9		8.8		9.5	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Pesticide/PCB Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	1.9	U	1.9	U	1.8	U	1.9	U	1.9	U
beta-BHC	1.9	U	1.9	U	1.8	U	1.9	U	1.9	U
delta-BHC	1.9	U	1.9	U	1.8	U	1.9	U	1.9	U
gamma-BHC (Lindane)	1.9	U	1.9	U	1.8	U	1.9	U	1.9	U
Heptachlor	1.9	U	1.9	U	1.8	U	1.9	U	1.9	U
Aldrin	1.9	U	1.9	U	1.8	U	1.9	U	1.9	U
Heptachlor epoxide	1.9	U	1.9	U	1.8	U	1.9	U	1.9	U
Endosulfan I	1.9	U	1.9	U	1.8	U	1.9	U	1.9	U
Dieldrin	3.7	U	3.7	U	3.5	U	3.7	U	3.7	U
4,4'-DDE	3.7	U	3.7	U	3.5	U	3.7	U	3.7	U
Endrin	3.7	U	3.7	U	3.5	U	3.7	U	3.7	U
Endosulfan II	3.7	U	3.7	U	3.5	U	3.7	U	3.7	U
4,4'-DDD	3.7	U	3.7	U	3.5	U	3.7	U	3.7	U
Endosulfan sulfate	3.7	U	3.7	U	3.5	U	3.7	U	3.7	U
4,4'-DDT	3.7	U	3.7	U	3.5	U	3.7	U	3.7	U
Methoxychlor	19	U	19	U	18	U	19	U	19	U
Endrin ketone	3.7	U	3.7	U	3.5	U	3.7	U	3.7	U
Endrin aldehyde	3.7	U	3.7	U	3.5	U	3.7	U	3.7	U
alpha-Chlordane	1.9	U	1.9	U	1.8	U	1.9	U	1.9	U
gamma-Chlordane	1.9	U	1.9	U	1.8	U	1.9	U	1.9	U
Toxaphene	190	U	190	U	180	U	190	U	190	U
Aroclor-1016	37	U	36	U	35	U	37	U	37	U
Aroclor-1221	75	U	74	U	72	U	74	U	75	U
Aroclor-1232	37	U	36	U	35	U	37	U	37	U
Aroclor-1242	37	U	36	U	35	U	37	U	37	U
Aroclor-1248	37	U	36	U	35	U	37	U	37	U
Aroclor-1254	37	U	36	U	35	U	37	U	37	U
Aroclor-1260	37	U	36	U	35	U	37	U	37	U

Case #: 30568 SDG : E0SS7
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
Jate :

Sample Number :	E0SW5MS		E0SW5MSD		E0SW6		E0SW9		E0SX0	
Sampling Location :	SS-25		SS-25		SB-1		SB-4		SB-5	
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	10:35		10:35		10:05		17:15		16:55	
%Moisture :	12		12		13		19		33	
pH :	9.2		9.2		6.3		8.2		6.2	
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Pesticide/PCB Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	1.9	U	1.9	U	1.9	U	2.1	U	2.5	U
beta-BHC	1.9	U	1.9	U	1.9	U	2.1	U	2.5	U
delta-BHC	1.9	U	1.9	U	1.9	U	2.1	U	2.5	U
gamma-BHC (Lindane)	11		13		1.9	U	2.1	U	2.5	U
Heptachlor	12		14		1.9	U	2.1	U	2.5	U
Aldrin	14		15		1.9	U	2.1	U	2.5	U
Heptachlor epoxide	1.9	U	1.9	U	1.9	U	2.1	U	2.5	U
Endosulfan I	1.9	U	1.9	U	1.9	U	2.1	U	2.5	U
Dieldrin	23		27		3.8	U	4.1	U	4.9	U
4,4'-DDE	3.7	U	3.7	U	3.8	U	4.1	U	4.9	U
Endrin	28		30		3.8	U	4.1	U	4.9	U
Endosulfan II	3.7	U	3.7	U	3.8	U	4.1	U	4.9	U
4,4'-DDD	3.7	U	3.7	U	3.8	U	4.1	U	4.9	U
Endosulfan sulfate	3.7	U	3.7	U	3.8	U	4.1	U	4.9	U
4,4'-DDT	26		29		3.8	U	4.1	U	4.9	U
Methoxychlor	19	U	19	U	19	U	21	U	25	U
Endrin ketone	3.7	U	3.7	U	3.8	U	4.1	U	4.9	U
Endrin aldehyde	3.7	U	3.7	U	3.8	U	4.1	U	4.9	U
alpha-Chlordane	1.9	U	3.0		1.9	U	2.1	U	2.5	U
gamma-Chlordane	1.9	U	3.0		1.9	U	2.1	U	2.5	U
Toxaphene	190	U	190	U	190	U	210	U	250	U
Aroclor-1016	37	U	37	U	38	U	41	U	49	U
Aroclor-1221	76	U	76	U	77	U	83	U	99	U
Aroclor-1232	37	U	37	U	38	U	41	U	49	U
Aroclor-1242	37	U	37	U	38	U	41	U	49	U
Aroclor-1248	37	U	37	U	38	U	41	U	49	U
Aroclor-1254	37	U	37	U	38	U	41	U	49	U
Aroclor-1260	37	U	37	U	38	U	41	U	49	U

Case #: 30568 SDG : E0SS7

Site : TAMARACK CITY / STAMP MILL

Lab. : CEIMIC

Reviewer :

Date :

Sample Number :	E0SX1		E0SX2		E0SX3		PBLK03		PBLK04	
Sampling Location :	SB-6		SB-7		SB-8					
Matrix :	Soil		Soil		Soil		Soil		Soil	
Units :	ug/Kg		ug/Kg		ug/Kg		ug/Kg		ug/Kg	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002					
Time Sampled :	14:20		18:50		16:10					
%Moisture :	25		32		23		N/A		N/A	
pH :	7.8		6.9		5.8					
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Pesticide/PCB Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	2.3	U	2.5	U	2.2	U	1.7	U	1.7	U
beta-BHC	2.3	U	2.5	U	2.2	U	1.7	U	1.7	U
delta-BHC	2.3	U	2.5	U	2.2	U	1.7	U	1.7	U
gamma-BHC (Lindane)	2.3	U	2.5	U	2.2	U	1.7	U	1.7	U
Heptachlor	2.3	U	2.5	U	2.2	U	1.7	U	1.7	U
Aldrin	2.3	U	2.5	U	2.2	U	1.7	U	1.7	U
Heptachlor epoxide	2.3	U	2.5	U	2.2	U	1.7	U	1.7	U
Endosulfan I	2.3	U	2.5	U	2.2	U	1.7	U	1.7	U
Dieldrin	4.4	U	4.8	U	4.2	U	3.3	U	3.3	U
4,4'-DDE	4.4	U	4.8	U	4.2	U	3.3	U	3.3	U
Endrin	4.4	U	4.8	U	4.2	U	3.3	U	3.3	U
Endosulfan II	4.4	U	4.8	U	4.2	U	3.3	U	3.3	U
4,4'-DDD	4.4	U	4.8	U	4.2	U	3.3	U	3.3	U
Endosulfan sulfate	4.4	U	4.8	U	4.2	U	3.3	U	3.3	U
4,4'-DDT	4.4	U	4.8	U	4.2	U	3.3	U	3.3	U
Methoxychlor	23	U	25	U	22	U	17	U	17	U
Endrin ketone	4.4	U	4.8	U	4.2	U	3.3	U	3.3	U
Endrin aldehyde	4.4	U	4.8	U	4.2	U	3.3	U	3.3	U
alpha-Chlordane	2.3	U	2.5	U	2.2	U	1.7	U	1.7	U
gamma-Chlordane	2.3	U	2.5	U	2.2	U	1.7	U	1.7	U
Toxaphene	230	U	250	U	220	U	170	U	170	U
Aroclor-1016	44	U	48	U	42	U	33	U	33	U
Aroclor-1221	89	U	98	U	86	U	67	U	67	U
Aroclor-1232	44	U	48	U	42	U	33	U	33	U
Aroclor-1242	44	U	48	U	42	U	33	U	33	U
Aroclor-1248	44	U	48	U	42	U	33	U	33	U
Aroclor-1254	44	U	48	U	42	U	33	U	33	U
Aroclor-1260	44	U	48	U	42	U	33	U	33	U

Case #: 30568 SDG : E0SS7

Site : TAMARACK CITY / STAMP MILL

Lab. : CEIMIC

Reviewer :

Date :

Sample Number :	E0SX6		E0SX7		E0SX8		E0SX9		E0SX9MS	
Sampling Location :	TMW-1		TMW-2		TMW-2D		TMW-3		TMW-3	
Matrix :	Water		Water		Water		Water		Water	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	12:25		15:35		15:35		13:50		13:50	
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :										
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Pesticide/PCB Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
beta-BHC	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
delta-BHC	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
gamma-BHC (Lindane)	0.050	U	0.050	U	0.050	U	0.050	U	0.45	
Heptachlor	0.050	U	0.050	U	0.050	U	0.050	U	0.43	
Aldrin	0.050	U	0.050	U	0.050	U	0.050	U	0.44	
Heptachlor epoxide	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Endosulfan I	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Dieldrin	0.10	U	0.10	U	0.10	U	0.10	U	0.89	
4,4'-DDE	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Endrin	0.10	U	0.10	U	0.10	U	0.10	U	0.98	
Endosulfan II	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
4,4'-DDD	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Endosulfan sulfate	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
4,4'-DDT	0.10	U	0.10	U	0.10	U	0.10	U	0.88	
Methoxychlor	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Endrin ketone	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Endrin aldehyde	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
alpha-Chlordane	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
gamma-Chlordane	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Toxaphene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Aroclor-1016	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1221	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Aroclor-1232	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1242	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1248	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1254	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1260	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

Case #: 30568 SDG : E0SS7
Site : TAMARACK CITY / STAMP MILL
Lab. : CEIMIC
Reviewer :
)ate :

Sample Number :	E0SX9MSD		E0SY0		E0SY1		E0SY2		E0SY3	
Sampling Location :	TMW-3		TMW-4		TMW-5		TMW-6		PB-1	
Matrix :	Water		Water		Water		Water		Weter	
Units :	ug/L		ug/L		ug/L		ug/L		ug/L	
Date Sampled :	06/04/2002		06/04/2002		06/04/2002		06/04/2002		06/04/2002	
Time Sampled :	13:50		16:00		17:25		11:15		16:00	
%Moisture :	N/A		N/A		N/A		N/A		N/A	
pH :										
Dilution Factor :	1.0		1.0		1.0		1.0		1.0	
Pesticide/PCB Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
beta-BHC	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
delta-BHC	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
gamma-BHC (Lindane)	0.44		0.050	U	0.050	U	0.050	U	0.050	U
Heptachlor	0.42		0.050	U	0.050	U	0.050	U	0.050	U
Aldrin	0.43		0.050	U	0.050	U	0.050	U	0.050	U
Heptachlor epoxide	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Endosulfan I	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Dieldrin	0.93		0.10	U	0.10	U	0.10	U	0.10	U
4,4'-DDE	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Endrin	1.0		0.10	U	0.10	U	0.10	U	0.10	U
Endosulfan II	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
4,4'-DDD	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Endosulfan sulfate	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
4,4'-DDT	0.98		0.10	U	0.10	U	0.10	U	0.10	U
Methoxychlor	0.50	U	0.50	U	0.50	U	0.50	U	0.50	U
Endrin ketone	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
Endrin aldehyde	0.10	U	0.10	U	0.10	U	0.10	U	0.10	U
alpha-Chlordane	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
gamma-Chlordane	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Toxaphene	5.0	U	5.0	U	5.0	U	5.0	U	5.0	U
Aroclor-1016	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1221	2.0	U	2.0	U	2.0	U	2.0	U	2.0	U
Aroclor-1232	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1242	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1248	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1254	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U
Aroclor-1260	1.0	U	1.0	U	1.0	U	1.0	U	1.0	U

Case #: 30568 SDG : E0SS7

Site : TAMARACK CITY / STAMP MILL

Lab. : CEIMIC

Reviewer :

Date :

Sample Number :	E0SY4		PBLK01		PBLK02					
Sampling Location :	FB-1									
Matrix :	Water		Water		Water					
Units :	ug/L		ug/L		ug/L					
Date Sampled :	06/04/2002									
Time Sampled :	10:05									
%Moisture :	N/A		N/A		N/A					
pH :										
Dilution Factor :	1.0		1.0		1.0					
Pesticide/PCB Compound	Result	Flag	Result	Flag	Result	Flag	Result	Flag	Result	Flag
alpha-BHC	0.050	U	0.050	U	0.050	U				
beta-BHC	0.050	U	0.050	U	0.050	U				
delta-BHC	0.050	U	0.050	U	0.050	U				
gamma-BHC (Lindane)	0.050	U	0.050	U	0.050	U				
Heptachlor	0.050	U	0.050	U	0.050	U				
Aldrin	0.050	U	0.050	U	0.050	U				
Heptachlor epoxide	0.050	U	0.050	U	0.050	U				
Endosulfan I	0.050	U	0.050	U	0.050	U				
Dieldrin	0.10	U	0.10	U	0.10	U				
4,4'-DDE	0.10	U	0.10	U	0.10	U				
Endrin	0.10	U	0.10	U	0.10	U				
Endosulfan II	0.10	U	0.10	U	0.10	U				
4,4'-DDD	0.10	U	0.10	U	0.10	U				
Endosulfan sulfate	0.10	U	0.10	U	0.10	U				
4,4'-DDT	0.10	U	0.10	U	0.10	U				
Methoxychlor	0.50	U	0.50	U	0.50	U				
Endrin ketone	0.10	U	0.10	U	0.10	U				
Endrin aldehyde	0.10	U	0.10	U	0.10	U				
alpha-Chlordane	0.050	U	0.050	U	0.050	U				
gamma-Chlordane	0.050	U	0.050	U	0.050	U				
Toxaphene	5.0	U	5.0	U	5.0	U				
Aroclor-1016	1.0	U	1.0	U	1.0	U				
Aroclor-1221	2.0	U	2.0	U	2.0	U				
Aroclor-1232	1.0	U	1.0	U	1.0	U				
Aroclor-1242	1.0	U	1.0	U	1.0	U				
Aroclor-1248	1.0	U	1.0	U	1.0	U				
Aroclor-1254	1.0	U	1.0	U	1.0	U				
Aroclor-1260	1.0	U	1.0	U	1.0	U				

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE:

SUBJECT: Review of Data
Received for Review on 6-26-02

FROM: Stephen L. Ostrodka, Chief (SMF-4J)
Superfund Field Services Section

TO: Data User: MDEQ

We have reviewed the data for the following case:

SITE NAME: TAMARACK CITY/STAMP MILL (MI)

CASE NUMBER: 30568 SDG NUMBER: E0SS7

Number and Type of Samples: 20 (WATER/SOIL)

Sample Numbers: E0SS7-9, E0SW4-6, E0SW9, E0SX0-3, E0SX6-9, E0SY0-4

Laboratory: CEIMIC Hrs for Review:

Following are our findings:

CC: Cecilia Moore
Region 5 TPO
Mail Code: SMF-4J

SAMPLE DELIVERY GROUP (SDG)
TRAFFIC REPORT (TR) COVERSHEET

Lab Name: Ceimic Corporation **Lab Code:** CEIMIC

Case No.: 30568 **Bid Lot:** A

Contract No: 68-W-99-065 **Full Sample Analysis Price:** $275.00

First Sample in SDG: E0SS7 **Sample Receipt Date:** 6/5/02
(Lowest EPA Sample Number in the first shipment of samples received under SDG.)

Last Sample in SDG: E0SY4 **Sample Receipt Date:** 6/5/02
(Highest EPA Sample Number in the last shipment of samples received under SDG.)

EPA Sample Numbers in the SDG (listed in alphanumeric order by date received)

1. E0SS7	**11.** E0SX3
2. E0SS8	**12.** E0SX6
3. E0SS9	**13.** E0SX7
4. E0SW4	**14.** E0SX8
5. E0SW5	**15.** E0SX9
6. E0SW6	**16.** E0SY0
7. E0SW9	**17.** E0SY1
8. E0SX0	**18.** E0SY2
9. E0SX1	**19.** E0SY3
10. E0SX2	**20.** E0SY4

Note: There are a maximum of 20 field samples in an SDG.

Attach Traffic Reports to this form in alphanumeric order by date received.
(i.e. The order listed on this form)

Jessica Robinson
Signature

6/14/02
Date

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Org 2

Case No: 30568
DAS No:
SDG No: E0SS7
L

Date Shipped: 6/5/02
Carrier Name: UPS
Airbill: 1Z 549 OW4 22 1008 051 2
Shipped to: Ceimic Corporation
10 Dean Knauss Drive
Narragansett RI 02882
(401) 782-8900

Chain of Custody Record

Sampler Signature: John Spielberg

	Relinquished By (Date / Time)	Received By (Date / Time)
1	John Spielberg, 6/5/02, 16:00	[illegible] 6/6/? 11:00
2		
3		
4		

For Lab Use Only
Lab Contract No: 68W99085
Unit Price: A
Transfer To: 6/6/02 MP
Lab Contract No:
Unit Price:

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
E0SW9	Subsurface Soil (>12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SB-4	6/4/02, 17:15	ME0SW9	
E0SX0	Subsurface Soil (>12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SB-5	16:55	ME0SX0	
E0SX1	Subsurface Soil (>12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SB-6	14:20	ME0SX1	
E0SX2	Subsurface Soil (>12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SB-7	18:50	ME0SX2	
E0SX3	Subsurface Soil (>12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SB-8	16:10	ME0SX3	
E0SX4	Subsurface Soil (>12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SB-9	16:30	ME0SX4	
E0SX5	Subsurface Soil (>12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SB-10	15:45	ME0SX5	
E0SW6	Subsurface Soil (>12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SB-1	10:05	ME0SW6	
E0SW7	Subsurface Soil (>12")/ John Spielberg	L/G	BNA/PEST (21)	(Ice Only) (1)	SB-2	18:10	ME0SW7	

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: E0SW8	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number: 24251, 24252
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Custody Seal Intact?__	Shipment Iced?__

BNA/PEST = CLP BNA/Pest/PCBs-Soils

TR Number: 5-462576586-050302-0002

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EPA

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No: 30568
DAS No:
SDG No: E0SS7

L

Date Shipped: 6/5/02
Carrier Name: UPS
Airbill: 1Z 549 OW4 22 1008 050 3
Shipped to: Ceimic Corporation
10 Dean Knauss Drive
Narragansett RI 02882
(401) 782-8900

Chain of Custody Record

Sampler Signature: John Spielberg

	Relinquished By	(Date / Time)	Received By	(Date / Time)
1	John Spielberg	6/5/02, 16:00	[illegible]	6/6/2 11:00
2				
3				
4				

For Lab Use Only

Lab Contract No: 68W99065
Unit Price: A
Transfer To: 6/6/2
Lab Contract No:
Unit Price:

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
E0SX6	Ground Water/ John Spielberg	L/G	VOA (21)	(HCL) (2)	TMW-1	6/4/02, 12:25	ME0SX6	
E0SX7	Ground Water/ John Spielberg	L/G	VOA (21)	(HCL) (2)	TMW-2	15:35	ME0SX7	

Shipment for Case Complete? (N)	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number: 24253, 24254
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Custody Seal Intact?__	Shipment Iced?__

VOA = CLP Volatiles-Water

TR Number: 5-462576586-050302-0004

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USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Org 3

Case No: 30568
DAS No:
SDG No: E0SS7

L

Date Shipped: 6/5/02
Carrier Name: UPS
Airbill: 1Z 549 OW4 22 1008 050 3
Shipped to: Ceimic Corporation
10 Dean Knauss Drive
Narragansett RI 02882
(401) 782-8900

Chain of Custody Record

Sampler Signature: [signature]

	Relinquished By	(Date / Time)	Received By	(Date / Time)
1	[signature]	6/5/02, 16:00	[signature]	6/6/2 11:00
2				
3				
4				

For Lab Use Only
Lab Contract No: 68W99065
Unit Price: A
Transfer To: 6/6/2
Lab Contract No:
Unit Price:

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
E0SX6	Ground Water/ John Spielberg	L/G	BNA/P/P (21)	(Ice Only) (2)	TMW-1	6/4/02, 12:25	ME0SX6	
E0SX7	Ground Water/ John Spielberg	L/G	BNA/P/P (21)	(Ice Only) (2)	TMW-2	15:35	ME0SX7	

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number: 24253, 24254
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Custody Seal Intact?__	Shipment Iced?__

BNA/P/P = CLP BNA/Pest/PCBs-Water

TR Number: 5-462576586-050302-0003

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USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No: 30568
DAS No:
SDG No: E0SS7

L

Date Shipped: 6/5/02
Carrier Name: UPS
Airbill: 1Z 549 OW422 1008 052 1
Shipped to: Ceimic Corporation
10 Dean Knauss Drive
Narragansett RI 02882
(401) 782-8900

Chain of Custody Record

Sampler Signature: John Spielberg

	Relinquished By (Date / Time)	Received By (Date / Time)
1	John Spielberg, 6/5/02, 16:00	6/6/2 11:00
2		
3		
4		

For Lab Use Only

Lab Contract No: 68W99065
Unit Price: A
Transfer To: ~~6/6/2 MP~~
Lab Contract No:
Unit Price:

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
E0SX8	Ground Water/ John Spielberg	L/G	VOA (21)	(HCL) (2)	TMW-2D	6/4/02, 15:35	ME0SX8	
E0SY0	Ground Water/ John Spielberg	L/G	VOA (21)	(HCL) (2)	TMW-4	16:00	ME0SY0	

JES, 6/5/02

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number: 24255, 24256
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G		Custody Seal Intact?___ Shipment Iced?___

VOA = CLP Volatiles-Water

TR Number: 5-462576586-050302-0006

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EPA

USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Org 4

Case No: 30568
DAS No:
SDG No: E0SS7

L

Date Shipped: 6/5/02
Carrier Name: UPS
Airbill: 1Z 549 OW4 22 1008 052 1
Shipped to: Ceimic Corporation
10 Dean Knauss Drive
Narragansett RI 02882
(401) 782-8900

Chain of Custody Record

Sampler Signature: John Spielberg

	Relinquished By	(Date / Time)	Received By	(Date / Time)
1	John Spielberg	6/5/02, 16:00	Mary Lee Kuhlka	6/6/2 11:00
2				
3				
4				

For Lab Use Only
Lab Contract No: 68W99065
Unit Price: A
Transfer To: 6/6/2 MP
Lab Contract No:
Unit Price:

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
E0SX8	Ground Water/ John Spielberg	L/G	BNA/P/P (21)	(Ice Only) (2)	TMW-2D	6/4/02, 15:35	ME0SX8	
E0SY0	Ground Water/ John Spielberg	L/G	BNA/P/P (21)	(Ice Only) (2)	TMW-4	16:00	ME0SY0	

JEJ, 6/5/02

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number: 24255, 24256
Analysis Key: BNA/P/P = CLP BNA/Pest/PCBs-Water	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Custody Seal Intact?__	Shipment Iced?__

TR Number: 5-462576586-050302-0005

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USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No: 30568
DAS No:
SDG No: E0SS7

L

Date Shipped: 6/4/02
Carrier Name: UPS
Airbill: 1Z 549 OW4 22 1008 053 0
Shipped to: Ceimic Corporation
10 Dean Knauss Drive
Narragansett RI 02882
(401) 782-8900

Chain of Custody Record

Sampler Signature: John Spielberg

	Relinquished By	(Date / Time)	Received By	(Date / Time)
1	John Spielberg	6/4/02, 16:30	[illegible]	6/5/02 11:00
2				
3				
4				

For Lab Use Only

Lab Contract No: 68W99065
Unit Price: A
Transfer To: 6/5/02 MP
Lab Contract No:
Unit Price:

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
E0SX9	Ground Water/ John Spielberg	L/G	VOA (21)	(HCL) (6)	TMW-3	6/4/02, 13:50	ME0SX9	

JES 6/4/02

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC: E0SX9	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number: 24257, 24258
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G		Custody Seal Intact? ___ Shipment Iced? ___

~~VOA~~ = CLP Volatiles-Water
C33

TR Number: 5-462576586-050302-0008

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USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No: 30568
DAS No:
SDG No: E0557

L

Date Shipped: 6/5/02
Carrier Name: UPS
Airbill: 1Z 549 OW4 22 1008 054 9
Shipped to: Ceimic Corporation
10 Dean Knauss Drive
Narragansett RI 02882
(401) 782-8900

Chain of Custody Record

Sampler Signature: John Spielberg

	Relinquished By (Date / Time)	Received By (Date / Time)
1	~~John Spielberg 6/5/02, 16:30~~	6/6/2 11:00
2	John Spielberg 6/5/02, 16:00	
3		
4		

For Lab Use Only
Lab Contract No: 68W99068
Unit Price: A
Transfer To:
Lab Contract No:
Unit Price:

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
E0SY1	Ground Water/ John Spielberg	L/G	VOA (21)	(HCL) (2)	TMW-5	6/4/02 17:25	ME0SY1	
E0SY2	Ground Water/ John Spielberg	L/G	VOA (21)	(HCL) (2)	TMW-6	11:15	ME0SY2	

JES, 6/5/02

Shipment for Case Complete? Y	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number: 24259, 24260
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G		Custody Seal Intact?__ Shipment Iced?__

VOA = CLP Volatiles-Water

TR Number: 5-462576586-050302-0010

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USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

O y 6

Case No: 30568
DAS No:
SDG No: E0SS7

L

Date Shipped: 6/5/02
Carrier Name: UPS
Airbill: 1Z 549 OW4 22 1008 054 9
Shipped to: Ceimic Corporation
10 Dean Knauss Drive
Narragansett RI 02882
(401) 782-8900

Chain of Custody Record

Sampler Signature: [signature]

	Relinquished By (Date / Time)	Received By (Date / Time)
1	[signature] 6/5/02 16:30	[signature] 6/6/2 11:00
2	[signature] 6/5/02, 16:00	
3		
4		

For Lab Use Only
Lab Contract No: 68W99065
Unit Price: A
Transfer To: 6/6/2
Lab Contract No: MP
Unit Price:

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
E0SY1	Ground Water/ John Spielberg	L/G	BNA/P/P (21)	(Ice Only) (2)	TMW-5	6/4/02 17:25	ME0SY1	
E0SY2	Ground Water/ John Spielberg	L/G	BNA/P/P (21)	(Ice Only) (2)	TMW-6	11:15	ME0SY2	

[signature], 6/5/02

Shipment for Case Complete(Y/N)	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number:
Y				24259, 24260

Analysis Key: Concentration: L = Low, M = Low/Medium, H = High Type/Designate: Composite = C, Grab = G
Custody Seal Intact?__ Shipment Iced?__

BNA/P/P = CLP BNA/Pest/PCBs-Water

TR Number: 5-462576586-050302-0009

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USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

020536
(15), VOA

Case No: 30568
DAS No:
SDG No: E0SS7

L

Date Shipped: 6/4/02
Carrier Name: UPS
Airbill: 1Z 549 OW4122 1008 044 1
Shipped to: Ceimic Corporation
10 Dean Knauss Drive
Narragansett RI 02882
(401) 782-8900

Chain of Custody Record

Sampler Signature: John Spielberg

	Relinquished By (Date / Time)	Received By (Date / Time)
1	John Spielberg, 6/4/02, 16:30	[illegible] 6/5/02 11:00
2		
3		
4		

For Lab Use Only
Lab Contract No: 68W99065
Unit Price: A
Transfer To: 6/5/02 MP
Lab Contract No:
Unit Price:

	ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
07	E0SY3	Field QC/ John Spielberg	L/G	VOA (21)	(HCL) (2)	PB-1	6/4/02, 16:00	ME0SY3	
08	E0SY4	Field QC/ John Spielberg	L/G	VOA (21)	(HCL) (2)	FB-1	10:05	ME0SY4	

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number: 24241, 24242
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G	Custody Seal Intact?	Shipment Iced?

VOA = CLP Volatiles-Water

TR Number: 5-462576586-050302-0012

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USEPA Contract Laboratory Program
Organic Traffic Report & Chain of Custody Record

Case No: 30568
DAS No:
SDG No:

L

Date Shipped: 6/4/02
Carrier Name: UPS
Airbill: 1Z 549 OW4 ₽2 1008 044 1
Shipped to: Ceimic Corporation
10 Dean Knauss Drive
Narragansett RI 02882
(401) 782-8900

Chain of Custody Record

Sampler Signature: John Spielberg

	Relinquished By	(Date / Time)	Received By	(Date / Time)
1	John Spielberg	6/4/02, 16:30		
2				
3				
4				

For Lab Use Only

Lab Contract No:
Unit Price:
Transfer To:
Lab Contract No:
Unit Price:

ORGANIC SAMPLE No.	MATRIX/ SAMPLER	CONC/ TYPE	ANALYSIS/ TURNAROUND	TAG No./ PRESERVATIVE	STATION LOCATION	SAMPLE COLLECT DATE/TIME	INORGANIC SAMPLE No.	FOR LAB USE ONLY Sample Condition On Receipt
E0SY3	Field QC/ John Spielberg	L/G	BNA/P/P (21)	(Ice Only) (2)	PB-1	6/4/02, 16:00	ME0SY3	
E0SY4	Field QC/ John Spielberg	L/G	BNA/P/P (21)	(Ice Only) (2)	FB-1	S: 6/4/2002 10:05	ME0SY4	

Shipment for Case Complete? N	Sample(s) to be used for laboratory QC:	Additional Sampler Signature(s):	Cooler Temperature Upon Receipt:	Chain of Custody Seal Number: 24241, 24242
Analysis Key:	Concentration: L = Low, M = Low/Medium, H = High	Type/Designate: Composite = C, Grab = G		Custody Seal Intact? ___ Shipment Iced? ___

BNA/P/P = CLP BNA/Pest/PCBs-Water

TR Number: 5-462576586-050302-0011

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JUN 2 6 2002

SDG Narrative

The enclosed data package is in response to USEPA, Region V, Case No. 30568, SDG No. E0SS7, Contract No. 68-W-99-065. Under this SDG there are 8 VOA, 20 SVOA, and 20 PEST/PCB analyses for 20 samples which were received at Ceimic Corporation on June 5, 2002.

This data package includes the analyses for the following samples from SDG No. E0SS1, all of which are billable:

(1)

EPA ID	Ceimic ID	Analyses
E0SW4	020536-01	SVOA, PEST/PCB
E0SW5	020536-02	SVOA, PEST/PCB
E0SW6	020536-03	SVOA, PEST/PCB
E0SS7	020536-04	SVOA, PEST/PCB
E0SS8	020536-05	SVOA, PEST/PCB
E0SS9	020536-06	SVOA, PEST/PCB
E0SY3	020536-07	VOA, SVOA, PEST/PCB
E0SY4	020536-08	VOA, SVOA, PEST/PCB
E0SX9	020536-09	SVOA, PEST/PCB
E0SX8	020536-10	VOA, SVOA, PEST/PCB
E0SY0	020536-11	VOA, SVOA, PEST/PCB
E0SY1	020536-12	VOA, SVOA, PEST/PCB
E0SY2	020536-13	VOA, SVOA, PEST/PCB
E0SX6	020536-14	VOA, SVOA, PEST/PCB
E0SX7	020536-15	VOA, SVOA, PEST/PCB
E0SW9	020536-16	SVOA, PEST/PCB
E0SX0	020536-17	SVOA, PEST/PCB
E0SX1	020536-18	SVOA, PEST/PCB
E0SX2	020536-19	SVOA, PEST/PCB
E0SX3	020536-20	SVOA, PEST/PCB

Sample Receipt

Cooler Temperatures on receipt were 5°C and 6°C.

(2) Instrumentation and Column Identification

The following instruments were used for the analyses:

GC/MS Analysis

A. VOA

MS15 HP5970B GC/MS,105m, 0.53mm ID, 3 um, RTX-VOL megabore column supelco trap #K (10cm Carbopack B, 6cm Carboxen 1000, 1cm Carboxen 1001)

B. SVOA

MS1 HP5970B GC/MS,30 m,25 mm ID, ZB-5 fused silica capillary column
MS4 HP5970B GC/MS,30 m,25 mm ID, ZB-5 fused silica capillary column

C. PEST/PCB

AD17: HP5890II Using 30m x 0.53mm ID, DB5 megabore column GC-6
AD18: HP5890II Using 30m x 0.53mm ID, DB35 megabore column GC-6

(3) Sample Information

An "x" qualifier is flagged by Target Thru-put software whenever the data is manually edited. The letters "M" for GC/MS and "FF" for GC are used on the raw data of the quantitation report whenever a manual integration is performed. Manual integrations are performed on GC/MS and GC standards and samples when computer generated integration picks up only a portion of the chromatographic peak, due to software limitations. When manual integrations are required, these integrations are performed using sound defensible professional judgment, in order to report accurate data. Each manual integration is signed and dated, and reviewed by both the lab supervisor and the GC/MS Interpretation Specialist for GC/MS or the Organic Lab Manager for Pest/PCB.

A. VOA Fraction (Method CLP SOW OLM04.2)

The pH of the water samples was:

EPA ID:	Ceimic ID:	pH:
E0SY3	020536-07	1
E0SY4	020536-08	1
E0SX8	020536-10	1
E0SY0	020536-11	1
E0SX6	020536-14	1
E0SX7	020536-15	1

The following samples were analyzed out of hold time:

EPA ID:	Ceimic ID:
E0SY1	020536-12
E0SY2	020536-13

B. SVOA Fraction (Method CLP SOW OLM04.2)

The quantitation ion for bis-(2-chloroethyl)ether was changed to the secondary ion 63, rather than the primary ion 93, because there is interference with the ion 93 from aniline, which is present in the standard mix.

The following samples were analyzed at a dilution as a result of GC/FID screening and the dark color and viscosity of the extract:

EPA ID:	CEIMIC ID:	DILUTION:
E0SW4	020536-01	1:5
E0SS8	020536-05	1:2
E0SS9	020536-06	1:10
E0SX1	020536-18	1:10
E0SX2	020536-19	1:5

Sample E0SX9MSD (020536-09MSD) had a high spike recovery for 4-Nitrophenol.

C. PEST/PCB Fraction (Method CLP SOW OLM04.2)

No non-compliances noted

Deviations from the SOW

None other than specified above.

End of SDG Narrative

I certify that this data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hardcopy data package and in the computer-readable data submitted on diskette has been authorized by the laboratory manager or his/her designee, as verified by the following signature.

Alfred Kwolek

Alfred Kwolek, GC/MS Specialist

6/24/02

Date

APPENDIX C

XRF DATA AND NITON INFORMATION

All Data

Serial #XL700-U1469578|LY Site: Date: 6/4/2002 to 6/5/2002

No	XLNo	Site	Location	Date/Time	Mo ± Prec	Zr ± Prec	Sr ± Prec	Rb ± Prec	Pb ± Prec	Se ± Prec	As ± Prec	Hg ± Prec	Zn ± Prec	Cu ± Prec	Ni ± Prec	Co ± Prec	Fe ± Prec	Mn ± Prec	Cr ± Prec	La ± Prec	Ba ± Prec	Cs ± Prec	Te ± Prec	Sb ± Prec	Sn ± Prec	Cd ± Prec	Ag ± Prec	Pd ± Prec
1	1	Tamarack	Shutter Cal 1	6/4/2002 11:34:12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
2	2	Tamarack		6/4/2002 12:07:56	<LOD = 22.95	110.60 ± 33.30	87.70 ± 21.10	<LOD = 21.30	207.80 ± 65.30	<LOD = 32.55	<LOD = 87.15	<LOD = 45.15	<LOD = 225.00	2400.00 ± 350.00	<LOD = 660.00	<LOD = 1364.40	60364.80 ± 3200.00	<LOD = 2848.80	<LOD = 1065.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
3	3	Tamarack		6/4/2002 12:09:28	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 40.50	143.70 ± 57.60	<LOD = 53.70	<LOD = 85.50	<LOD = 49.50	<LOD = 136.50	<LOD = 52.80	<LOD = 255.00	<LOD = 52.20
4	4	Tamarack		6/4/2002 12:10:20	<LOD = 18.45	134.80 ± 24.00	85.20 ± 17.40	34.60 ± 18.20	267.40 ± 59.20	<LOD = 24.60	<LOD = 77.55	<LOD = 35.85	289.40 ± 110.00	879.20 ± 200.00	<LOD = 405.00	<LOD = 780.00	26188.80 ± 1600.00	<LOD = 1650.00	<LOD = 705.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
5	5	Tamarack		6/4/2002 12:10:58	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 16.50	336.40 ± 95.20	<LOD = 81.60	<LOD = 99.90	<LOD = 62.25	<LOD = 165.00	<LOD = 42.30	<LOD = 270.00	<LOD = 60.60
6	6	Tamarack		6/4/2002 12:11:54	<LOD = 21.90	90.80 ± 29.60	96.10 ± 23.00	54.70 ± 24.90	2099.20 ± 180.00	<LOD = 36.75	<LOD = 195.00	69.80 ± 44.70	761.60 ± 170.00	1149.60 ± 260.00	<LOD = 510.00	<LOD = 1020.00	35891.20 ± 2200.00	<LOD = 2100.00	<LOD = 855.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
7	7	Tamarack		6/4/2002 12:13:12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 49.35	920.80 ± 190.00	<LOD = 117.75	<LOD = 143.55	<LOD = 99.90	<LOD = 345.00	<LOD = 139.35	<LOD = 465.00	<LOD = 144.30
8	8	Tamarack		6/4/2002 12:26:22	<LOD = 16.50	46.00 ± 24.00	93.40 ± 16.70	<LOD = 21.30	<LOD = 44.25	<LOD = 24.90	<LOD = 42.30	<LOD = 32.25	<LOD = 124.65	514.80 ± 160.00	<LOD = 435.00	<LOD = 990.00	48691.20 ± 2200.00	2609.60 ± 1400.00	<LOD = 795.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
9	9	Tamarack		6/4/2002 12:27:14	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 29.85	132.30 ± 49.20	<LOD = 55.05	<LOD = 79.05	<LOD = 41.85	<LOD = 126.15	<LOD = 45.30	<LOD = 215.00	<LOD = 36.75
10	10	Tamarack		6/4/2002 12:28:18	<LOD = 12.75	73.20 ± 13.10	29.50 ± 8.40	32.30 ± 11.70	<LOD = 26.10	<LOD = 11.25	<LOD = 24.45	<LOD = 17.85	<LOD = 64.20	<LOD = 110.55	<LOD = 165.00	<LOD = 255.00	5328.00 ± 500.00	<LOD = 570.00	<LOD = 300.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
11	11	Tamarack		6/4/2002 12:29:03	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 18.00	290.20 ± 73.20	<LOD = 61.65	<LOD = 83.40	<LOD = 49.80	<LOD = 136.35	<LOD = 53.25	<LOD = 225.00	<LOD = 46.20
12	12	Tamarack		6/4/2002 12:30:21	<LOD = 18.45	72.40 ± 24.40	81.00 ± 16.70	<LOD = 21.60	<LOD = 42.90	<LOD = 24.45	<LOD = 40.50	<LOD = 29.70	200.10 ± 110.00	1549.60 ± 240.00	<LOD = 465.00	<LOD = 915.00	36787.20 ± 2000.00	<LOD = 1800.00	<LOD = 705.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
13	13	Tamarack		6/4/2002 12:31:01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 86.85	136.70 ± 83.50	<LOD = 195.00	<LOD = 270.00	<LOD = 180.00	<LOD = 705.00	<LOD = 300.00	<LOD = 915.00	<LOD = 300.00
14	14	Tamarack		6/4/2002 12:31:50	<LOD = 20.85	52.50 ± 25.80	86.00 ± 18.00	<LOD = 24.00	<LOD = 46.80	<LOD = 28.20	<LOD = 39.75	<LOD = 30.90	<LOD = 142.35	807.20 ± 200.00	<LOD = 480.00	<LOD = 1050.00	44390.40 ± 2299.20	<LOD = 2100.00	<LOD = 795.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
15	15	Tamarack		6/4/2002 12:32:31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 21.45	107.50 ± 45.80	<LOD = 57.00	<LOD = 82.65	<LOD = 47.85	<LOD = 130.35	<LOD = 31.65	<LOD = 225.00	<LOD = 46.65
16	16	Tamarack		6/4/2002 12:37:03	<LOD = 17.25	184.20 ± 24.00	85.90 ± 15.10	67.90 ± 19.40	72.70 ± 32.50	<LOD = 20.10	<LOD = 43.05	<LOD = 25.95	<LOD = 101.55	482.40 ± 140.00	<LOD = 285.00	<LOD = 525.00	13990.40 ± 989.60	<LOD = 1020.00	<LOD = 480.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
17	17	Tamarack		6/3/2002 12:37:38	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 27.00	349.80 ± 76.20	<LOD = 60.45	<LOD = 70.80	<LOD = 50.85	<LOD = 118.35	<LOD = 42.30	<LOD = 210.00	<LOD = 37.50
18	18	Tamarack		6/4/2002 12:38:31	<LOD = 16.20	47.60 ± 19.00	69.40 ± 14.60	43.60 ± 17.30	<LOD = 37.80	<LOD = 22.95	<LOD = 34.05	<LOD = 25.05	<LOD = 100.80	390.00 ± 130.00	<LOD = 270.00	<LOD = 495.00	11897.60 ± 960.00	<LOD = 960.00	<LOD = 480.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
19	19	Tamarack		6/4/2002 12:39:11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 119.85	387.20 ± 190.00	<LOD = 285.00	<LOD = 390.00	<LOD = 270.00	<LOD = 1065.00	<LOD = 465.00	<LOD = 1364.40	<LOD = 450.00
20	20	Tamarack		6/4/2002 12:39:52	<LOD = 15.75	175.00 ± 20.00	68.30 ± 12.00	48.20 ± 14.80	39.10 ± 24.10	<LOD = 18.15	<LOD = 32.70	<LOD = 19.35	91.30 ± 58.50	200.50 ± 98.80	<LOD = 210.00	<LOD = 375.00	9529.60 ± 710.00	<LOD = 750.00	<LOD = 375.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
21	21	Tamarack		6/4/2002 12:40:50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 30.15	272.40 ± 64.80	<LOD = 60.90	<LOD = 68.55	<LOD = 44.85	<LOD = 119.55	<LOD = 36.75	<LOD = 210.00	<LOD = 36.00
22	22	Tamarack		6/4/2002 12:43:15	<LOD = 20.25	103.90 ± 23.30	154.60 ± 22.20	38.50 ± 19.70	69.50 ± 38.60	<LOD = 28.50	<LOD = 48.15	<LOD = 29.10	<LOD = 146.40	784.00 ± 190.00	<LOD = 360.00	<LOD = 675.00	20697.60 ± 1400.00	<LOD = 1500.00	<LOD = 600.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
23	23	Tamarack		6/4/2002 12:43:52	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 47.70	253.20 ± 72.90	<LOD = 59.25	<LOD = 76.20	<LOD = 41.85	<LOD = 143.10	<LOD = 51.45	<LOD = 255.00	<LOD = 53.55
24	24	Tamarack		6/4/2002 12:44:42	<LOD = 19.95	138.30 ± 25.00	169.60 ± 22.30	38.00 ± 19.10	166.30 ± 48.50	<LOD = 26.10	<LOD = 61.20	<LOD = 26.55	<LOD = 119.40	461.20 ± 160.00	<LOD = 390.00	<LOD = 750.00	24588.80 ± 1500.00	<LOD = 1500.00	<LOD = 645.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
25	25	Tamarack		6/4/2002 12:45:20	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 76.95	251.00 ± 100.00	<LOD = 180.00	<LOD = 240.00	<LOD = 165.00	<LOD = 645.00	<LOD = 270.00	<LOD = 825.00	<LOD = 270.00
26	26	Tamarack		6/4/2002 12:46:07	<LOD = 14.10	71.20 ± 15.70	74.70 ± 13.10	40.40 ± 14.80	94.40 ± 32.40	<LOD = 21.00	<LOD = 41.70	<LOD = 21.30	243.20 ± 76.70	321.80 ± 120.00	<LOD = 225.00	<LOD = 405.00	9536.00 ± 760.00	<LOD = 855.00	<LOD = 405.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
27	27	Tamarack		6/4/2002 12:46:48	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 39.45	275.20 ± 78.80	<LOD = 61.05	<LOD = 79.50	<LOD = 38.25	<LOD = 145.80	<LOD = 54.45	<LOD = 255.00	<LOD = 49.50
28	27	Tamarack		6/4/2002 12:52:31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 39.45	275.20 ± 78.80	<LOD = 61.05	<LOD = 79.50	<LOD = 38.25	<LOD = 145.80	<LOD = 54.45	<LOD = 255.00	<LOD = 49.50
29	29	Tamarack		6/4/2002 12:52:57	<LOD = 16.35	82.90 ± 19.70	82.10 ± 15.10	39.10 ± 16.40	<LOD = 42.60	<LOD = 20.40	<LOD = 38.25	<LOD = 23.55	<LOD = 105.60	441.60 ± 140.00	<LOD = 270.00	<LOD = 540.00	14195.20 ± 1000.00	<LOD = 1155.00	<LOD = 525.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
30	30	Tamarack		6/4/2002 12:55:07	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 22.20	266.00 ± 78.70	<LOD = 71.25	<LOD = 70.65	<LOD = 58.80	<LOD = 165.00	<LOD = 47.70	<LOD = 255.00	<LOD = 63.90
31	31	Tamarack		6/4/2002 12:57:20	<LOD = 16.20	69.00 ± 19.00	63.70 ± 13.70	31.40 ± 15.10	<LOD = 38.10	<LOD = 19.95	<LOD = 39.60	<LOD = 26.25	279.60 ± 93.50	618.00 ± 160.00	<LOD = 285.00	<LOD = 465.00	10400.00 ± 880.00	<LOD = 930.00	<LOD = 420.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
32	32	Tamarack		6/4/2002 12:58:19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 32.55	196.90 ± 75.60	<LOD = 79.65	<LOD = 94.95	<LOD = 63.00	<LOD = 180.00	<LOD = 36.25	<LOD = 285.00	<LOD = 55.20
33	33	Tamarack		6/4/2002 13:00:10	<LOD = 16.95	141.70 ± 21.10	69.00 ± 13.90	43.90 ± 16.70	<LOD = 40.95	<LOD = 20.25	<LOD = 33.90	<LOD = 24.75	<LOD = 89.70	174.20 ± 110.00	<LOD = 255.00	<LOD = 480.00	12000.00 ± 929.60	<LOD = 1050.00	<LOD = 495.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
34	34	Tamarack		6/4/2002 13:01:11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 34.35	378.60 ± 85.00	<LOD = 60.45	<LOD = 93.15	<LOD = 51.45	<LOD = 149.40	<LOD = 43.35	<LOD = 240.00	<LOD = 47.55
35	35	Tamarack		6/4/2002 13:09:00	<LOD = 16.80	67.80 ± 21.70	97.80 ± 16.60	33.00 ± 16.30	87.70 ± 35.80	<LOD = 20.25	<LOD = 48.45	<LOD = 29.25	<LOD = 133.50	1289.60 ± 200.00	<LOD = 360.00	<LOD = 585.00	17792.00 ± 1200.00	1480.00 ± 880.00	<LOD = 555.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
36	36	Tamarack		6/4/2002 13:10:23	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 40.50	264.80 ± 71.90	<LOD = 64.05	<LOD = 81.15	<LOD = 44.10	<LOD = 137.40	<LOD = 53.10	<LOD = 225.00	<LOD = 45.60
37	37	Tamarack		6/4/2002 13:11:36	<LOD = 26.70	95.20 ± 32.70	75.90 ± 20.90	<LOD = 29.25	128.10 ± 57.60	<LOD = 34.20	<LOD = 76.35	<LOD = 41.55	<LOD = 225.00	2689.60 ± 390.00	<LOD = 660.00	<LOD = 1155.00	38886.40 ± 2499.20	<LOD = 2250.00	<LOD = 960.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
38	38	Tamarack		6/4/2002 13:12:50	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 34.35	151.70 ± 69.10	<LOD = 73.80	<LOD = 110.25	<LOD = 72.75	<LOD = 165.00	<LOD = 75.60	<LOD = 285.00	<LOD = 53.70
39	39	Tamarack		6/4/2002 13:15:28	<LOD = 13.05	46.80 ± 12.90	44.50 ± 10.30	25.10 ± 11.90	<LOD = 31.05	<LOD = 15.15	<LOD = 30.60	<LOD = 19.05	<LOD = 97.65	692.40 ± 140.00	<LOD = 240.00	<LOD = 300.00	4809.60 ± 520.00	<LOD = 585.00	<LOD = 330.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
40	40	Tamarack		6/4/2002 13:16:19	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 33.75	299.00 ± 85.80	<LOD = 65.25	<LOD = 78.75	<LOD = 69.15	<LOD = 146.70	<LOD = 57.00	<LOD = 255.00	<LOD = 61.50
41	41	Tamarack		6/4/2002 13:18:39	<LOD = 23.10	81.50 ± 32.10	131.90 ± 23.70	<LOD = 28.95	<LOD = 64.50	<LOD = 29.25	<LOD = 56.10	<LOD = 43.80	334.80 ± 150.00	1819.20 ± 310.00	<LOD = 615.00	<LOD = 1320.00	57958.40 ± 3000.00	<LOD = 2700.00	<LOD = 1050.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
42	42	Tamarack		6/4/2002 13:19:33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 94.20	<LOD = 115.80	<LOD = 225.00	<LOD = 500.00	<LOD = 210.00	<LOD = 795.00	<LOD = 345.00	<LOD = 1020.00	<LOD = 345.00
43	43	Tamarack		6/4/2002 13:20:32	34.70 ± 18.60	167.20 ± 36.50	191.30 ± 28.00	<LOD = 30.15	<LOD = 66.15	<LOD = 30.30	<LOD = 58.05	<LOD = 38.40	<LOD = 195.00	1489.60 ± 280.00	<LOD = 570.00	<LOD = 1230.00	48076.80 ± 2699.20	<LOD = 2548.80	<LOD = 1020.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
44	44	Tamarack		6/4/2002 13:21:22	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 40.95	206.00 ± 68.70	<LOD = 51.90	<LOD = 99.75	<LOD = 47.70	<LOD = 138.60	<LOD = 52.80	<LOD = 255.00	<LOD = 56.85
45	45	Tamarack		6/4/2002 13:21:58	<LOD = 24.30	95.30 ± 33.10	111.40 ± 22.60	<LOD = 24.75	<LOD = 66.60	<LOD = 34.05	<LOD = 67.65	<LOD = 36.15	<LOD = 210.00	1960.00 ± 320.00	<LOD = 645.00	<LOD = 1334.40	57856.00 ± 3099.20	2969.60 ± 1899.20	<LOD = 1110.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
46	46	Tamarack		6/4/2002 13:22:45	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 55.50	90.00 ± 53.80	<LOD = 76.65	<LOD = 106.35	<LOD = 63.75	<LOD = 165.00	<LOD = 54.30	<LOD = 285.00	<LOD = 63.30
47	47	Tamarack		6/4/2002 13:31:01	<LOD = 22.80	74.90 ± 33.60	147.20 ± 24.20	<LOD = 27.15	128.20 ± 54.00	<LOD = 37.65	<LOD = 76.50	<LOD = 43.50	<LOD = 270.00	5187.20 ± 470.00	<LOD = 780.00	<LOD = 1650.00	92364.80 ± 4000.00	<LOD = 3300.00	<LOD = 1244.40	NA	NA	NA	NA	NA	NA	NA	NA	NA
48	48	Tamarack		6/4/2002 13:31:41	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 149.10	<LOD = 225.00	<LOD = 360.00	<LOD = 495.00	<LOD = 345.00	<LOD = 1350.00	<LOD = 585.00	<LOD = 1800.00	<LOD = 570.00
49	48	Tamarack		6/4/2002 13:32:21	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 149.10	<LOD = 225.00	<LOD = 360.00	<LOD = 495.00	<LOD = 345.00	<LOD = 1350.00	<LOD = 585.00	<LOD = 1800.00	<LOD = 570.00
50	50	Tamarack		6/4/2002 13:33:22	<LOD = 15.30	33.70 ± 18.80	94.40 ± 16.30	21.90 ± 14.30	85.00 ± 34.70	<LOD = 19.05	<LOD = 43.20	<LOD = 24.15	241.40 ± 110.00	1859.20 ± 240.00	<LOD = 360.00	<LOD = 495.00	11795.20 ± 960.00	<LOD = 1035.00	<LOD = 480.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
51	51	Tamarack		6/4/2002 13:34:01	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 36.90	<LOD = 79.05	<LOD = 70.80	<LOD = 92.40	<LOD = 71.55	<LOD = 180.00	<LOD = 38.70	<LOD = 315.00	<LOD = 64.65
52	52	Tamarack		6/4/2002 13:34:59	<LOD = 21.90	<LOD = 52.20	190.80 ± 28.10	<LOD = 30.75	404.80 ± 82.60	<LOD = 33.60	<LOD = 109.35	<LOD = 43.05	747.60 ± 390.00	28876.80 ± 3300.00	<LOD = 1350.00	<LOD = 1380.00	64972.80 ± 3200.00	<LOD = 2848.80	<LOD = 1125.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
53	53	Tamarack		6/4/2002 13:36:29	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 195.00	<LOD = 270.00	<LOD = 465.00	<LOD = 615.00	<LOD = 435.00	<LOD = 1650.00	<LOD = 705.00	<LOD = 2100.00	<LOD = 720.00
54	54	Tamarack		6/4/2002 13:43:24	<LOD = 28.50	113.70 ± 42.60	118.50 ± 26.70	<LOD = 33.90	129.90 ± 66.40	<LOD = 50.40	<LOD = 92.70	252.20 ± 62.10	728.40 ± 250.00	5040.00 ± 550.00	<LOD = 870.00	<LOD = 1650.00	71782.40 ± 3897.60	<LOD = 3448.80	<LOD = 1350.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
55	55	Tamarack		6/4/2002 13:44:31	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 119.85	<LOD = 210.00	<LOD = 165.00	<LOD = 165.00	<LOD = 142.95	<LOD = 315.00	<LOD = 121.35	<LOD = 555.00	<LOD = 70.05
56	56	Tamarack		6/4/2002 13:45:08	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 109.80	253.00 ± 160.00	<LOD = 114.60	<LOD = 180.00	<LOD = 63.15	<LOD = 345.00	<LOD = 106.20	<LOD = 600.00	<LOD = 90.75
57	57	Tamarack		6/4/2002 13:47:27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 67.05	248.60 ± 110.00	<LOD = 94.35	<LOD = 129.30	<LOD = 97.95	<LOD = 240.00	<LOD = 69.15	<LOD = 390.00	<LOD = 72.90
58	58	Tamarack		6/4/2002 13:48:22	<LOD = 27.60	138.60 ± 39.90	101.10 ± 25.50	<LOD = 32.70	1020.00 ± 140.00	<LOD = 42.30	<LOD = 165.00	<LOD = 62.40	632.00 ± 250.00	6179.20 ± 610.00	<LOD = 990.00	<LOD = 1800.00	93849.60 ± 4697.60	<LOD = 3748.80	<LOD = 1500.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
59	59	Tamarack		6/4/2002 13:50:11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 102.15	345.80 ± 170.00	<LOD = 136.35	<LOD = 165.00	<LOD = 87.75	<LOD = 285.00	<LOD = 114.60	<LOD = 525.00	<LOD = 134.85
60	60	Tamarack	Shutter Cal 1	6/5/2002 09:28:40	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
61	61	Tamarack		6/5/2002 09:33:29	<LOD = 20.40	<LOD = 60.45	3209.60 ± 130.00	<LOD = 67.35	<LOD = 66.30	<LOD = 30.30	<LOD = 48.75	<LOD = 33.75	<LOD = 120.90	<LOD = 210.00	<LOD = 285.00	<LOD = 195.00	<LOD = 390.00	<LOD = 495.00	<LOD = 420.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
62	62	Tamarack		6/5/2002 09:35:17	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 93.30	283.60 ± 130.00	<LOD = 225.00	<LOD = 300.00	<LOD = 210.00	<LOD = 780.00	<LOD = 330.00	<LOD = 1005.00	<LOD = 330.00
63	62	Tamarack		6/5/2002 09:38:48	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 93.30	283.60 ± 130.00	<LOD = 225.00	<LOD = 300.00	<LOD = 210.00	<LOD = 780.00	<LOD = 330.00	<LOD = 1005.00	<LOD = 330.00
64	64	Tamarack		6/5/2002 09:38:49	<LOD = 17.70	61.30 ± 22.40	112.50 ± 18.00	39.10 ± 17.90	<LOD = 43.20	<LOD = 22.20	<LOD = 41.85	<LOD = 31.80	<LOD = 136.50	960.80 ± 190.00	<LOD = 420.00	<LOD = 825.00	33906.80 ± 1800.00	<LOD = 1650.00	<LOD = 705.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
65	65	Tamarack		6/5/2002 09:39:44	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 89.55	165.80 ± 93.40	<LOD = 210.00	<LOD = 270.00	<LOD = 195.00	<LOD = 735.00	<LOD = 315.00	<LOD = 945.00	<LOD = 315.00
66	66	Tamarack		6/5/2002 09:41:25	<LOD = 15.60	106.50 ± 19.80	81.10 ± 14.00	30.00 ± 14.20	73.50 ± 31.20	<LOD = 19.95	<LOD = 40.35	<LOD = 25.65	236.00 ± 82.90	485.60 ± 140.00	<LOD = 315.00	<LOD = 615.00	23488.00 ± 1300.00	<LOD = 1290.00	<LOD = 540.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
67	67	Tamarack		6/5/2002 09:42:33	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 75.45	172.20 ± 82.80	<LOD = 165.00	<LOD = 240.00	<LOD = 165.00	<LOD = 615.00	<LOD = 270.00	<LOD = 795.00	<LOD = 270.00
68	68	Tamarack		6/5/2002 09:44:01	<LOD = 15.75	<LOD = 28.20	57.50 ± 13.40	<LOD = 17.55	73.10 ± 33.50	<LOD = 22.80	<LOD = 40.95	<LOD = 22.50	128.40 ± 80.60	557.60 ± 150.00	<LOD = 255.00	<LOD = 285.00	2499.20 ± 470.00	<LOD = 660.00	<LOD = 345.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
69	69	Tamarack		6/5/2002 09:44:57	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 37.35	160.90 ± 79.80	<LOD = 78.90	<LOD = 107.70	<LOD = 68.55	<LOD = 180.00	<LOD = 87.75	<LOD = 330.00	<LOD = 58.35
70	70	Tamarack		6/5/2002 09:52:27	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 79.35	336.20 ± 120.00	<LOD = 180.00	<LOD = 240.00	<LOD = 165.00	<LOD = 630.00	<LOD = 270.00	<LOD = 810.00	<LOD = 270.00
71	71	Tamarack		6/5/2002 09:53:05	<LOD = 37.70	141.20 ± 24.70	110.80 ± 17.00	46.50 ± 17.70	201.90 ± 46.90	<LOD = 20.55	<LOD = 37.45	<LOD = 28.50	<LOD = 121.65	1140.00 ± 190.00	<LOD = 375.00	<LOD = 705.00	28697.60 ± 1500.00	<LOD = 1440.00	<LOD = 630.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
72	72	Tamarack		6/5/2002 09:54:49	<LOD = 21.15	260.60 ± 28.00	183.30 ± 22.60	46.90 ± 19.30	<LOD = 43.05	<LOD = 24.15	<LOD = 39.60	<LOD = 25.35	151.00 ± 100.00	1509.60 ± 230.00	<LOD = 405.00	<LOD = 690.00	23692.80 ± 1400.00	1840.00 ± 1000.00	<LOD = 675.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
73	73	Tamarack		6/5/2002 09:55:57	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 35.25	388.60 ± 84.50	<LOD = 65.10	<LOD = 92.25	<LOD = 47.85	<LOD = 133.80	<LOD = 45.00	<LOD = 225.00	<LOD = 45.00
74	74	Tamarack		6/5/2002 10:05:06	<LOD = 19.05	<LOD = 38.10	388.20 ± 34.90	<LOD = 28.20	1309.60 ± 130.00	<LOD = 34.80	<LOD = 150.00	<LOD = 48.15	425.60 ± 210.00	8908.80 ± 570.00	<LOD = 675.00	<LOD = 480.00	7846.40 ± 860.00	<LOD = 1020.00	<LOD = 570.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
75	75	Tamarack		6/5/2002 10:06:05	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 37.65	114.60 ± 46.70	<LOD = 41.10	<LOD = 78.30	<LOD = 55.05	<LOD = 132.90	<LOD = 47.10	<LOD = 225.00	<LOD = 48.15
76	76	Tamarack		6/5/2002 10:06:50	<LOD = 21.45	<LOD = 51.15	593.20 ± 54.70	<LOD = 41.55	7634.40 ± 410.00	<LOD = 60.75	1089.60 ± 290.00	<LOD = 127.65	13696.00 ± 730.00	<LOD = 735.00	<LOD = 420.00	<LOD = 435.00	1828.80 ± 580.00	<LOD = 930.00	<LOD = 765.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
77	77	Tamarack		6/5/2002 10:08:04	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 35.25	775.20 ± 130.00	<LOD = 61.65	<LOD = 87.60	<LOD = 56.85	<LOD = 138.45	<LOD = 32.85	<LOD = 240.00	<LOD = 43.80
78	78	Tamarack		6/5/2002 10:09:06	<LOD = 18.90	<LOD = 38.55	163.60 ± 23.00	<LOD = 22.35	<LOD = 53.40	<LOD = 24.30	<LOD = 48.30	<LOD = 33.90	783.20 ± 150.00	802.00 ± 210.00	<LOD = 345.00	<LOD = 510.00	9568.00 ± 969.60	1969.60 ± 860.00	<LOD = 645.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
79	79	Tamarack		6/5/2002 10:10:52	<LOD = 22.50	<LOD = 35.85	578.80 ± 49.30	<LOD = 37.65	<LOD = 48.75	<LOD = 33.15	<LOD = 46.05	<LOD = 37.50	<LOD = 135.30	<LOD = 210.00	<LOD = 300.00	<LOD = 270.00	639.20 ± 380.00	<LOD = 645.00	<LOD = 495.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
80	80	Tamarack		6/5/2002 10:11:47	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 90.15	143.30 ± 92.80	<LOD = 225.00	<LOD = 300.00	<LOD = 210.00	<LOD = 795.00	<LOD = 345.00	<LOD = 1020.00	<LOD = 345.00
81	81	Tamarack		6/5/2002 10:20:49	<LOD = 39.60	<LOD = 125.55	121.50 ± 35.90	<LOD = 55.65	<LOD = 105.75	<LOD = 58.80	<LOD = 120.60	<LOD = 76.65	<LOD = 3000.00	484966.41 ± 21990.40	9344.00 ± 4499.20	<LOD = 2100.00	53555.20 ± 4099.20	<LOD = 4200.00	<LOD = 2400.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
82	82	Tamarack		6/5/2002 10:21:55	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	<LOD = 107.85	<LOD = 125.40	<LOD = 255.00	<LOD = 345.00	<LOD = 240.00	<LOD = 945.00	<LOD = 405.00	<LOD = 1215.00	<LOD = 405.00
83	83	Tamarack		6/5/2002 10:27:04	<LOD = 36.90	<LOD = 102.15	85.80 ± 29.80	<LOD = 49.20	350.80 ± 110.00	<LOD = 34.60	158.60 ± 100.00	<LOD = 78.90	3360.00 ± 1500.00	262963.19 ± 10995.20	<LOD = 4948.80	<LOD = 2400.00	105984.00 ± 6198.40	<LOD = 4800.00	<LOD = 2250.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
84	84	Tamarack		6/5/2002 10:28:06	<LOD = 40.95	<LOD = 121.20	112.00 ± 36.90	<LOD = 58.50	169.70 ± 96.40	<LOD = 64.05	<LOD = 148.80	<LOD = 82.05	2948.80 ± 1699.20	276889.59 ± 13990.40	<LOD = 5697.60	<LOD = 2100.00	61184.00 ± 4800.00	<LOD = 4348.80	<LOD = 2250.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
85	85	Tamarack		6/5/2002 10:30:53	<LOD = 14.55	<LOD = 23.55	40.90 ± 13.30	<LOD = 18.00	1920.00 ± 130.00	<LOD = 24.75	<LOD = 144.90	<LOD = 44.55	680.40 ± 160.00	6547.20 ± 400.00	<LOD = 480.00	<LOD = 480.00	14092.80 ± 940.00	<LOD = 1035.00	<LOD = 465.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
86	86	Tamarack		6/5/2002 10:41:03	37.30 ± 16.80	263.00 ± 33.50	414.80 ± 34.80	67.20 ± 25.60	107.30 ± 43.80	<LOD = 26.70	<LOD = 53.55	<LOD = 29.70	538.40 ± 190.00	6067.20 ± 460.00	<LOD = 600.00	<LOD = 915.00	39296.00 ± 2000.00	<LOD = 1950.00	<LOD = 780.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
87	87	Tamarack		6/5/2002 10:45:03	<LOD = 20.10	<LOD = 39.30	196.80 ± 27.20	<LOD = 28.05	86.00 ± 45.50	<LOD = 31.65	<LOD = 60.15	<LOD = 38.10	226.60 ± 130.00	1580.00 ± 280.00	<LOD = 450.00	<LOD = 630.00	12198.40 ± 1200.00	1849.60 ± 989.60	<LOD = 735.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
88	88	Tamarack		6/5/2002 10:46:03	<LOD = 23.10	49.70 ± 25.70	154.60 ± 23.30	<LOD = 26.55	249.40 ± 66.80	<LOD = 32.55	<LOD = 93.50	<LOD = 42.15	<LOD = 165.00	816.00 ± 220.00	<LOD = 435.00	<LOD = 750.00	17996.80 ± 1500.00	1779.20 ± 1100.00	<LOD = 795.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
89	89	Tamarack		6/5/2002 10:47:27	<LOD = 21.30	43.60 ± 26.40	287.60 ± 32.60	<LOD = 30.15	<LOD = 55.95	<LOD = 24.60	<LOD = 53.10	<LOD = 32.40	<LOD = 255.00	4739.20 ± 450.00	<LOD = 615.00	<LOD = 675.00	16000.00 ± 1400.00	<LOD = 1650.00	<LOD = 705.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
90	90	Tamarack		6/5/2002 10:48:56	<LOD = 22.65	<LOD = 50.70	223.60 ± 29.60	<LOD = 30.15	142.40 ± 54.50	<LOD = 28.50	<LOD = 71.25	<LOD = 36.30	1100.00 ± 200.00	1769.60 ± 320.00	<LOD = 615.00	<LOD = 1244.40	55296.00 ± 2899.20	2720.00 ± 1800.00	<LOD = 1080.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
91	91	Tamarack		6/5/2002 10:50:16	<LOD = 24.00	256.40 ± 33.70	322.60 ± 30.90	66.30 ± 24.90	68.70 ± 39.10	<LOD = 26.10	<LOD = 51.75	<LOD = 56.45	278.00 ± 150.00	4118.40 ± 380.00	<LOD = 540.00	<LOD = 840.00	34585.60 ± 1899.20	<LOD = 1800.00	<LOD = 735.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
92	91	Tamarack		6/5/2002 10:51:36	<LOD = 24.00	256.40 ± 33.70	322.60 ± 30.90	66.30 ± 24.90	68.70 ± 39.10	<LOD = 26.10	<LOD = 51.75	<LOD = 36.45	278.00 ± 150.00	4118.40 ± 380.00	<LOD = 540.00	<LOD = 840.00	34585.60 ± 1899.20	<LOD = 1800.00	<LOD = 735.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
93	93	Tamarack		6/5/2002 10:51:37	26.00 ± 14.50	282.40 ± 28.50	342.40 ± 28.70	46.30 ± 20.80	65.50 ± 34.40	<LOD = 24.30	<LOD = 46.35	<LOD = 29.85	277.40 ± 140.00	3920.00 ± 340.00	<LOD = 510.00	<LOD = 750.00	29798.40 ± 1600.00	<LOD = 1650.00	<LOD = 690.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
94	94	Tamarack		6/5/2002 10:52:37	<LOD = 21.90	71.50 ± 30.70	156.90 ± 23.70	<LOD = 27.15	<LOD = 55.20	<LOD = 34.95	<LOD = 53.85	<LOD = 37.05	<LOD = 255.00	5078.40 ± 450.00	<LOD = 675.00	<LOD = 1095.00	47897.60 ± 2499.20	3920.00 ± 1699.20	<LOD = 1065.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
95	95	Tamarack		6/5/2002 10:55:28	<LOD = 20.85	<LOD = 44.10	202.70 ± 27.60	<LOD = 31.65	<LOD = 59.40	<LOD = 34.65	<LOD = 53.85	<LOD = 30.60	<LOD = 165.00	896.00 ± 220.00	<LOD = 405.00	<LOD = 750.00	16793.60 ± 1400.00	<LOD = 1650.00	<LOD = 750.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
96	96	Tamarack		6/5/2002 10:56:43	<LOD = 25.95	317.20 ± 37.80	444.40 ± 39.00	52.10 ± 26.60	73.10 ± 42.70	<LOD = 28.80	<LOD = 60.75	<LOD = 35.40	<LOD = 225.00	3299.20 ± 370.00	<LOD = 600.00	<LOD = 960.00	36198.40 ± 2099.20	<LOD = 2100.00	<LOD = 825.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
97	97	Tamarack		6/5/2002 10:57:48	<LOD = 22.65	<LOD = 48.00	222.20 ± 29.60	<LOD = 26.85	<LOD = 62.55	38.50 ± 25.30	<LOD = 59.40	<LOD = 34.35	<LOD = 180.00	956.80 ± 240.00	<LOD = 555.00	<LOD = 1200.00	47180.80 ± 2600.00	3360.00 ± 1699.20	<LOD = 1065.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
98	98	Tamarack		6/5/2002 11:00:34	30.90 ± 18.90	399.60 ± 38.90	174.40 ± 24.90	62.30 ± 24.50	<LOD = 58.95	<LOD = 31.20	<LOD = 53.40	<LOD = 31.05	<LOD = 195.00	1960.00 ± 290.00	<LOD = 465.00	<LOD = 810.00	27289.60 ± 1800.00	2539.20 ± 1300.00	<LOD = 795.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
99	99	Tamarack		6/5/2002 11:01:18	<LOD = 22.50	<LOD = 48.90	254.60 ± 31.00	<LOD = 24.90	<LOD = 57.00	<LOD = 28.65	<LOD = 60.00	<LOD = 36.90	<LOD = 180.00	1309.60 ± 260.00	<LOD = 570.00	<LOD = 1200.00	50892.80 ± 2699.20	<LOD = 2548.80	<LOD = 990.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
100	100	Tamarack		6/5/2002 11:03:24	<LOD = 14.25	<LOD = 21.30	36.50 ± 11.20	<LOD = 18.00	193.00 ± 44.40	<LOD = 16.80	<LOD = 54.15	<LOD = 24.75	<LOD = 123.30	957.60 ± 180.00	525.60 ± 260.00	<LOD = 660.00	22489.60 ± 1300.00	<LOD = 1274.40	<LOD = 540.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
101	101	Tamarack		6/5/2002 11:05:10	<LOD = 18.75	<LOD = 30.75	192.80 ± 24.50	<LOD = 23.55	<LOD = 45.60	<LOD = 25.80	<LOD = 43.50	<LOD = 31.50	<LOD = 112.65	<LOD = 195.00	<LOD = 255.00	<LOD = 255.00	1120.00 ± 380.00	<LOD = 495.00	<LOD = 435.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
102	102	Tamarack		6/5/2002 11:06:40	<LOD = 25.95	341.40 ± 37.90	185.20 ± 25.40	61.90 ± 24.40	<LOD = 34.45	<LOD = 28.65	<LOD = 49.05	<LOD = 32.85	<LOD = 210.00	2708.80 ± 330.00	<LOD = 540.00	<LOD = 855.00	27980.80 ± 1800.00	2849.60 ± 1300.00	<LOD = 810.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
103	103	Tamarack		6/5/2002 11:07:21	<LOD = 21.90	60.30 ± 34.30	123.50 ± 22.80	35.30 ± 21.10	<LOD = 63.30	<LOD = 31.50	<LOD = 56.70	<LOD = 37.95	257.20 ± 140.00	1708.80 ± 290.00	<LOD = 585.00	<LOD = 1200.00	54374.40 ± 2800.00	2708.80 ± 1800.00	<LOD = 1110.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
104	104	Tamarack		6/5/2002 11:09:54	<LOD = 20.40	<LOD = 37.65	155.00 ± 23.70	<LOD = 23.55	109.30 ± 47.00	<LOD = 31.05	<LOD = 62.40	<LOD = 34.05	<LOD = 210.00	3328.00 ± 360.00	<LOD = 525.00	<LOD = 735.00	17996.80 ± 1400.00	1739.20 ± 1100.00	<LOD = 795.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
105	105	Tamarack		6/5/2002 11:11:14	<LOD = 41.70	<LOD = 146.85	185.30 ± 51.20	<LOD = 65.25	398.00 ± 150.00	<LOD = 79.95	420.00 ± 170.00	<LOD = 111.75	3188.80 ± 1899.20	253952.00 ± 14988.80	<LOD = 6297.60	4768.00 ± 3000.00	215859.20 ± 14988.80	<LOD = 9000.00	<LOD = 3600.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
106	106	Tamarack		6/5/2002 11:15:01	<LOD = 22.50	<LOD = 50.70	143.60 ± 24.20	<LOD = 25.05	<LOD = 58.80	<LOD = 30.15	<LOD = 59.25	<LOD = 35.85	<LOD = 270.00	5577.60 ± 500.00	<LOD = 705.00	<LOD = 1065.00	41190.40 ± 2400.00	<LOD = 2250.00	<LOD = 960.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
107	107	Tamarack		6/5/2002 11:16:12	<LOD = 25.05	<LOD = 57.90	174.60 ± 29.80	<LOD = 28.20	274.00 ± 77.80	<LOD = 40.35	409.20 ± 95.20	<LOD = 64.35	<LOD = 735.00	41190.40 ± 1899.20	<LOD = 1650.00	<LOD = 1500.00	65075.20 ± 3600.00	<LOD = 3148.80	<LOD = 1364.40	NA	NA	NA	NA	NA	NA	NA	NA	NA
108	108	Tamarack		6/5/2002 11:18:04	<LOD = 22.80	<LOD = 48.15	247.60 ± 30.40	<LOD = 31.95	<LOD = 56.70	<LOD = 31.80	<LOD = 59.85	<LOD = 37.35	<LOD = 165.00	1760.00 ± 290.00	<LOD = 555.00	<LOD = 1125.00	46694.40 ± 2600.00	2748.80 ± 1699.20	<LOD = 1035.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
109	109	Tamarack		6/5/2002 11:18:48	<LOD = 23.55	<LOD = 56.70	165.50 ± 28.00	<LOD = 33.75	<LOD = 70.80	<LOD = 39.30	207.80 ± 63.50	<LOD = 48.75	<LOD = 990.00	86067.20 ± 3299.20	2360.00 ± 1500.00	<LOD = 930.00	21990.40 ± 1800.00	2748.80 ± 1400.00	<LOD = 1065.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
110	110	Tamarack		6/5/2002 11:20:41	<LOD = 63.15	<LOD = 255.00	92.00 ± 58.30	<LOD = 88.65	<LOD = 165.00	<LOD = 104.70	<LOD = 195.00	<LOD = 139.95	<LOD = 6897.60	1109196.7521888.00 ± 80998.40	21888.00 ± 9996.80	<LOD = 3000.00	25497.60 ± 4697.60	<LOD = 6297.60	<LOD = 4500.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
111	111	Tamarack		6/5/2002 11:24:03	<LOD = 22.20	127.10 ± 26.90	554.00 ± 42.50	<LOD = 33.15	<LOD = 56.70	<LOD = 31.95	<LOD = 51.00	<LOD = 29.10	<LOD = 150.00	924.00 ± 210.00	<LOD = 360.00	<LOD = 465.00	8249.60 ± 909.60	<LOD = 1050.00	<LOD = 540.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
112	112	Tamarack		6/5/2002 11:24:48	26.60 ± 15.30	142.00 ± 27.10	426.00 ± 36.80	<LOD = 32.55	59.70 ± 38.10	<LOD = 25.95	<LOD = 51.00	<LOD = 34.80	195.10 ± 130.00	1929.60 ± 280.00	<LOD = 405.00	<LOD = 540.00	11699.20 ± 1100.00	5507.20 ± 1200.00	<LOD = 915.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
113	113	Tamarack		6/5/2002 11:26:01	<LOD = 23.40	125.70 ± 30.50	351.20 ± 35.80	59.40 ± 27.00	<LOD = 63.15	<LOD = 29.70	<LOD = 54.90	<LOD = 34.05	<LOD = 180.00	1180.00 ± 240.00	<LOD = 405.00	<LOD = 600.00	10297.60 ± 1100.00	<LOD = 1290.00	<LOD = 660.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
114	114	Tamarack		6/5/2002 11:26:48	<LOD = 26.55	<LOD = 46.95	212.00 ± 38.10	<LOD = 37.05	3948.80 ± 310.00	<LOD = 54.00	<LOD = 345.00	<LOD = 96.00	3080.00 ± 350.00	<LOD = 480.00	<LOD = 435.00	<LOD = 360.00	1788.80 ± 610.00	<LOD = 870.00	<LOD = 735.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
115	115	Tamarack		6/5/2002 11:28:01	<LOD = 23.85	142.90 ± 32.50	667.60 ± 49.70	62.30 ± 30.70	77.10 ± 44.50	<LOD = 28.20	<LOD = 58.95	<LOD = 34.65	<LOD = 180.00	1309.60 ± 250.00	<LOD = 450.00	<LOD = 765.00	21798.40 ± 1600.00	2228.80 ± 1200.00	<LOD = 840.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
116	116	Tamarack		6/5/2002 11:29:06	<LOD = 19.65	113.10 ± 28.00	597.60 ± 41.10	<LOD = 31.65	<LOD = 45.90	<LOD = 28.95	<LOD = 42.90	<LOD = 27.45	<LOD = 140.40	1009.60 ± 200.00	<LOD = 330.00	<LOD = 360.00	4560.00 ± 640.00	<LOD = 840.00	<LOD = 465.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
117	117	Tamarack		6/5/2002 11:30:39	<LOD = 24.30	54.20 ± 32.80	1069.60 ± 68.10	<LOD = 48.45	121.60 ± 54.00	<LOD = 31.20	<LOD = 71.85	<LOD = 40.80	462.40 ± 140.00	296.40 ± 190.00	<LOD = 360.00	<LOD = 570.00	8768.00 ± 1000.00	<LOD = 1200.00	<LOD = 660.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
118	118	Tamarack		6/5/2002 11:31:49	<LOD = 22.80	<LOD = 59.10	2049.60 ± 100.00	<LOD = 64.65	<LOD = 64.95	<LOD = 33.90	<LOD = 62.70	<LOD = 35.70	<LOD = 180.00	1160.00 ± 260.00	<LOD = 465.00	<LOD = 570.00	8364.80 ± 1000.00	<LOD = 1200.00	<LOD = 705.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
119	119	Tamarack		6/5/2002 11:33:04	<LOD = 30.45	<LOD = 165.00	1859.20 ± 110.00	72.80 ± 46.60	285.80 ± 96.10	177.20 ± 35.40	<LOD = 119.85	<LOD = 94.20	32486.40 ± 1500.00	<LOD = 1230.00	<LOD = 675.00	524.00 ± 340.00	1220.00 ± 800.00	<LOD = 1650.00	4448.00 ± 1100.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
120	119	Tamarack		6/5/2002 11:33:56	<LOD = 30.45	<LOD = 165.00	1859.20 ± 110.00	72.80 ± 46.60	285.80 ± 96.10	177.20 ± 35.40	<LOD = 119.85	<LOD = 94.20	32486.40 ± 1500.00	<LOD = 1230.00	<LOD = 675.00	524.00 ± 340.00	1220.00 ± 800.00	<LOD = 1650.00	4448.00 ± 1100.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
121	119	Tamarack		6/5/2002 11:33:57	<LOD = 30.45	<LOD = 165.00	1859.20 ± 110.00	72.80 ± 46.60	285.80 ± 96.10	177.20 ± 35.40	<LOD = 119.85	<LOD = 94.20	32486.40 ± 1500.00	<LOD = 1230.00	<LOD = 675.00	524.00 ± 540.00	1220.00 ± 800.00	<LOD = 1650.00	4448.00 ± 1100.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
122	122	Tamarack		6/5/2002 11:34:01	<LOD = 18.90	135.70 ± 25.60	534.40 ± 35.60	45.40 ± 21.80	246.20 ± 50.90	<LOD = 22.80	<LOD = 65.55	<LOD = 34.80	3019.20 ± 230.00	1609.60 ± 270.00	<LOD = 360.00	<LOD = 495.00	12499.20 ± 940.00	<LOD = 1050.00	<LOD = 510.00	NA	NA	NA	NA	NA	NA	NA	NA	NA
123	123	Tamarack		6/5/2002 11:36:14	<LOD = 18.00	83.10 ± 22.70	308.20 ± 27.60	30.10 ± 18.70	423.20 ± 66.30	<LOD = 26.25	92.40 ± 58.80	<LOD = 35.40	560.00 ± 120.00	596.80 ± 170.00	<LOD = 285.00	<LOD = 375.00	5699.20 ± 670.00	1509.60 ± 650.00	<LOD = 555.00	NA	NA	NA	NA	NA	NA	NA	NA	NA

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Bulk-sample detection limits for the NITON 702 and tentative bulk-sample detection limits for the 722 and 732

(one minute readings in SiO_2 matrix)

Element	Source	L.O.D.* (ppm)	using Cd-109**
Ag ⊕	**Am-241**	**100**	N/A
As ⊕	Cd-109	60	
Au	Cd-109	60	
Ba ⊕	**Am-241**	**100**	1,200
Bi	Cd-109	50	
Ca	**Fe-55**	**500**	N/A
Cd ⊕	**Am-241**	**100**	N/A
Co	Cd-109	300	
Cr ⊕	**Fe-55**	**300**	1,400
Cu	Cd-109	100	
Fe	Cd-109	500	
Hg ⊕	Cd-109	40	
K	**Fe-55**	**500**	N/A
Mn	**Fe-55**	**300**	N/A
Mo	Cd-109	20	
Ni	Cd-109	200	
Pb ⊕	Cd-109	40	
Rb	Cd-109	30	
Sb	**Am-241**	**100**	N/A
Sc	**Fe-55**	**300**	N/A
Se ⊕	Cd-109	70	
Sn	**Am-241**	**100**	N/A
Sr	Cd-109	20	
Th	Cd-109	40	
Ti	**Fe-55**	**300**	N/A
Tl	Cd-109	40	
U	Cd-109	40	
V	**Fe-55**	**300**	N/A
Zn	Cd-109	70	
Zr	Cd-109	20	

⊕ RCRA Element

*L.O.D.'s for elements analyzed with either Am-241or Fe-55 are, at present, approximate. More definite data will be available as development of the multi-source analyzer continues.

**(using Cd-109) : defined for elements in which source other than Cd-109 is optimal.

74 Loomis Street • Bedford, MA 01730 • Toll-Free 800-875-1578
Phone 781-275-9275 • Fax 781-275-1917
email xrf@niton.com • Website www.niton.com

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Periodic Table and X-Ray Energy Reference

Key to Energy Values

K_α^1	K_β^1
Ag	**47**
L_α^1	L_β^1

GROUP IA	IIA	IIIB	IVB	VB	VIB	VIIB	GROUP VIII			IB	IIB	IIIA	IVA	VA	VIA	VIIA	VIIIA
H 1																	He 2
Li 3	Be 4											B 5	C 6	N 7	O 8	F 9	Ne 10
1.04 1.07 Na 11	1.25 1.30 Mg 12											1.49 1.55 Al 13	1.74 1.83 Si 14	2.02 2.14 P 15	2.31 2.46 S 16	2.62 2.82 Cl 17	2.96 3.19 Ar 18
3.31 3.59 K 19	3.69 4.01 Ca 20	4.09 4.46 Sc 21	4.51 4.93 Ti 22	4.95 5.43 V 23	5.41 5.95 Cr 24	5.90 6.49 Mn 25	6.40 7.06 Fe 26	6.93 7.65 Co 27	7.48 8.26 Ni 28	8.05 8.90 Cu 29	8.64 9.57 Zn 30 1.01 1.03	9.25 10.26 Ga 31 1.10 1.12	9.89 10.98 Ge 32 1.19 1.21	10.54 11.73 As 33 1.28 1.32	11.22 12.50 Se 34 1.38 1.42	11.92 13.29 Br 35 1.48 1.53	12.65 14.11 Kr 36 1.59 1.64
13.39 14.96 Rb 37 1.69 1.75	14.16 15.83 Sr 38 1.81 1.87	14.96 16.74 Y 39 1.92 2.00	15.77 17.67 Zr 40 2.04 2.12	16.61 18.62 Nb 41 2.17 2.26	17.48 19.61 Mo 42 2.29 2.40	18.41 20.59 Tc 43 2.42 2.54	19.28 21.66 Ru 44 2.56 2.68	20.21 22.72 Rh 45 2.70 2.83	21.18 23.82 Pd 46 2.84 2.99	22.16 24.94 Ag 47 2.98 3.15	23.17 26.09 Cd 48 3.13 3.32	24.21 27.27 In 49 3.29 3.49	25.27 28.48 Sn 50 3.44 3.66	26.36 29.72 Sb 51 3.61 3.84	27.47 30.99 Te 52 3.77 4.03	28.61 32.29 I 53 3.94 4.22	29.80 33.64 Xe 54 4.11 4.42
30.97 34.98 Cs 55 4.29 4.62	32.19 36.38 Ba 56 4.47 4.83	57 - 71	Hf 72 7.90 9.02	Ta 73 8.15 9.34	W 74 8.40 9.67	Re 75 8.65 10.01	Os 76 8.91 10.35	Ir 77 9.19 10.71	Pt 78 9.44 11.07	Au 79 9.71 11.44	Hg 80 9.99 11.82	Tl 81 10.27 12.21	Pb 82 10.55 12.61	Bi 83 10.84 13.02	Po 84 11.13 13.44	At 85 11.42 13.87	Rn 86 11.72 14.32
Fr 87 12.03 14.77	Ra 88 12.34 15.23	Ac 89 12.65 15.71	Th 90 12.97 16.20	Pa 91 13.29 16.70	U 92 13.61 17.22	Np 93 13.95 17.74	Pu 94 14.28 18.28	Am 95 14.62 18.83	Cm 96 14.96 19.39	Bk 97 15.31 19.97	Cf 98 15.66 20.56	Es 99 16.02 21.17	Fm 100 16.38 21.79	Md 101	No 102	Lr 103	
Lanthanides 57 - 71		33.44 37.80 La 57 4.65 5.04	34.72 39.26 Ce 58 4.84 5.26	36.02 40.75 Pr 59 5.03 5.49	37.36 42.27 Nd 60 5.23 5.72	38.65 43.95 Pm 61 5.43 5.96	40.12 45.40 Sm 62 5.64 6.21	41.53 47.03 Eu 63 5.85 6.46	42.98 48.72 Gd 64 6.06 6.71	44.47 50.39 Tb 65 6.28 6.98	45.99 52.17 Dy 66 6.50 7.25	Ho 67 6.72 7.53	Er 68 6.95 7.81	Tm 69 7.18 8.10	Yb 70 7.41 8.40	Lu 71 7.65 8.71	

Source Selection Key

- ^{109}Cd – K shell range Ti(22) to Ru(44)
  L shell range Ho(67) to U(92)
- ^{55}Fe – K shell range S(16) to Cr(24)
  L shell range Rh(45) to Ce(58)
- ^{241}Am – K shell range Zn(30) to Dy(66)
  L shell range Ta(73) to U(92)

Note: Although overlaps in source selection occur for some element ranges, colors shading actual K or L energies represent the optimal source selection for the given energy.

NITON Corp. Main Offices
74 Loomis St.
Bedford, MA 01730
Phone: 781-275-9275
Toll Free: 800-875-1578
Fax: 781-275-1917
Web: www.niton.com

NITON Corp. Western Offices
63356 Nels Anderson Rd., Suite 2
Bend, OR 97701
Phone: 541-388-0779
Toll Free: 877-255-6943
Fax: 541-388-1003
E-mail: info@niton.com

Alloy Version

APPENDIX D

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

GROUNDWATER: RESIDENTIAL AND INDUSTRIAL-COMMERCIAL

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

Developed under the authority of the

NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT, 1994 PA 451, AS AMENDED

Groundwater criteria were calculated using currently available chemical-specific data and U.S. Environmental Protection Agency risk assessment guidance. Criteria may change for the next annual revision of the criteria tables. All criteria are expressed in units of parts per billion (ppb;ug/L). Scientific notation is represented by E+ or E- a value; for example, 2×10^6 is reported as 2.0E+6. For comparison to the criteria, groundwater samples should be representative of the water moving through the aquifer in the contaminant plume. Samples should be collected using a low flow protocol that minimizes turbidity caused by disturbances from sampling and, in most cases, total analyses of the samples should be conducted (see Op Memos #18 for details). Please refer to Op Memo #6 for recommended analytical methods and target detection limits.

Guidesheet Number →		#1	#2	#3	#4	#5	#6	#7	#8	#9
	Chemical Abstract Service Number	Residential & Commercial I Drinking Water Criteria	Industrial & Commercial II, III & IV Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Residential & Commercial I Groundwater Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial II, III & IV Groundwater Volatilization to Indoor Air Inhalation Criteria	Groundwater Contact Criteria	Water Solubility	Flammability and Explosivity Screening Level	Acute Inhalation Screening Level
PHYSICAL PARAMETERS										
Dissolved oxygen (DO)		NA	NA	{AE}	NA	NA	NA	NA	NA	NA
Phosphorus		NA	NA	{AE}	NA	NA	NA	NA	NA	NA
Total dissolved solids (TDS)		5.0E+5 {E}	5.0E+5 {E}	{AE}	NA	NA	NA	NA	NA	NA
HAZARDOUS SUBSTANCES										
BTEX + MTBE										
Benzene {I}	71432	5.0 {A}	5.0 {A}	200 {X}	5,600	36,000	11,000	1.75E+6	34,000	67,000
Ethylbenzene {I}	100414	74 {E}	74 {E}	18	1.7E+5 {S}	1.7E+5 {S}	1.7E+5 {S}	1.69E+5	22,000	1.7E+5 {S}
Methyl-tert-butyl ether (MTBE)	1634044	40 {E}	40 {E}	730 {X}	4.7E+7 {S}	4.7E+7 {S}	6.9E+5	4.68E+7	ID	ID
Toluene {I}	108883	790 {E}	790 {E}	140	5.3E+5 {S}	5.3E+5 {S}	5.3E+5 {S}	5.26E+5	31,000	ID
Xylenes {I}	1330207	280 {E}	280 {E}	35	1.9E+5 {S}	1.9E+5 {S}	1.9E+5 {S}	1.86E+5	35,000	1.9E+5 {S}
VOLATILES										
Acetone {I}	67641	730	2,100	1,700	1.0E+9 {D,S}	1.0E+9 {D,S}	3.1E+7	1.0E+9	7.5E+6	1.0E+9 {D}
Acrolein {I}	107028	120	330	NA	2,100	4,200	3.4E+6	2.10E+8	3.3E+6	3.4E+5
Acrylonitrile {I}	107131	2.6	11	4.9 {X}	34,000	1.9E+5	14,000	7.50E+7	3.2E+6	ID
Benzyl chloride	100447	7.7	32	NA	12,000	77,000	3,600	4.90E+5	NA	ID
Bromobenzene {I}	108861	18	50	NA	1.8E+5	3.9E+5	12,000	4.13E+5	ID	ID
Bromodichloromethane	75274	100 {A,W}	100 {A,W}	ID	4,800	38,000	14,000	6.74E+6	ID	ID
Bromoform	75252	100 {A,W}	100 {A,W}	ID	4.8E+5	3.1E+6 {S}	1.4E+5	3.10E+6	ID	ID
Bromomethane	74839	10	29	35	4,000	9,000	70,000	1.45E+7	ID	ID

GROUNDWATER: RESIDENTIAL AND INDUSTRIAL-COMMERCIAL
PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

Guidesheet Number →		#1	#2	#3	#4	#5	#6	#7	#8	#9
	Chemical Abstract Service Number	Residential & Commercial I Drinking Water Criteria	Industrial & Commercial II, III & IV Drinking Water Criteria	Groundwater Surface Water Interface Criteria	Residential & Commercial I Groundwater Volatilization to Indoor Air Inhalation Criteria	Industrial & Commercial II, III & IV Groundwater Volatilization to Indoor Air Inhalation Criteria	Groundwater Contact Criteria	Water Solubility	Flammability and Explosivity Screening Level	Acute Inhalation Screening Level
n-Butanol {I}	71363	950	2,700	NA	NLV	NLV	8.8E+6	7.40E+7	2.4E+7	7.4E+7 {S}
2-Butanone (MEK) {I}	78933	13,000	38,000	2,200	2.4E+8 {S}	2.4E+8 {S}	2.4E+8 {S}	2.40E+8	ID	2.4E+8 {S}
n-Butyl acetate	123864	550	1,600	NA	6.7E+6 {S}	6.7E+6 {S}	1.8E+6	6.70E+6	1.2E+6	6.7E+6 {S}
t-Butyl alcohol	75650	3,900	11,000	NA	1.0E+9 {D,S}	1.0E+9 {D,S}	7.9E+7	1.0E+9	3.0E+7	ID
n-Butylbenzene	104518	80	230	NA	ID	ID	5,900	NA	ID	ID
sec-Butylbenzene	135988	80	230	NA	ID	ID	4,400	NA	ID	ID
tert-Butylbenzene {I}	98066	80	230	NA	ID	ID	8,900	NA	ID	ID
Carbon disulfide {I,R}	75150	800	2,300	ID	2.5E+5	5.5E+5	1.2E+6 {S}	1.19E+6	6,500	ID
Carbon tetrachloride	56235	5.0 {A}	5.0 {A}	45 {X}	370	2,400	4,600	7.93E+5	ID	96,000
Chlorobenzene {I}	108907	100 {A}	100 {A}	47	2.1E+5	4.7E+5 {S}	86,000	4.72E+5	79,000	ID
1-Chloro-1,1-difluoroethane	75683	15,000	44,000	NA	3.9E+6 {S}	3.9E+6 {S}	3.9E+6 {S}	3.9E+06	NA	ID
Chloroethane	75003	430	1,700	ID	5.7E+6 {S}	5.7E+6 {S}	4.4E+5	5.74E+6	56,000	ID
2-Chloroethyl vinyl ether	110758	ID	ID	NA	ID	ID	ID	1.50E+7	ID	ID
Chloroform	67663	100 {A,W}	100 {A,W}	170 {X}	28,000	1.8E+5	1.5E+5	7.92E+6	ID	ID
Chloromethane {I}	74873	260	1,100	ID	8,600	52,000	4.9E+5	6.34E+6	18,000	2.1E+5
o-Chlorotoluene {I}	95498	150	420	NA	3.7E+5 {S}	3.7E+5 {S}	44,000	3.73E+5	ID	ID
Dibromochloromethane	124481	100 {A,W}	100 {A,W}	ID	15,000	1.1E+5	18,000	2.60E+6	ID	ID
Dibromochloropropane	96128	0.2 {A}	0.2 {A}	NA	1,200 {S}	1,200 {S}	390	1,230	NA	ID
Dibromomethane	74953	80	230	NA	ID	ID	5.3E+5	1.10E+7	ID	ID
Dichlorodifluoromethane	75718	1,700	4,800	ID	2.2E+5	3.0E+5 {S}	3.0E+5 {S}	3.00E+5	ID	ID
1,1-Dichloroethane	75343	880	2,500	ID	1.0E+6	2.3E+6	2.4E+6	5.06E+6	1.9E+5	ID
1,2-Dichloroethane {I}	107062	5.0 {A}	5.0 {A}	360 {X}	9,600	59,000	19,000	8.52E+6	1.3E+6	ID
1,1-Dichloroethylene {I}	75354	7.0 {A}	7.0 {A}	65 {X}	200	1,300	11,000	2.25E+6	48,000	1.4E+5
cis-1,2-Dichloroethylene	156592	70 {A}	70 {A}	ID	96,000	2.2E+5	2.0E+5	3.50E+6	2.7E+5	ID
trans-1,2-Dichloroethylene	156605	100 {A}	100 {A}	ID	85,000	2.0E+5	2.2E+5	6.30E+6	1.2E+5	ID
1,2-Dichloropropane {I}	78875	5.0 {A}	5.0 {A}	290 {X}	16,000	36,000	16,000	2.80E+6	2.7E+5	2.8E+6 {S}
1,3-Dichloropropene	542756	21	63	NA	2.0	13	13,000	2.80E+6	66,000	ID
Diethyl ether	60297	10 {E,M}	10 {E,M}	ID	6.1E+7 {S}	6.1E+7 {S}	3.5E+7	6.10E+7	3.2E+5	6.1E+7 {S}

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Diisopropyl ether	108203	30	86	NA	ID	ID	8,000 {S}	8,041	ID	ID
Dimethylformamide {I}	68122	700	2,000	NA	NLV	NLV	1.1E+8	1.0E+9	ID	ID
Dimethylsulfoxide	67685	2.2E+5	6.3E+5	1.9E+5	NLV	NLV	1.7E+8 {S}	1.66E+8	ID	ID
1,4-Dioxane {I}	123911	85	350	2,800 {X}	NLV	NLV	1.7E+6	9.00E+8	7.2E+7	ID
Epichlorohydrin {I}	106898	5.0 {M}	6.0	NA	3.2E+5	6.3E+5	11,000	6.60E+7	2.3E+7	ID
Ethanol {I}	64175	1.9E+6	3.8E+6	IP	NLV	NLV	1.0E+9 {D}	1.0E+9	4.8E+7	ID
Ethyl acetate {I}	141786	6,600	19,000	NA	6.4E+7 {S}	6.4E+7 {S}	6.4E+7 {S}	6.40E+7	2.1E+6	ID
Ethylene dibromide	106934	1.0 {A,M}	1.0 {A,M}	1.0 {M}	2,400	15,000	25	4.20E+6	ID	ID
n-Heptane	142825	2,700 {S}	2,700 {S}	NA	2,700 {S}	2,700 {S}	2,700 {S}	2,690	100	2,700 {S}
n-Hexane	110543	3,000	8,600	NA	12,000 {S}	12,000 {S}	12,000 {S}	12,000	12,000 {S}	ID
2-Hexanone	591786	1,000	2,900	NA	4.2E+6	8.8E+6	5.2E+6	1.60E+7	ID	ID
Isobutyl alcohol {I}	78831	2,300	6,700	NA	7.6E+7 {S}	7.6E+7 {S}	2.5E+7	7.60E+7	ID	ID
Isopropyl alcohol {I}	67630	470	1,300	NA	NLV	NLV	1.3E+7	1.0E+9	3.0E+7	1.0E+9 {D}
Isopropyl benzene	98828	800	2,300	ID	56,000 {S}	56,000 {S}	56,000 {S}	56,000	15,000	ID
Methane	74828	ID	ID	ID	{K}	{K}	ID	NA	{K}	ID
Methanol	67561	3,700	10,000	480	2.5E+6	6.0E+6	2.9E+7 {S}	2.90E+7	2.3E+6	2.9E+7 {S}
4-Methyl-2-pentanone (MIBK) {I}	108101	1,800	5,200	ID	2.0E+7 {S}	2.0E+7 {S}	1.3E+7	2.00E+7	ID	2.0E+7 {S}
Methylene chloride	75092	5.0 {A}	5.0 {A}	940 {X}	2.2E+5	1.4E+6	2.2E+5	1.70E+7	ID	ID
Pentane	109660	ID	ID	NA	38,000 {S}	38,000 {S}	ID	38,200	170	38,000 {S}
2-Pentene {I}	109682	ID	ID	NA	ID	ID	ID	2.03E+5	ID	ID
Propyl alcohol {I}	71238	1,400	4,000	NA	NLV	NLV	2.8E+7	1.0E+9	3.6E+7	1.0E+9 {D}
n-Propylbenzene {I}	103651	80	230	ID	ID	ID	15,000	NA	ID	ID
Styrene	100425	100 {A}	100 {A}	80	1.7E+5	3.1E+5 {S}	9,700	3.10E+5	68,000	3.1E+5 {S}
1,1,1,2-Tetrachloroethane	630206	77	320	NA	15,000	96,000	30,000	1.10E+6	ID	ID
1,1,2,2-Tetrachloroethane	79345	8.5	35	78 {X}	12,000	77,000	4,700	2.97E+6	ID	ID
Tetrachloroethylene	127184	5.0 {A}	5.0 {A}	45 {X}	25,000	1.7E+5	12,000	2.0E+5	ID	2.0E+5 {S}
Tetrahydrofuran	109999	95	270	11,000 {X}	6.9E+6	1.6E+7	1.6E+6	1.0E+9	30,000	3.6E+6
1,1,1-Trichloroethane	71556	200 {A}	200 {A}	200	6.6E+5	1.3E+6 {S}	1.3E+6 {S}	1.33E+6	ID	1.3E+6 {S}
1,1,2-Trichloroethane	79005	5.0 {A}	5.0 {A}	330 {X}	17,000	1.1E+5	21,000	4.42E+6	1.8E+6	ID
Trichloroethylene	79016	5.0 {A}	5.0 {A}	200 {X}	15,000	97,000	37,000	1.10E+6	ID	1.1E+6 {S}
Trichlorofluoromethane	75694	2,600	7,300	NA	1.1E+6 {S}	1.1E+6 {S}	1.1E+6 {S}	1.10E+6	ID	1.1E+6 {S}
1,2,3-Trichloropropane	96184	42	120	NA	ID	ID	84,000	1.90E+6	NA	ID

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1,1,2-Trichloro-1,2,2-trifluoroethane	76131	1.7E+5 {S}	1.7E+5 {S}	NA	1.7E+5 {S}	1.7E+5 {S}	1.7E+5 {S}	1.70E+5	ID	1.7E+5 {S}
Triethanolamine	102716	3,700	10,000	NA	NLV	NLV	1.0E+9 {D,S}	1.0E+9	ID	ID
2,2,4-Trimethyl pentane	540841	ID	ID	NA	ID	ID	ID	2,330	81	ID
2,4,4-Trimethyl-2-pentene {I}	107404	ID	ID	NA	ID	ID	ID	11,900	ID	ID
1,2,4-Trimethylbenzene {I}	95636	63 {E}	63 {E}	ID	56,000 {S}	56,000 {S}	56,000 {S}	55,890	37,000	ID
1,3,5-Trimethylbenzene {I}	108678	72 {E}	72 {E}	ID	61,000 {S}	61,000 {S}	61,000 {S}	61,150	ID	ID
Vinyl acetate {I}	108054	640	1,800	NA	4.1E+6	8.9E+6	8.0E+6	2.00E+7	8.8E+5	4.8E+6
Vinyl chloride	75014	2.0 {A}	2.0 {A}	15	110	690	570	2.76E+6	17,000	ID
INORGANICS										
Aluminum {B}	7429905	50 {V}	50 {V}	NA	NLV	NLV	6.4E+7	NA	ID	ID
Antimony	7440360	6.0 {A}	6.0 {A}	ID	NLV	NLV	68,000	NA	ID	ID
Arsenic {B}	7440382	50 {A}	50 {A}	150 {X}	NLV	NLV	4,300	NA	ID	ID
Barium	7440393	2,000 {A}	2,000 {A}	{G,X}	NLV	NLV	1.4E+7	NA	ID	ID
Beryllium	7440417	4.0 {A}	4.0 {A}	{G}	NLV	NLV	2.9E+5	NA	ID	ID
Boron {B}	7440428	500 {F}	500 {F}	1,900	NLV	NLV	6.2E+7	NA	ID	ID
Cadmium {B}	7440439	5.0 {A}	5.0 {A}	{G,X}	NLV	NLV	1.9E+5	NA	ID	ID
Chromium (III) {B,H}	16065831	100 {A}	100 {A}	{G,X}	NLV	NLV	2.9E+8	NA	ID	ID
Chromium (VI)	18540299	100 {A}	100 {A}	11	NLV	NLV	4.6E+5	NA	ID	ID
Cobalt	7440484	40	100	100	NLV	NLV	2.4E+6	NA	ID	ID
Copper	7440508	1,000 {E}	1,000 {E}	{G}	NLV	NLV	7.4E+6	NA	ID	ID
Iron {B}	7439896	300 {E}	300 {E}	NA	NLV	NLV	5.8E+7	NA	ID	ID
Lead	7439921	4.0 {L}	4.0 {L}	{G,X}	NLV	NLV	ID	NA	ID	ID
Lithium {B}	7439932	170	350	25	NLV	NLV	5.4E+6	NA	ID	ID
Magnesium {B}	7439954	4.0E+5	1.1E+6	NA	NLV	NLV	1.0E+9 {D}	NA	ID	ID
Manganese {B}	7439965	50 {E}	50 {E}	{G,X}	NLV	NLV	9.1E+6	NA	ID	ID
Mercury (Inorganic)	7439976	2.0 {A}	2.0 {A}	1.3E-3 {Z}	NLV	NLV	56 {S}	56	ID	ID
Molybdenum {B}	7439987	37	100	800 {X}	NLV	NLV	9.7E+5	NA	ID	ID

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Nickel {B}	7440020	100 {A}	100 {A}	{G}	NLV	NLV	7.4E+7	NA	ID	ID
Selenium {B}	7782492	50 {A}	50 {A}	5.0	NLV	NLV	9.7E+5	NA	ID	ID
Silver {B}	7440224	34	98	0.2 {M}	NLV	NLV	1.5E+6	NA	ID	ID
Sodium	17341252	1.2E+5	3.5E+5	NA	NLV	NLV	1.0E+9 {D}	NA	ID	ID
Strontium {B}	7440246	4,600	13,000	760	NLV	NLV	1.2E+8	NA	ID	ID
Thallium {B}	7440280	2.0 {A}	2.0 {A}	3.7 {X}	NLV	NLV	13,000	NA	ID	ID
Vanadium	7440622	4.5	62	12	NLV	NLV	9.7E+5	NA	ID	ID
White phosphorus {R}	12185103	0.11	0.31	NA	NLV	NLV	2,900	NA	ID	ID
Zinc {B}	7440666	2,400	5,000 {E}	{G}	NLV	NLV	1.1E+8	NA	ID	ID
PAHs										
Acenaphthene	83329	1,300	3,800	19	4,200 {S}	4,200 {S}	4,200 {S}	4,240	ID	ID
Acenaphthylene	208968	52	150	ID	3,900 {S}	3,900 {S}	3,900 {S}	3,930	ID	ID
Anthracene	120127	43 {S}	43 {S}	ID	43 {S}	43 {S}	43 {S}	43.4	ID	ID
Benzo(a)anthracene {Q}	56553	2.1	8.5	NA	NLV	NLV	9.4 {S,AA}	9.4	ID	ID
Benzo(b)fluoranthene {Q}	205992	2.0 {M}	2.0 {M}	ID	NLV	NLV	2.0 {M,AA}	1.5	ID	ID
Benzo(k)fluoranthene {Q}	207089	5.0 {M}	5.0 {M}	NA	NLV	NLV	5.0 {M,AA}	0.8	ID	ID
Benzo(g,h,i)perylene	191242	5.0 {M}	5.0 {M}	NA	NLV	NLV	5.0 {M,AA}	0.26	ID	ID
Benzo(a)pyrene {Q}	50328	5.0 {A,M}	5.0 {A,M}	ID	NLV	NLV	5.0 {M,AA}	1.62	ID	ID
beta-Chloronaphthalene	91587	1,800	5,200	NA	ID	ID	6,700 {S}	6,740	ID	ID
Chrysene {Q}	218019	5.0 {M}	5.0 {M}	ID	ID	ID	5.0 {M,AA}	1.6	ID	ID
Dibenzo(a,h)anthracene {Q}	53703	5.0 {M}	5.0 {M}	ID	NLV	NLV	5.0 {M,AA}	2.49	ID	ID
Dibenzofuran	132649	ID	ID	4.0	ID	ID	ID	10,000	ID	ID
Fluoranthene	206440	210 {S}	210 {S}	1.6	210 {S}	210 {S}	210 {S}	206	ID	ID
Fluorene	86737	880	2,000 {S}	12	2,000 {S}	2,000 {S}	2,000 {S}	1,980	ID	ID
Indeno(1,2,3-cd)pyrene {Q}	193395	5.0 {M}	5.0 {M}	ID	NLV	NLV	5.0 {M,AA}	0.022	ID	ID
2-Methylnaphthalene	91576	260	750	ID	ID	ID	25,000 {S}	24,600	ID	ID
Naphthalene	91203	520	1,500	13	31,000 {S}	31,000 {S}	31,000 {S}	31,000	31,000 {S}	31,000 {S}
Phenanthrene	85018	52	150	5.0 {M}	1,000 {S}	1,000 {S}	1,000 {S}	1,000	ID	ID
Pyrene	129000	140 {S}	140 {S}	ID	140 {S}	140 {S}	140 {S}	135	ID	ID

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SEMIVOLATILES										
Acetonitrile	75058	140	400	NA	2.4E+7	4.5E+7	5.6E+6	2.00E+8	1.0E+7	2.0E+8
Acetophenone	98862	1,500	4,400	NA	6.1E+6 {S}	6.1E+6 {S}	6.1E+6 {S}	6.1E+6	ID	ID
Acrylamide	79061	0.3	1.2	NA	NLV	NLV	13,000	2.20E+9	NA	ID
Acrylic acid	79107	3,900	11,000	NA	1.2E+7	2.8E+7	7.6E+7	1.0E+9	1.0E+9 {D}	ID
Aniline	62533	53	220	20 {M}	NLV	NLV	1.4E+5	3.60E+7	NA	ID
Azobenzene	103333	23	94	NA	6,400 {S}	6,400 {S}	1,600	6,400	ID	ID
Benzidine	92875	0.3 {M}	0.3 {M}	ID	NLV	NLV	7.1	5.20E+5	ID	ID
Benzoic acid	65850	32,000	92,000	NA	NLV	NLV	3.5E+6 {S}	3.50E+6	ID	ID
Benzyl alcohol	100516	10,000	29,000	NA	NLV	NLV	4.4E+7 {S}	4.40E+7	ID	ID
bis(2-Chloroethoxy)ethane	112265	ID	ID	NA	NLV	NLV	ID	1.89E+7	ID	ID
bis(2-Chloroethyl)ether {I}	111444	2.0	8.3	NA	38,000	2.1E+5	5,700	1.72E+7	1.7E+7 {S}	1.7E+7 {S}
Camphene {I}	79925	ID	ID	NA	ID	ID	ID	33,400	ID	ID
Caprolactam	105602	5,800	17,000	NA	NLV	NLV	3.9E+8	5.25E+9	NA	1.0E+9 {D}
Carbazole	86748	85	350	10 {M}	NLV	NLV	7,400	7,480	ID	ID
Decabromodiphenyl ether	1163195	30 {S}	30 {S}	NA	30 {S}	30 {S}	30 {S}	30	ID	ID
Di(2-ethylhexyl) adipate	103231	400 {A}	400 {A}	NA	NLV	NLV	470 {S}	471	ID	ID
Diacetone alcohol {I}	123422	ID	ID	NA	NLV	NLV	ID	1.0E+9	1.0E+9 {D}	ID
1,2-Dichlorobenzene	95501	600 {A}	600 {A}	16	1.6E+5 {S}	1.6E+5 {S}	1.6E+5 {S}	1.56E+5	NA	1.6E+5 {S}
1,3-Dichlorobenzene	541731	6.6	19	38	ID	ID	2,000	1.11E+5	ID	ID
1,4-Dichlorobenzene	106467	75 {A}	75 {A}	13	16,000	74,000 {S}	6,400	73,800	NA	ID
3,3'-Dichlorobenzidine	91941	1.1	4.3	0.3 {M,X}	NLV	NLV	180	3,110	ID	ID
2,6-Dichloro-4-nitroaniline	99309	2,200	6,300	NA	NLV	NLV	7,000 {S}	7,000	ID	ID
Diisopropylamine {I}	108189	5.6	16	NA	ID	ID	21,000	3.69E+7	2.3E+6	ID
Dimethyl phthalate	131113	73,000	2.1E+5	NA	NLV	NLV	4.2E+6 {S}	4.19E+6	NA	ID
N,N-Dimethylacetamide	127195	180	520	4,100 {X}	NLV	NLV	2.3E+7	1.0E+9	NA	ID
N,N-Dimethylaniline	121697	16	46	NA	2.4E+5	1.3E+6 {S}	20,000	1.27E+6	NA	1.3E+6 {S}
2,4-Dinitrotoluene	121142	7.7	32	NA	NLV	NLV	8,600	2.70E+5	ID	ID
1-Formylpiperidine	2591868	80	230	NA	ID	ID	ID	NA	ID	ID
Gentian violet	548629	15	63	NA	NLV	NLV	1.0E+6 {S}	1.00E+6	ID	ID
Hexabromobenzene	87821	10 {M}	10 {M}	ID	ID	ID	10 {M}	0.17	ID	ID
Hexachlorobenzene (C-66)	118741	1.0 {A}	1.0 {A}	ID	440	3,000	4.6	6,200	ID	ID

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Hexachlorobutadiene (C-46)	87683	15	42	0.053	1,600	3,200 {S}	400	3,230	ID	ID
alpha-Hexachlorocyclohexane	319846	0.43	1.7	NA	2,000 {S}	2,000 {S}	60	2,000	ID	ID
beta-Hexachlorocyclohexane	319857	0.88	3.6	NA	NLV	NLV	120	240	ID	ID
Hexachlorocyclopentadiene (C-56)	77474	50 {A}	50 {A}	ID	ID	ID	1,800 {S}	1,800	ID	ID
Hexachloroethane	67721	7.3	21	6.7 {X}	27,000	50,000 {S}	1,900	50,000	ID	ID
Isophorone	78591	770	3,100	570 {X}	NLV	NLV	9.9E+5	1.20E+7	NA	1.2E+7 {S}
2-Methoxyethanol {I}	109864	7.3	21	NA	NLV	NLV	8.3E+5	1.0E+9	ID	ID
N-Methyl-morpholine {I}	109024	20	56	NA	NLV	NLV	1.5E+6	1.0E+9	ID	ID
Methylcyclopentane {I}	96377	ID	ID	NA	ID	ID	ID	73,890	ID	ID
4,4'-Methylene-bis-2-chloroaniline (MBOCA)	101144	1.1	4.5	NA	NLV	NLV	110 {AA}	14,000	ID	ID
Nitrobenzene {I}	98953	3.4	9.6	180 {X}	2.1E+6 {S}	2.1E+6 {S}	11,000	2.09E+6	NA	ID
n-Nitroso-di-n-propylamine	621647	5.0 {M}	5.0 {M}	NA	NLV	NLV	360	9.89E+6	ID	ID
N-Nitrosodiphenylamine	86306	270	1,100	NA	NLV	NLV	35,000 {S}	35,100	ID	ID
Oxo-hexyl acetate	88230357	73	210	NA	ID	ID	ID	NA	ID	ID
Pentachlorobenzene	608935	6.1	17	NA	ID	ID	240	650	ID	ID
Pentachloronitrobenzene	82688	32 {S}	32 {S}	NA	32 {S}	32 {S}	32 {S}	32	ID	ID
Piperidine	110894	3.2	9.2	NA	NLV	NLV	34,000	1.0E+9	ID	ID
Propionic acid	79094	12,000	35,000	ID	NLV	NLV	2.8E+8	1.0E+9	9.7E+8	ID
Pyridine {I}	110861	7.3	21	NA	5,500	12,000	94,000	3.00E+5	41,000	ID
1,2,4,5-Tetrachlorobenzene	95943	1,300 {S}	1,300 {S}	2.9 {X}	ID	ID	1,300 {S}	1,300	ID	ID
p-Toluidine	106490	15	62	NA	NLV	NLV	24,000	7.60E+6	NA	ID
Tributylamine	102829	10	29	ID	14,000	75,000 {S}	2,300	75,400	ID	ID
1,2,4-Trichlorobenzene	120821	70 {A}	70 {A}	30	3.0E+5 {S}	3.0E+5 {S}	19,000	3.00E+5	NA	3.0E+5 {S}
Triphenyl phosphate	115866	1,200	1,400 {S}	NA	NLV	NLV	1,400 {S}	1,430	ID	ID
tris(2,3-Dibromopropyl)phosphate	126727	0.71	2.9	NA	4,700 {S}	4,700 {S}	2,100	4,700	ID	ID
PCBs										
Polychlorinated biphenyls (PCBs) {J,T}	1336363	0.5 {A}	0.5 {A}	0.2 {M}	45 {S}	45 {S}	3.3 {AA}	44.7	ID	ID

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PHTHALATES										
bis(2-Ethylhexyl)phthalate	117817	6.0 {A}	6.0 {A}	32	NLV	NLV	320 {AA}	340	NA	340 {S}
Butyl benzyl phthalate	85687	1,200	2,700 {S}	14 {X}	NLV	NLV	2,700 {S}	2,690	ID	ID
Di-n-butyl phthalate	84742	880	2,500	9.7	NLV	NLV	11,000 {S}	11,200	NA	ID
Di-n-octyl phthalate	117840	130	380	ID	NLV	NLV	400	3,000	ID	ID
Dicyclohexyl phthalate	84617	ID	ID	NA	ID	ID	ID	4,000	ID	ID
Diethyl phthalate	84662	5,500	16,000	NA	NLV	NLV	1.1E+6 {S}	1.08E+6	NA	ID
Phthalic acid	88993	14,000	40,000	NA	NLV	NLV	1.4E+7 {S}	1.42E+7	ID	ID
Phthalic anhydride	85449	15,000	44,000	NA	NLV	NLV	6.2E+6 {S}	6.2E+6	NA	ID
PESTICIDES										
Alachlor	15972608	2.0 {A}	2.0 {A}	11 {X}	NLV	NLV	1,700	1.83E+5	ID	ID
Aldrin	309002	0.098	0.4	NA	180 {S}	180 {S}	0.34 {AA}	180	ID	ID
Atrazine	1912249	3.0 {A}	3.0 {A}	7.3 {X}	NLV	NLV	5,400	70,000	ID	ID
Chlordane {J}	57749	2.0 {A}	2.0 {A}	IP	56 {S}	56 {S}	15 {AA}	56	ID	ID
Chlorpyrifos	2921882	22	63	NA	2.9	6.6	1,100 {S}	1,120	ID	ID
Cyanazine	21725462	10 {M}	10 {M}	56 {X}	NLV	NLV	2,800	1.70E+5	ID	ID
Dacthal	1861321	73	210	NA	NLV	NLV	500 {S}	500	ID	ID
4-4'-DDD	72548	9.1	37	NA	NLV	NLV	44 {AA}	90	ID	ID
4-4'-DDE	72559	4.3	15	NA	ID	ID	27 {AA}	120	ID	ID
4-4'-DDT	50293	3.6	10	0.02 {M}	NLV	NLV	13 {AA}	25	NA	ID
Diazinon	333415	1.3	3.8	NA	NLV	NLV	1,300	68,800	NA	ID
Dichlorovos	62737	1.6	6.7	NA	NLV	NLV	5,900	1.60E+7	NA	ID
Dieldrin	60571	0.11	0.43	0.02 {M}	200 {S}	200 {S}	2.4 {AA}	195	ID	ID
Dinoseb	88857	7.0 {A}	7.0 {A}	NA	ID	ID	7,000	52,000	ID	ID
Diuron	330541	31	90	NA	NLV	NLV	37,000 {S}	37,300	ID	ID
Endosulfan {J}	115297	1.7	4.8	NA	ID	ID	510 {S}	510	ID	ID
Endothall	145733	100 {A}	100 {A}	NA	NLV	NLV	2.5E+7 {AA}	1.00E+8	ID	ID
Endrin	72208	2.0 {A}	2.0 {A}	IP	NLV	NLV	160 {AA}	250	ID	ID
Heptachlor	76448	0.4 {A}	0.4 {A}	NA	180 {S}	180 {S}	2.9 {AA}	180	ID	ID

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Heptachlor epoxide	1024573	0.2 {A}	0.2 {A}	NA	NLV	NLV	9.0 {AA}	200	ID	ID
Lindane	58899	0.2 {A}	0.2 {A}	0.027	ID	ID	190	6,800	ID	ID
Methoxychlor	72435	40 {A}	40 {A}	NA	ID	ID	45 {S}	45	ID	ID
Methyl parathion	298000	1.8	5.2	NA	NLV	NLV	3,000	50,000	ID	ID
Metolachlor	51218452	240	990	NA	NLV	NLV	91,000	5.30E+5	ID	ID
Mirex	2385855	0.02 {M}	0.02 {M}	NA	NA	NA	0.02 {M}	6.8E-6	NA	ID
Pendimethalin	40487421	280 {S}	280 {S}	NA	NLV	NLV	280 {S}	275	ID	ID
Prometon	1610180	160	460	NA	NLV	NLV	1.8E+5	7.50E+5	ID	ID
Propachlor	1918167	95	270	NA	NLV	NLV	4.4E+5	6.55E+5	ID	ID
Propazine	139402	200	560	NA	NLV	NLV	8,600 {S}	8,600	ID	ID
Simazine	122349	4.0 {A}	4.0 {A}	NA	NLV	NLV	4,500 {S}	4,470	ID	ID
Tebuthiuron	34014181	510	1,500	NA	NLV	NLV	2.5E+6 {S}	2.50E+6	ID	ID
Toxaphene	8001352	3.0 {A}	3.0 {A}	1.0 {M}	NLV	NLV	44	740	ID	740 {S}
Triallate	2303175	95	270	NA	ID	ID	4,000 {S}	4,000	ID	ID
PESTICIDES-HERBICIDES										
Aldicarb	116063	3.0 {A}	3.0 {A}	NA	NLV	NLV	1.2E+5	6.00E+6	ID	ID
Aldicarb sulfoxide	1646873	4.0 {A}	4.0 {A}	NA	NLV	NLV	2.7E+6	2.80E+7	ID	ID
Aldicarb sulfone	1646884	2.0 {A}	2.0 {A}	NA	NLV	NLV	2.1E+6	7.80E+6	ID	ID
Carbaryl	63252	700	2,000	NA	ID	ID	1.3E+5 {S}	1.26E+5	ID	ID
Carbofuran	1563662	40 {A}	40 {A}	NA	NLV	NLV	3.4E+5	7.00E+5	ID	ID
Dalapon	75990	200 {A}	200 {A}	NA	NLV	NLV	1.2E+7	5.02E+8	ID	ID
2,4-Dichlorophenoxyacetic acid	94757	70 {A}	70 {A}	220	NLV	NLV	1.2E+5	6.80E+5	ID	ID
Diquat	85007	20 {A}	20 {A}	NA	NLV	NLV	7.0E+5 {S}	7.00E+5	ID	ID
Glyphosate	1071836	700 {A}	700 {A}	NA	NLV	NLV	1.2E+7 {S,AA}	1.16E+7	ID	ID
2-Methyl-4-chlorophenoxyacetic acid	94746	7.3	21	NA	NLV	NLV	9,200	9.24E+5	ID	ID
Oxamyl	23135220	200 {A}	200 {A}	NA	NLV	NLV	6.2E+7	2.80E+8	ID	ID
Picloram	1918021	500 {A}	500 {A}	NA	NLV	NLV	4.3E+5 {S}	4.30E+5	ID	ID
Silvex (2,4,5-TP)	93721	50 {A}	50 {A}	NA	NLV	NLV	43,000	1.40E+5	ID	ID
Trifluralin	1582098	37	110	NA	ID	ID	2,400	8,100	ID	ID

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DIOXINS										
2,3,7,8-Tetrabromodibenzo-p-dioxin {O}	50585416	{O}	{O}	{O}	NLV	NLV	{O}	0.00996	ID	ID
2,3,7,8-Tetrachlorodibenzo-p-dioxin {O}	1746016	3.0E-5 {A}	3.0E-5 {A}	1.0E-5 {M}	NLV	NLV	1.0E-5 {M,O,AA}	0.019	ID	ID
PHENOLS										
4-Chloro-3-methylphenol	59507	150	420	NA	NLV	NLV	79,000	3.90E+6	ID	ID
2-Chlorophenol	95578	45	130	22	ID	ID	94,000	2.20E+7	ID	ID
2,4-Dichlorophenol	120832	73	210	19	NLV	NLV	48,000	4.50E+6	ID	ID
2,4-Dimethylphenol	105679	370	1,000	380	NLV	NLV	5.2E+5	7.87E+6	ID	ID
2,6-Dimethylphenol	576261	4.4	13	NA	NLV	NLV	6,300	6.14E+6	ID	ID
3,4-Dimethylphenol	95658	10	29	NA	NLV	NLV	18,000	4.93E+6	ID	ID
2-Methyl-4,6-dinitrophenol	534521	20 {M}	20 {M}	NA	NLV	NLV	9,500	2.00E+5	ID	ID
Methylphenols (J)	1319773	370	1,000	71	NLV	NLV	8.1E+5	2.80E+7	NA	ID
2-Nitrophenol	88755	20	58	ID	NLV	NLV	79,000	2.50E+6	ID	ID
Pentachlorophenol	87865	1.0 {A}	1.0 {A}	{G,X}	NLV	NLV	200	1.85E+6	ID	ID
Phenol	108952	4,400	13,000	210	NLV	NLV	2.9E+7	8.28E+7	NA	ID
2,4,5-Trichlorophenol	95954	730	2,100	NA	NLV	NLV	1.7E+5	1.20E+6	ID	ID
2,4,6-Trichlorophenol	88062	120	470	4.4	NLV	NLV	10,000	8.00E+5	ID	ID
3-Trifluoromethyl-4-nitrophenol	88302	4,500	13,000	NA	NLV	NLV	5.0E+6 {S}	5.00E+6	ID	ID
MISCELLANEOUS										
Ammonia	7664417	10,000 {N}	10,000 {N}	{AC}	3.2E+6	7.2E+6	ID	5.30E+8	ID	3.5E+6
Asbestos {AB}	1332214	7.0E+6 f/mL {A}	7.0E+6 f/mL {A}	NA	NLV	NLV	ID	NA	NA	ID
Chloride	16887006	2.5E+5 {E}	2.5E+5 {E}	1.25E+5 {X}	NLV	NLV	ID	NA	ID	ID
Cyanide {R}	57125	200 {A}	200 {A}	20 {M}	NLV	NLV	57,000	NA	ID	ID
Fluorine (soluble fluoride) {B}	7782414	2,000 {E}	2,000 {E}	NA	NLV	NLV	1.2E+7	NA	ID	ID
Nitrate {B,N}	14797558	10,000 {A,N}	10,000 {A,N}	NA	NLV	NLV	3.1E+8	NA	ID	ID
Nitrite {B,N}	14797650	1,000 {A,N}	1,000 {A,N}	NA	NLV	NLV	1.9E+7	NA	ID	ID
Phosphorus (total)	7723140	63,000	2.4E+5	NA	NLV	NLV	ID	NA	ID	ID
Sulfate	14808798	2.5E+5 {E}	2.5E+5 {E}	NA	NLV	NLV	ID	NA	ID	ID
Urea	57136	ID {N}	ID {N}	NA	NLV	NLV	ID	NA	ID	ID

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PBBs										
Polybrominated biphenyls {J}	67774327	0.032	0.09	IP	NLV	NLV	ID	1.66E+7	ID	ID
GLYCOLS										
Diethylene glycol monobutyl ether	112345	88	250	NA	NLV	NLV	4.0E+6	1.0E+9	ID	ID
Ethylene glycol	107211	15,000	42,000	1.9E+5 {X}	NLV	NLV	1.0E+9 {D,S}	1.0E+9	NA	1.0E+9 {D}
Ethylene glycol monobutyl ether	111762	3,700	10,000	NA	2.9E+6	6.5E+6	5.3E+7	2.24E+8	NA	ID
Propylene glycol	57556	1.5E+5	4.2E+5	NA	NLV	NLV	1.0E+9 {D,S}	1.0E+9	ID	ID
Triethylene glycol	112276	10,000 {M}	12,000	NA	NLV	NLV	1.0E+6 {S}	1.00E+6	ID	ID
CARBONYLS										
Acetaldehyde {I}	75070	950	2,700	NA	1.1E+6	2.3E+6	4.2E+7	1.0E+9	4.4E+6	2.6E+7
Cyclohexanone	108941	33,000	94,000	NA	1,400	3,300	2.3E+7 {S}	2.30E+7	NA	ID
Formaldehyde	50000	1,300	3,800	120	63,000	3.6E+5	3.0E+7	5.50E+8	ID	61,000
LOW MOLECULAR WEIGHT ACID										
Acetic acid	64197	18,000 {M}	18,000 {M}	18,000 {M}	NLV	NLV	1.8E+8	6.0E+9	4.8E+9	1.0E+9 {D}
Formic acid {I,U}	64186	18,000 {M}	29,000	ID	7.7E+6	1.5E+7	6.0E+8	1.0E+9	6.6E+8	3.5E+8

SOIL: RESIDENTIAL AND COMMERCIAL I

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS
Developed under the authority of the
NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT, 1994 PA 451, AS AMENDED

Soil criteria were calculated using currently available chemical-specific data and U.S. Environmental Protection Agency risk assessment guidance. Criteria may change for the next annual revision of the criteria tables. All criteria are expressed in units of parts per billion (ppb;ug/Kg). Scientific notation is represented by E+ or E- a value; for example, 2×10^6 is reported as 2.0E+6. Analytical results must be expressed as dry-weight concentrations for comparison to criteria. Please refer to Operational Memorandum #6 for recommended analytical methods and target detection limits.

			Groundwater Protection			Indoor Air	Ambient Air {Y}				Direct Contact	
Guidesheet Number →		#10	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
BTEX + MTBE												
Benzene {I}	71432	NA	100	4,000 {X}	2.2E+5	1,600	13,000	34,000	79,000	3.8E+8	1.8E+5	4.0E+5
Ethylbenzene {I}	100414	NA	1,500	360	1.4E+5 {C}	1.4E+5 {C}	9.5E+6	1.4E+7	3.0E+7	6.7E+10	1.4E+5 {C}	1.4E+5
Methyl-tert-butyl ether (MTBE)	1634044	NA	800	15,000 {X}	5.9E+6 {C}	5.9E+6 {C}	2.5E+7	3.9E+7	8.7E+7	2.0E+11	1.8E+6	5.9E+6
Toluene {I}	108883	NA	16,000	2,800	2.5E+5 {C}	2.5E+5 {C}	2.8E+6	5.1E+6	1.2E+7	2.7E+10	2.5E+5 {C}	2.5E+5
Xylenes {I}	1330207	NA	5,600	700	1.5E+5 {C}	1.5E+5 {C}	4.6E+7	6.1E+7	1.3E+8	2.9E+11	1.5E+5 {C}	1.5E+5
VOLATILES												
Acetone {I}	67641	NA	15,000	34,000	1.1E+8 {C}	1.1E+8 {C}	1.3E+8	1.3E+8	1.9E+8	3.9E+11	2.3E+7	1.1E+8
Acrolein {I}	107028	NA	2,400	NA	2.3E+7 {C}	410	310	310	610	1.3E+6	3.6E+6	2.3E+7
Acrylonitrile {I}	107131	NA	52	98 {X}	2.8E+5	6,600	5,000	5,100	10,000	4.6E+7	16,000	8.3E+6
Benzyl chloride	100447	NA	200 {M}	NA	72,000	6,300	14,000	14,000	17,000	6.2E+7	48,000	2.3E+5
Bromobenzene {I}	108861	NA	550	NA	3.6E+5	3.1E+5	4.5E+5	4.5E+5	4.5E+5	5.3E+8	5.4E+5	7.6E+5
Bromodichloromethane	75274	NA	2,000 {W}	ID	2.8E+5	1,200	9,100	9,700	19,000	8.4E+7	1.1E+5	1.5E+6
Bromoform	75252	NA	2,000 {W}	ID	8.7E+5 {C}	1.5E+5	9.0E+5	9.0E+5	9.0E+5	2.8E+9	8.2E+5	8.7E+5
Bromomethane	74839	NA	200	700	1.4E+6	860	11,000	57,000	1.4E+5	3.3E+8	3.2E+5	2.2E+6
n-Butanol {I}	71363	NA	19,000	NA	8.7E+6 {C}	NLV	NLV	NLV	NLV	2.3E+10	8.7E+6 {C}	8.7E+6
2-Butanone (MEK) {I}	78933	NA	2.6E+5	44,000	2.7E+7 {C}	2.7E+7 {C}	2.9E+7	2.9E+7	3.5E+7	6.7E+10	2.7E+7 {C,AD}	2.7E+7
n-Butyl acetate	123864	NA	11,000	NA	1.1E+6 {C}	1.1E+6 {C}	1.1E+8	2.6E+8	3.2E+8	4.7E+11	1.1E+6 {C}	1.1E+6
t-Butyl alcohol	75650	NA	78,000	NA	1.1E+8 {C}	1.1E+8 {C}	9.7E+7	2.0E+8	2.0E+8	1.3E+11	1.1E+8 {C}	1.1E+8
n-Butylbenzene	104518	NA	1,600	NA	1.2E+5	ID	ID	ID	ID	ID	2.5E+6	1.0E+7
sec-Butylbenzene	135988	NA	1,600	NA	88,000	ID	ID	ID	ID	ID	2.5E+6	1.0E+7
tert-Butylbenzene {I}	98066	NA	1,600	NA	1.8E+5	ID	ID	ID	ID	ID	2.5E+6	1.0E+7
Carbon disulfide {I,R}	75150	NA	16,000	ID	2.8E+5 {C}	76,000	1.3E+6	7.9E+6	1.9E+7	4.7E+10	2.8E+5 {C,AD}	2.8E+5
Carbon tetrachloride	56235	NA	100	900 {X}	92,000	190	3,500	12,000	28,000	1.3E+8	96,000	3.9E+5
Chlorobenzene {I}	108907	NA	2,000	940	2.6E+5 {C}	1.2E+5	7.7E+5	9.9E+5	2.1E+6	4.7E+9	2.6E+5 {C}	2.6E+5
1-Chloro-1,1-difluoroethane	75683	NA	3.0E+5	NA	9.6E+5 {C}	9.6E+5 {C}	7.9E+7	ID	ID	3.3E+12	9.6E+5 {C}	9.6E+5
Chloroethane	75003	NA	8,600	ID	9.5E+5 {C}	9.5E+5 {C}	3.0E+7	1.2E+8	2.8E+8	6.7E+11	9.5E+5 {C}	9.5E+5

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PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

			Groundwater Protection			Indoor Air	Ambient Air {Y}				Direct Contact	
Guidesheet Number →		#10	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
2-Chloroethyl vinyl ether	110758	NA	ID	NA	ID	ID	ID	ID	ID	ID	ID	1.9E+6
Chloroform	67663	NA	2,000 {W}	3,400 {X}	1.5E+6 {C}	7,200	45,000	1.2E+5	2.7E+5	1.3E+9	1.2E+6	1.5E+6
Chloromethane {I}	74873	NA	5,200	ID	1.1E+6 {C}	2,300	40,000	4.1E+5	1.0E+6	4.9E+9	1.1E+6 {C}	1.1E+6
o-Chlorotoluene {I}	95498	NA	3,300	NA	5.0E+5 {C}	5.0E+5 {C}	ID	ID	ID	1.7E+11	5.0E+5 {C}	5.0E+5
Dibromochloromethane	124481	NA	2,000 {W}	ID	3.6E+5	3,900	24,000	24,000	33,000	1.3E+8	1.1E+5	6.1E+5
Dibromochloropropane	96128	NA	4.0	NA	1,200 {C}	1,200 {C}	13,000	ID	ID	1.3E+7	1,200 {C}	1,200
Dibromomethane	74953	NA	1,600	NA	2.0E+6 {C}	ID	ID	ID	ID	ID	2.0E+6 {C}	2.0E+6
Dichlorodifluoromethane	75718	NA	95,000	ID	1.0E+6 {C}	9.0E+5	5.3E+7	5.5E+8	1.4E+9	3.3E+12	1.0E+6 {C}	1.0E+6
1,1-Dichloroethane	75343	NA	18,000	ID	8.9E+5 {C}	2.3E+5	2.1E+6	5.9E+6	1.4E+7	3.3E+10	8.9E+5 {C}	8.9E+5
1,2-Dichloroethane {I}	107062	NA	100	7,200 {X}	3.8E+5	2,100	6,200	11,000	26,000	1.2E+8	91,000	1.2E+6
1,1-Dichloroethylene {I}	75354	NA	140	1,300 {X}	2.2E+5	62	1,100	5,300	13,000	6.2E+7	2.0E+5	5.7E+5
cis-1,2-Dichloroethylene	156592	NA	1,400	ID	6.4E+5 {C}	23,000	1.8E+5	4.2E+5	9.9E+5	2.3E+9	6.4E+5 {C}	6.4E+5
trans-1,2-Dichloroethylene	156605	NA	2,000	ID	1.4E+6 {C}	23,000	2.8E+5	8.3E+5	2.0E+6	4.7E+9	1.4E+6 {C}	1.4E+6
1,2-Dichloropropane {I}	78875	NA	100	5,800 {X}	3.2E+5	4,000	25,000	50,000	1.1E+5	2.7E+8	1.4E+5	5.5E+5
1,3-Dichloropropene	542756	NA	420	NA	2.6E+5	10 {M}	10 {M}	35	83	4.0E+5	1.3E+5	6.2E+5
Diethyl ether	60297	NA	200	ID	7.4E+6 {C}	7.4E+6 {C}	8.5E+7	1.5E+8	3.4E+8	8.0E+11	7.4E+6 {C}	7.4E+6
Diisopropyl ether	108203	NA	600	NA	1,300 {C}	ID	ID	ID	ID	ID	1,300 {C}	1,300
Dimethylformamide {I}	68122	NA	14,000	NA	1.1E+8 {C}	NLV	NLV	NLV	NLV	2.0E+9	2.2E+7	1.1E+8
Dimethylsulfoxide	67685	NA	4.4E+6	3.8E+6	1.8E+7 {C}	NLV	NLV	NLV	NLV	ID	1.8E+7 {C}	1.8E+7
1,4-Dioxane {I}	123911	NA	1,700	56,000	3.4E+7	NLV	NLV	NLV	NLV	5.7E+8	5.3E+5	9.7E+7
Epichlorohydrin {I}	106898	NA	100	NA	2.2E+5	64,000	31,000	31,000	35,000	6.7E+7	8,900	7.3E+6
Ethanol {I}	64175	NA	3.8E+7	IP	1.1E+8 {C}	NLV	NLV	NLV	NLV	1.3E+12	1.1E+8 {C,AD}	1.1E+8
Ethyl acetate {I}	141786	NA	1.3E+5	NA	7.5E+6 {C}	7.5E+6 {C}	4.9E+7	4.9E+7	9.8E+7	2.1E+11	7.5E+6 {C}	7.5E+6
Ethylene dibromide	106934	NA	10 {M}	20	500	670	1,700	1,700	3,300	1.4E+7	92	8.9E+5
n-Heptane	142825	NA	2.4E+5 {C}	NA	2.4E+5 {C}	2.4E+5 {C}	2.1E+7	ID	ID	2.3E+11	2.4E+5 {C}	2.4E+5
n-Hexane	110543	NA	44,000 {C}	NA	44,000 {C}	44,000 {C}	3.0E+6	ID	ID	1.3E+10	44,000 {C}	44,000
2-Hexanone	591786	NA	20,000	NA	2.5E+6 {C}	9.9E+5	1.1E+6	ID	ID	2.7E+9	2.5E+6 {C}	2.5E+6
Isobutyl alcohol {I}	78831	NA	46,000	NA	8.9E+6 {C}	8.9E+6 {C}	7.9E+7	7.9E+7	7.9E+7	1.0E+11	8.9E+6 {C}	8.9E+6
Isopropyl alcohol {I}	67630	NA	9,400	NA	1.1E+8 {C}	NLV	NLV	NLV	NLV	1.5E+10	1.4E+7	1.1E+8
Isopropyl benzene	98828	NA	91,000	ID	3.9E+5 {C}	3.9E+5 {C}	1.7E+6	ID	ID	5.8E+9	3.9E+5 {C}	3.9E+5
Methane	74828	NA	ID	ID	ID	{K}	ID	ID	ID	ID	ID	ID
Methanol	67561	NA	74,000	9,600	3.1E+6 {C}	5.0E+5	3.1E+7	4.4E+7	9.6E+7	2.2E+11	3.1E+6 {C}	3.1E+6
4-Methyl-2-pentanone (MIBK) {I}	108101	NA	36,000	ID	2.7E+6 {C}	2.7E+6 {C}	4.5E+7	4.5E+7	6.7E+7	1.4E+11	2.7E+6 {C}	2.7E+6

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PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

			Groundwater Protection			Indoor Air	Ambient Air {Y}				Direct Contact	
Guidesheet Number →		#10	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Methylene chloride	75092	NA	100	19,000 {X}	2.3E+6 {C}	45,000	2.1E+5	5.9E+5	1.4E+6	6.6E+9	1.3E+6	2.3E+6
Pentane	109660	NA	ID	NA	ID	2.4E+5 {C}	3.7E+7	ID	ID	1.2E+12	ID	2.4E+5
2-Pentene {I}	109682	NA	ID	NA	ID	ID	ID	ID	ID	ID	ID	2.2E+5
Propyl alcohol {I}	71238	NA	28,000	NA	1.1E+8 {C}	NLV	NLV	NLV	NLV	4.9E+10	1.3E+7 {AD}	1.1E+8
n-Propylbenzene {I}	103651	NA	1,600	NA	3.0E+5	ID	ID	ID	ID	1.3E+9	2.5E+6	1.0E+7
Styrene	100425	NA	2,700	2,200	2.7E+5	2.5E+5	9.7E+5	9.7E+5	1.4E+6	5.5E+9	4.0E+5	5.2E+5
1,1,1,2-Tetrachloroethane	630206	NA	1,500	NA	4.4E+5 {C}	6,200	36,000	54,000	1.0E+5	4.2E+8	4.4E+5 {C}	4.4E+5
1,1,2,2-Tetrachloroethane	79345	NA	170	1,600 {X}	94,000	4,300	10,000	10,000	14,000	5.4E+7	53,000	8.7E+5
Tetrachloroethylene	127184	NA	100	900 {X}	88,000 {C}	11,000	1.8E+5	4.8E+5	1.1E+6	5.4E+9	88,000 {C}	88,000
Tetrahydrofuran	109999	NA	1,900	2.2E+5 {X}	3.2E+7	1.3E+6	1.3E+7	ID	ID	3.9E+11	2.9E+6	1.2E+8
1,1,1-Trichloroethane	71556	NA	4,000	4,000	4.6E+5 {C}	2.5E+5	3.8E+6	1.2E+7	2.8E+7	6.7E+10	4.6E+5 {C}	4.6E+5
1,1,2-Trichloroethane	79005	NA	100	6,600 {X}	4.2E+5	4,600	17,000	21,000	44,000	1.9E+8	1.8E+5	9.2E+5
Trichloroethylene	79016	NA	100	4,000 {X}	5.0E+5 {C}	7,100	78,000	1.7E+5	3.9E+5	1.8E+9	5.0E+5 {C}	5.0E+5
Trichlorofluoromethane	75694	NA	52,000	NA	5.6E+5 {C}	5.6E+5 {C}	9.2E+7	6.3E+8	1.5E+9	3.8E+12	5.6E+5 {C}	5.6E+5
1,2,3-Trichloropropane	96184	NA	840	NA	8.3E+5 {C}	ID	ID	ID	ID	ID	8.3E+5 {C}	8.3E+5
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	NA	5.5E+5 {C}	NA	5.5E+5 {C}	5.5E+5 {C}	1.8E+8	8.8E+8	2.1E+9	5.1E+12	5.5E+5 {C}	5.5E+5
Triethanolamine	102716	NA	74,000	NA	1.1E+8 {C}	NLV	NLV	NLV	NLV	3.3E+9	1.1E+8	1.1E+8
2,2,4-Trimethyl pentane	540841	NA	ID	NA	ID	ID	ID	ID	ID	ID	ID	19,000
2,4,4-Trimethyl-2-pentene {I}	107404	NA	ID	NA	ID	ID	ID	ID	ID	ID	ID	56,000
1,2,4-Trimethylbenzene {I}	95636	NA	2,100	ID	1.1E+5 {C}	1.1E+5 {C}	2.1E+7	5.0E+8	5.0E+8	8.2E+10	1.1E+5 {C}	1.1E+5
1,3,5-Trimethylbenzene {I}	108678	NA	1,800	ID	94,000 {C}	94,000 {C}	1.6E+7	3.8E+8	3.8E+8	8.2E+10	94,000 {C}	94,000
Vinyl acetate {I}	108054	NA	13,000	NA	2.4E+6 {C}	7.9E+5	1.7E+6	2.6E+6	5.8E+6	1.3E+10	2.4E+6 {C,AD}	2.4E+6
Vinyl chloride	75014	NA	40	300	11,000	28	440	3,100	7,600	3.7E+7	4,000	4.9E+5
INORGANICS												
Aluminum {B}	7429905	6.9E+6	1,000	NA	1.0E+9 {D}	NLV	NLV	NLV	NLV	ID	5.0E+7 {AD}	NA

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			Groundwater Protection			Indoor Air	Ambient Air {Y}				Direct Contact	
Guidesheet Number →		#10	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Antimony	7440360	NA	500 {M}	ID	4.9E+7	NLV	NLV	NLV	NLV	1.3E+7	1.8E+5	NA
Arsenic {B}	7440382	5,800	23,000	70,000 {X}	2.0E+6	NLV	NLV	NLV	NLV	7.2E+5	7,600	NA
Barium	7440393	75,000	1.3E+6	{G,X}	1.0E+9 {D}	NLV	NLV	NLV	NLV	3.3E+8	3.7E+7	NA
Beryllium	7440417	NA	51,000	{G}	1.0E+9 {D}	NLV	NLV	NLV	NLV	1.3E+6	4.1E+5	NA
Boron {B}	7440428	NA	10,000	38,000	1.0E+9 {D}	NLV	NLV	NLV	NLV	ID	4.8E+7 {AD}	NA
Cadmium {B}	7440439	1,200	6,000	{G,X}	2.3E+8	NLV	NLV	NLV	NLV	1.7E+6	5.5E+5	NA
Chromium (III) {B,H}	16065831	18,000 (total)	1.0E+9 {D}	{G,X}	1.0E+9 {D}	NLV	NLV	NLV	NLV	3.3E+8	7.9E+8	NA
Chromium (VI)	18540299	18,000 (total)	30,000	3,300	1.4E+8	NLV	NLV	NLV	NLV	2.6E+5	2.5E+6	NA
Cobalt	7440484	6,800	800	2,000	4.8E+7	NLV	NLV	NLV	NLV	1.3E+7	2.6E+6	NA
Copper	7440508	32,000	5.8E+6	{G}	1.0E+9 {D}	NLV	NLV	NLV	NLV	1.3E+8	2.0E+7	NA
Iron {B}	7439896	1.2E+7	6,000	NA	1.0E+9 {D}	NLV	NLV	NLV	NLV	ID	1.6E+8	NA
Lead	7439921	21,000	7.0E+5	{G,M,X}	ID	NLV	NLV	NLV	NLV	1.0E+8	4.0E+5	NA
Lithium {B}	7439932	9,800	3,400	500	1.1E+8	NLV	NLV	NLV	NLV	ID	4.2E+6 {AD}	NA
Magnesium {B}	7439954	NA	8.0E+6	NA	1.0E+9 {D}	NLV	NLV	NLV	NLV	6.7E+9	1.0E+9 {D}	NA
Manganese {B}	7439965	4.4E+5	1,000	{G,X}	1.8E+8	NLV	NLV	NLV	NLV	3.3E+6	2.5E+7	NA
Mercury (Inorganic)	7439976	130	1,700	100 {M}	47,000	NLV	NLV	NLV	NLV	ID	1.6E+5	NA
Molybdenum {B}	7439987	NA	740	16,000 {X}	1.9E+7	NLV	NLV	NLV	NLV	ID	2.6E+6	NA
Nickel {B}	7440020	20,000	1.0E+5	{G}	1.0E+9 {D}	NLV	NLV	NLV	NLV	1.3E+7	4.0E+7	NA
Selenium {B}	7782492	410	4,000	400	7.8E+7	NLV	NLV	NLV	NLV	1.3E+8	2.6E+6	NA
Silver {B}	7440224	1,000	4,500	500 {M}	2.0E+8	NLV	NLV	NLV	NLV	6.7E+6	2.5E+6	NA
Sodium	17341252	NA	2.5E+6	NA	1.0E+9 {D}	NLV	NLV	NLV	NLV	ID	1.0E+9 {D}	NA
Strontium {B}	7440246	NA	92,000	15,000	1.0E+9 {D}	NLV	NLV	NLV	NLV	ID	3.3E+8	NA
Thallium {B}	7440280	NA	2,300	4,200 {X}	1.5E+7	NLV	NLV	NLV	NLV	ID	35,000	NA
Vanadium	7440622	NA	72,000	1.9E+5	1.0E+9 {D}	NLV	NLV	NLV	NLV	ID	7.5E+5	NA
White phosphorus {R}	12185103	NA	2.2	NA	58,000	NLV	NLV	NLV	NLV	ID	2,300 {AD}	NA
Zinc {B}	7440666	47,000	2.4E+6	{G}	1.0E+9 {D}	NLV	NLV	NLV	NLV	ID	1.7E+8	NA
PAHs												
Acenaphthene	83329	NA	3.0E+5	4,400	9.7E+5	1.9E+8	8.1E+7	8.1E+7	8.1E+7	1.4E+10	4.1E+7	NA
Acenaphthylene	208968	NA	5,900	ID	4.4E+5	1.6E+6	2.2E+6	2.2E+6	2.2E+6	2.3E+9	1.6E+6	NA
Anthracene	120127	NA	41,000	ID	41,000	1.0E+9 {D}	1.4E+9	1.4E+9	1.4E+9	6.7E+10	2.3E+8	NA
Benzo(a)anthracene {Q}	56553	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	20,000	NA
Benzo(b)fluoranthene {Q}	205992	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	20,000	NA
Benzo(k)fluoranthene {Q}	207089	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	2.0E+5	NA

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Benzo(g,h,i)perylene	191242	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	8.0E+8	2.5E+6	NA
Benzo(a)pyrene {Q}	50328	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	1.5E+6	2,000	NA
beta-Chloronaphthalene	91587	NA	6.2E+5	NA	2.3E+6	ID	ID	ID	ID	ID	5.6E+7	NA
Chrysene {Q}	218019	NA	NLL	NLL	NLL	ID	ID	ID	ID	ID	2.0E+6	NA
Dibenzo(a,h)anthracene {Q}	53703	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	2,000	NA
Dibenzofuran	132649	NA	ID	1,700	ID	ID	ID	ID	ID	ID	ID	NA
Fluoranthene	206440	NA	7.3E+5	5,500	7.3E+5	1.0E+9 {D}	7.4E+8	7.4E+8	7.4E+8	9.3E+9	4.6E+7	NA
Fluorene	86737	NA	3.9E+5	5,300	8.9E+5	5.8E+8	1.3E+8	1.3E+8	1.3E+8	9.3E+9	2.7E+7	NA
Indeno(1,2,3-cd)pyrene {Q}	193395	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	20,000	NA
2-Methylnaphthalene	91576	NA	57,000	ID	5.5E+6	ID	ID	ID	ID	ID	8.1E+6	NA
Naphthalene	91203	NA	35,000	870	2.1E+6	2.5E+5	3.0E+5	3.0E+5	3.0E+5	2.0E+8	1.6E+7	NA
Phenanthrene	85018	NA	56,000	5,300	1.1E+6	2.8E+6	1.6E+5	1.6E+5	1.6E+5	6.7E+6	1.6E+6	NA
Pyrene	129000	NA	4.8E+5	ID	4.8E+5	1.0E+9 {D}	6.5E+8	6.5E+8	6.5E+8	6.7E+9	2.9E+7	NA
SEMIVOLATILES												
Acetonitrile	75058	NA	2,800	NA	2.2E+7 {C}	4.8E+6	1.6E+6	1.6E+6	2.1E+6	4.0E+9	4.3E+6	2.2E+7
Acetophenone	98862	NA	30,000	NA	1.1E+6 {C}	1.1E+6 {C}	4.4E+7	ID	ID	3.3E+10	1.1E+6 {C}	1.1E+6
Acrylamide	79061	NA	6.0	NA	2.6E+5	NLV	NLV	NLV	NLV	2.4E+6	1,900	NA
Acrylic acid	79107	NA	78,000	NA	1.1E+8 {C}	2.4E+6	1.9E+5	2.3E+5	2.3E+5	6.7E+7	3.5E+7 {AD}	1.1E+8
Aniline	62533	NA	1,700 {M}	1,700 {M}	2.8E+6	NLV	NLV	NLV	NLV	6.7E+7	3.3E+5	4.5E+6
Azobenzene	103333	NA	4,200	NA	3.0E+5	6.1E+6	6.3E+5	ID	ID	1.0E+8	1.4E+5	NA
Benzidine	92875	NA	1,000 {M}	ID	1,000 {M}	NLV	NLV	NLV	NLV	46,000	1,000 {M}	NA
Benzoic acid	65850	NA	6.4E+5	NA	7.0E+7	NLV	NLV	NLV	NLV	ID	9.9E+8	NA
Benzyl alcohol	100516	NA	2.0E+5	NA	5.8E+6 {C}	NLV	NLV	NLV	NLV	3.3E+11	5.8E+6 {C}	5.8E+6
bis(2-Chloroethoxy)ethane	112265	NA	ID	NA	ID	NLV	NLV	NLV	NLV	ID	ID	2.7E+6
bis(2-Chloroethyl)ether {I}	111444	NA	330 {M}	NA	1.1E+5	8,300	3,800	3,800	3,800	9.4E+6	13,000	2.2E+6
Camphene {I}	79925	NA	ID	NA	ID	ID	ID	ID	ID	ID	ID	NA
Caprolactam	105602	NA	1.2E+5	NA	1.0E+9 {D}	NLV	NLV	NLV	NLV	6.7E+8	5.3E+7 {AD}	NA
Carbazole	86748	NA	9,400	1,100	8.2E+5	NLV	NLV	NLV	NLV	ID	5.3E+5	NA
Decabromodiphenyl ether	1163195	NA	1.4E+5	NA	1.4E+5	1.0E+9 {D}	8.6E+7	ID	ID	2.3E+9	3.8E+6	NA
Di(2-ethylhexyl) adipate	103231	NA	9.6E+5 {C}	NA	9.6E+5 {C}	NLV	NLV	NLV	NLV	9.2E+9	9.6E+5 {C,AD}	9.6E+5
Diacetone alcohol {I}	123422	NA	ID	NA	ID	NLV	NLV	NLV	NLV	1.6E+11	ID	1.1E+8
1,2-Dichlorobenzene	95501	NA	14,000	360	2.1E+5 {C}	2.1E+5 {C}	3.9E+7	3.9E+7	5.2E+7	1.0E+11	2.1E+5 {C}	2.1E+5
1,3-Dichlorobenzene	541731	NA	170	1,100	51,000	ID	ID	ID	ID	ID	1.7E+5 {C}	1.7E+5

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1,4-Dichlorobenzene	106467	NA	1,700	290	1.4E+5	19,000	77,000	77,000	1.1E+5	4.5E+8	4.0E+5	NA
3,3'-Dichlorobenzidine	91941	NA	2,000 {M}	2,000 {M,X}	4,600	NLV	NLV	NLV	NLV	6.5E+6	6,600	NA
2,6-Dichloro-4-nitroaniline	99309	NA	44,000	NA	1.4E+5	NLV	NLV	NLV	NLV	ID	6.8E+7	NA
Diisopropylamine {I}	108189	NA	110	NA	4.2E+5	ID	ID	ID	ID	ID	1.7E+5	6.7E+6
Dimethyl phthalate	131113	NA	7.9E+5 {C}	NA	7.9E+5 {C}	NLV	NLV	NLV	NLV	3.3E+9	7.9E+5 {C}	7.9E+5
N,N-Dimethylacetamide	127195	NA	3,600	82,000 {X}	1.1E+8 {C}	NLV	NLV	NLV	NLV	ID	5.6E+6	1.1E+8
N,N-Dimethylaniline	121697	NA	320	NA	4.0E+5	1.7E+5	1.5E+5	ID	ID	2.6E+8	5.0E+5	8.0E+5
2,4-Dinitrotoluene	121142	NA	430	NA	1.7E+5	NLV	NLV	NLV	NLV	1.6E+7	48,000	NA
1-Formylpiperidine	2591868	NA	1,600	NA	ID	ID	ID	ID	ID	ID	2.5E+6	1.0E+7
Gentian violet	548629	NA	300	NA	2.0E+7	NLV	NLV	NLV	NLV	ID	96,000	NA
Hexabromobenzene	87821	NA	3.2E+5	ID	3.2E+5	ID	ID	ID	ID	ID	1.1E+6	NA
Hexachlorobenzene (C-66)	118741	NA	1,800	ID	8,200	41,000	17,000	17,000	17,000	6.8E+6	8,900	NA
Hexachlorobutadiene (C-46)	87683	NA	26,000	330 {M}	3.5E+5 {C}	1.3E+5	1.3E+5	1.3E+5	1.3E+5	1.4E+8	1.0E+5	3.5E+5
alpha-Hexachlorocyclohexane	319846	NA	18	NA	2,500	30,000	12,000	22,000	25,000	1.7E+6	2,600	NA
beta-Hexachlorocyclohexane	319857	NA	37	NA	5,100	NLV	NLV	NLV	NLV	5.9E+6	5,400	NA
Hexachlorocyclopentadiene (C-56)	77474	NA	3.2E+5	ID	7.2E+5 {C}	ID	ID	ID	ID	ID	7.2E+5 {C}	7.2E+5
Hexachloroethane	67721	NA	430	1,800 {X}	1.1E+5	40,000	5.5E+5	9.3E+5	9.3E+5	2.3E+8	2.3E+5	NA
Isophorone	78591	NA	15,000	11,000 {X}	2.4E+6 {C}	NLV	NLV	NLV	NLV	1.2E+10	2.4E+6 {C}	2.4E+6
2-Methoxyethanol {I}	109864	NA	150	NA	1.7E+7	NLV	NLV	NLV	NLV	1.3E+9	2.3E+5	1.1E+8
N-Methyl-morpholine {I}	109024	NA	400	NA	3.0E+7	NLV	NLV	NLV	NLV	ID	6.1E+5	1.1E+8
Methylcyclopentane {I}	96377	NA	ID	NA	ID	ID	ID	ID	ID	ID	ID	3.5E+5
4,4'-Methylene-bis-2-chloroaniline (MBOCA)	101144	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	8.4E+7	6,800	NA
Nitrobenzene {I}	98953	NA	330 {M}	3,600 {X}	2.2E+5	4.9E+5 {C}	3.9E+6	3.9E+6	3.9E+6	3.3E+9	1.0E+5	4.9E+5
n-Nitroso-di-n-propylamine	621647	NA	330 {M}	NA	7,200	NLV	NLV	NLV	NLV	1.6E+6	1,200	1.5E+6
N-Nitrosodiphenylamine	86306	NA	5,400	NA	7.0E+5	NLV	NLV	NLV	NLV	ID	1.7E+6	NA
Oxo-hexyl acetate	88230357	NA	1,500	NA	ID	ID	ID	ID	ID	5.4E+9	2.3E+6	1.0E+7
Pentachlorobenzene	608935	NA	29,000	NA	1.9E+5 {C}	ID	ID	ID	ID	ID	1.9E+5 {C}	1.9E+5
Pentachloronitrobenzene	82688	NA	37,000	NA	37,000	1.2E+5	2.3E+5	2.3E+5	2.3E+5	3.3E+8	1.7E+6	NA
Piperidine	110894	NA	64	NA	6.8E+5	NLV	NLV	NLV	NLV	9.3E+9	99,000	1.2E+8
Propionic acid	79094	NA	2.4E+5	NA	1.1E+8 {C}	NLV	NLV	NLV	NLV	2.0E+10	1.1E+8 {C}	1.1E+8
Pyridine {I}	110861	NA	330 {M}	NA	37,000 {C}	1,100	8,200	40,000	97,000	2.3E+8	37,000 {C}	37,000
1,2,4,5-Tetrachlorobenzene	95943	NA	1.5E+6	3,400 {X}	1.5E+6	ID	ID	ID	ID	ID	7.7E+7	NA
p-Toluidine	106490	NA	660 {M}	NA	4.8E+5	NLV	NLV	NLV	NLV	1.0E+8	94,000	1.2E+6

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Tributylamine	102829	NA	7,800	ID	1.8E+6	5.8E+5	6.0E+5	ID	ID	4.7E+8	7.9E+5	3.7E+6
1,2,4-Trichlorobenzene	120821	NA	4,200	1,800	1.1E+6	1.1E+6 {C}	2.8E+7	2.8E+7	2.8E+7	2.5E+10	9.9E+5 {AD}	1.1E+6
Triphenyl phosphate	115866	NA	1.1E+5 {C}	NA	1.1E+5 {C}	ID	ID	ID	ID	ID	1.1E+5 {C}	1.1E+5
tris(2,3-Dibromopropyl)phosphate	126727	NA	66	NA	27,000 {C}	27,000 {C}	18,000	18,000	18,000	5.9E+6	4,400	27,000
PCBs												
Polychlorinated biphenyls (PCBs) {J,T}	1336363	NA	NLL	NLL	NLL	3.0E+6	2.4E+5	7.9E+6	7.9E+6	5.2E+6	{T}	NA
PHTHALATES												
bis(2-Ethylhexyl)phthalate	117817	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	7.0E+8	2.8E+6	1.0E+7
Butyl benzyl phthalate	85687	NA	3.1E+5 {C}	26,000 {X}	3.1E+5 {C}	NLV	NLV	NLV	NLV	4.7E+10	3.1E+5 {C}	3.1E+5
Di-n-butyl phthalate	84742	NA	7.6E+5 {C}	11,000	7.6E+5 {C}	NLV	NLV	NLV	NLV	3.3E+9	7.6E+5 {C}	7.6E+5
Di-n-octyl phthalate	117840	NA	1.0E+8	ID	1.4E+8 {C}	NLV	NLV	NLV	NLV	ID	6.9E+6	1.4E+8
Dicyclohexyl phthalate	84617	NA	ID	NA	ID	ID	ID	ID	ID	ID	ID	NA
Diethyl phthalate	84662	NA	1.1E+5	NA	7.4E+5 {C}	NLV	NLV	NLV	NLV	3.3E+9	7.4E+5 {C}	7.4E+5
Phthalic acid	88993	NA	2.8E+5	NA	1.7E+6 {C}	NLV	NLV	NLV	NLV	ID	1.7E+6 {C}	1.7E+6
Phthalic anhydride	85449	NA	3.0E+5	NA	1.1E+6 {C}	NLV	NLV	NLV	NLV	ID	1.1E+6 {C}	1.1E+6
PESTICIDES												
Alachlor	15972608	NA	52	290 {X}	44,000	NLV	NLV	NLV	NLV	ID	93,000	NA
Aldrin	309002	NA	NLL	NLL	NLL	1.3E+6	58,000	58,000	58,000	6.4E+5	1,000	NA
Atrazine	1912249	NA	60	150 {X}	1.1E+5	NLV	NLV	NLV	NLV	ID	71,000 {AD}	NA
Chlordane {J}	57749	NA	NLL	NLL	NLL	1.1E+7	1.2E+6	1.2E+6	1.2E+6	3.1E+7	31,000	NA
Chlorpyrifos	2921882	NA	17,000	NA	8.4E+5	130	4,600	ID	ID	1.3E+8	1.1E+7	NA
Cyanazine	21725462	NA	500 {M}	1,100 {X}	56,000	NLV	NLV	NLV	NLV	ID	14,000	NA
Dacthal	1861321	NA	50,000	NA	3.4E+5	NLV	NLV	NLV	NLV	ID	2.3E+6	NA
4-4'-DDD	72548	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	4.4E+7	95,000	NA
4-4'-DDE	72559	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	3.2E+7	45,000	NA
4-4'-DDT	50293	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	3.2E+7	57,000	NA
Diazinon	333415	NA	95	NA	95,000	NLV	NLV	NLV	NLV	ID	12,000 {AD}	3.1E+5
Dichlorovos	62737	NA	50 {M}	NA	1.2E+5	NLV	NLV	NLV	NLV	3.3E+7	10,000	2.2E+6
Dieldrin	60571	NA	NLL	NLL	NLL	1.4E+5	19,000	19,000	19,000	6.8E+5	1,100	NA
Dinoseb	88857	NA	300	NA	1.4E+5 {C}	ID	ID	ID	ID	ID	66,000 {AD}	1.4E+5
Diuron	330541	NA	620	NA	7.4E+5	NLV	NLV	NLV	NLV	4.7E+8	9.7E+5	NA
Endosulfan {J}	115297	NA	NLL	NLL	NLL	ID	ID	ID	ID	ID	1.4E+6	NA
Endothall	145733	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	2.3E+9	3.8E+6	NA

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Endrin	72208	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	65,000	NA
Heptachlor	76448	NA	NLL	NLL	NLL	3.5E+5	62,000	62,000	62,000	2.4E+6	5,600	NA
Heptachlor epoxide	1024573	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	1.2E+6	3,100	NA
Lindane	58899	NA	20 {M}	20 {M}	7,100	ID	ID	ID	ID	ID	8,300	NA
Methoxychlor	72435	NA	16,000	NA	18,000	ID	ID	ID	ID	ID	1.9E+6	NA
Methyl parathion	298000	NA	46	NA	76,000	NLV	NLV	NLV	NLV	ID	56,000	NA
Metolachlor	51218452	NA	4,800	NA	4.4E+5 {C}	NLV	NLV	NLV	NLV	ID	4.4E+5 {C,AD}	4.4E+5
Mirex	2385855	NA	NLL	NLL	NLL	ID	ID	ID	ID	ID	9,600	NA
Pendimethalin	40487421	NA	1.1E+6	NA	1.1E+6	NLV	NLV	NLV	NLV	ID	4.6E+7	NA
Prometon	1610180	NA	4,900	NA	5.5E+6	NLV	NLV	NLV	NLV	ID	5.0E+6	NA
Propachlor	1918167	NA	1,900	NA	8.8E+6	NLV	NLV	NLV	NLV	ID	2.9E+6	NA
Propazine	139402	NA	4,000	NA	1.7E+5	NLV	NLV	NLV	NLV	ID	6.1E+6	NA
Simazine	122349	NA	80	NA	90,000	NLV	NLV	NLV	NLV	ID	1.2E+6	NA
Tebuthiuron	34014181	NA	10,000	NA	5.0E+7	NLV	NLV	NLV	NLV	ID	4.6E+6 {AD}	NA
Toxaphene	8001352	NA	24,000	860	3.6E+5	NLV	NLV	NLV	NLV	9.7E+6	20,000	NA
Triallate	2303175	NA	95,000	NA	2.5E+5 {C}	ID	ID	ID	ID	ID	2.5E+5 {C}	2.5E+5
PESTICIDES-HERBICIDES												
Aldicarb	116063	NA	60	NA	2.4E+6	NLV	NLV	NLV	NLV	ID	2.3E+5	NA
Aldicarb sulfoxide	1646873	NA	80	NA	5.4E+7	NLV	NLV	NLV	NLV	ID	2.9E+5	NA
Aldicarb sulfone	1646884	NA	50 {M}	NA	4.2E+7	NLV	NLV	NLV	NLV	ID	2.5E+5	NA
Carbaryl	63252	NA	14,000	NA	2.6E+6	ID	ID	ID	ID	ID	2.2E+7	NA
Carbofuran	1563662	NA	800	NA	6.8E+6	NLV	NLV	NLV	NLV	ID	1.1E+6	NA
Dalapon	75990	NA	4,000	NA	5.9E+7 {C}	NLV	NLV	NLV	NLV	ID	1.9E+7	5.9E+7
2,4-Dichlorophenoxyacetic acid	94757	NA	1,400	4,400	2.4E+6	NLV	NLV	NLV	NLV	6.7E+9	2.5E+6	NA
Diquat	85007	NA	400	NA	1.4E+7	NLV	NLV	NLV	NLV	ID	5.0E+5	NA
Glyphosate	1071836	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	1.1E+7 {AD}	NA
2-Methyl-4-chlorophenoxyacetic acid	94746	NA	390	NA	4.9E+5	NLV	NLV	NLV	NLV	ID	2.3E+5	NA
Oxamyl	23135220	NA	4,000	NA	1.0E+9 {D}	NLV	NLV	NLV	NLV	ID	8.6E+6	NA
Picloram	1918021	NA	10,000	NA	8.6E+6	NLV	NLV	NLV	NLV	ID	1.6E+7	NA
Silvex (2,4,5-TP)	93721	NA	3,600	NA	3.1E+6	NLV	NLV	NLV	NLV	ID	1.7E+6	NA
Trifluralin	1582098	NA	1.9E+5	NA	1.2E+7	ID	ID	ID	ID	ID	2.0E+6	NA
DIOXINS												
2,3,7,8-Tetrabromodibenzo-p-dioxin {O}	50585416	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	{O}	{O}	NA

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2,3,7,8-Tetrachlorodibenzo-p-dioxin {O}	1746016	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	71 {O}	0.09 {O}	NA
PHENOLS												
4-Chloro-3-methylphenol	59507	NA	5,800	NA	3.0E+6	NLV	NLV	NLV	NLV	ID	4.5E+6	NA
2-Chlorophenol	95578	NA	900	440	1.9E+6	ID	ID	ID	ID	ID	1.4E+6	1.9E+7
2,4-Dichlorophenol	120832	NA	1,500	380	9.6E+5	NLV	NLV	NLV	NLV	5.1E+9	6.6E+5 {AD}	1.8E+6
2,4-Dimethylphenol	105679	NA	7,400	7,600	1.0E+7	NLV	NLV	NLV	NLV	4.7E+9	1.1E+7	NA
2,6-Dimethylphenol	576261	NA	330 {M}	NA	1.3E+5	NLV	NLV	NLV	NLV	ID	1.4E+5	NA
3,4-Dimethylphenol	95658	NA	330 {M}	NA	3.6E+5	NLV	NLV	NLV	NLV	ID	3.2E+5	NA
2-Methyl-4,6-dinitrophenol	534521	NA	1,700 {M}	NA	1.9E+5	NLV	NLV	NLV	NLV	ID	79,000	NA
Methylphenols {J}	1319773	NA	7,400	1,400	1.6E+7	NLV	NLV	NLV	NLV	6.7E+9	1.1E+7	NA
2-Nitrophenol	88755	NA	400	ID	1.6E+6	NLV	NLV	NLV	NLV	ID	6.3E+5	NA
Pentachlorophenol	87865	NA	22	{G,X}	4,300	NLV	NLV	NLV	NLV	1.0E+8	90,000	NA
Phenol	108952	NA	88,000	4,200	1.2E+7 {C}	NLV	NLV	NLV	NLV	4.0E+10	1.2E+7 {C,AD}	1.2E+7
2,4,5-Trichlorophenol	95954	NA	39,000	NA	9.1E+6	NLV	NLV	NLV	NLV	2.3E+10	2.3E+7	NA
2,4,6-Trichlorophenol	88062	NA	2,400	330 {M}	2.0E+5	NLV	NLV	NLV	NLV	1.0E+9	7.1E+5	NA
3-Trifluoromethyl-4-nitrophenol	88302	NA	1.1E+5	NA	1.2E+8	NLV	NLV	NLV	NLV	ID	4.1E+7 {AD}	NA
MISCELLANEOUS												
Ammonia	7664417	NA	ID {N}	{AC}	ID	ID	ID	ID	ID	6.7E+9	ID	1.0E+7
Asbestos {AB}	1332214	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	1.0E+7 {M}	ID	NA
Chloride	16887006	NA	5.0E+6	2.5E+6 {X}	ID	NLV	NLV	NLV	NLV	ID	5.0E+5 {F}	NA
Cyanide {R}	57125	390 (Total)	4,000 {P}	400 {P}	2.5E+5 {P}	NLV	NLV	NLV	NLV	2.5E+5 {P}	12,000 {P}	NA
Fluorine (soluble fluoride) {B}	7782414	NA	40,000	NA	2.4E+8	NLV	NLV	NLV	NLV	ID	9.0E+6 {AD}	NA
Nitrate {B,N}	14797558	NA	2.0E+5 {N}	NA	1.0E+9 {D}	NLV	NLV	NLV	NLV	ID	ID	NA
Nitrite {B,N}	14797650	NA	20,000 {N}	NA	3.8E+8	NLV	NLV	NLV	NLV	ID	ID	NA
Phosphorus (total)	7723140	NA	1.3E+6	NA	ID	NLV	NLV	NLV	NLV	ID	1.0E+9 {D}	NA
Sulfate	14808798	NA	5.0E+6	NA	ID	NLV	NLV	NLV	NLV	ID	ID	NA
Urea	57136	NA	ID {N}	NA	ID	NLV	NLV	NLV	NLV	ID	ID	NA
PBBs												
Polybrominated biphenyls {J}	67774327	NA	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	1,200	NA
GLYCOLS												
Diethylene glycol monobutyl ether	112345	NA	1,800	NA	8.0E+7	NLV	NLV	NLV	NLV	1.3E+9	2.7E+6	1.1E+8
Ethylene glycol	107211	NA	3.0E+5	NA	1.1E+8 {C}	NLV	NLV	NLV	NLV	6.7E+10	1.1E+8 {C}	1.1E+8
Ethylene glycol monobutyl ether	111762	NA	74,000	NA	4.1E+7 {C}	7.4E+5	1.8E+7	1.5E+8	3.6E+8	8.7E+11	4.1E+7 {C}	4.1E+7

SOIL: RESIDENTIAL AND COMMERCIAL I

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

			Groundwater Protection			Indoor Air	Ambient Air {Y}				Direct Contact	
Guidesheet Number →		#10	#11	#12	#13	#14	#15	#16	#17	#18	#19	#20
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Direct Contact Criteria	Soil Saturation Concentration Screening Levels
Propylene glycol	57556	NA	3.0E+6	NA	1.1E+8 {C}	NLV	NLV	NLV	NLV	4.0E+11	1.1E+8 {C}	1.1E+8
Triethylene glycol	112276	NA	2.0E+5	NA	1.1E+5 {C}	NLV	NLV	NLV	NLV	ID	1.1E+5 {C,AD}	1.1E+5
CARBONYLS												
Acetaldehyde {I}	75070	NA	19,000	NA	1.1E+8 {C}	2.2E+5	1.7E+5	1.7E+5	2.8E+5	6.0E+8	2.9E+7	1.1E+8
Cyclohexanone	108941	NA	5.2E+6	NA	2.2E+8 {C}	17,000	1.0E+6	ID	ID	6.7E+10	2.2E+8 {C}	2.2E+8
Formaldehyde	50000	NA	26,000	$\boxed{2,400}$	6.0E+7 {C}	12,000	13,000	23,000	52,000	2.4E+8	4.1E+7	6.0E+7
LOW MOLECULAR WEIGHT ACIDS												
Acetic acid	64197	NA	9.0E+5 {M}	9.0E+5 {M}	6.5E+8 {C}	NLV	NLV	NLV	NLV	1.7E+10	1.3E+8	6.5E+8
Formic acid {I,U}	64186	NA	9.0E+5 {M}	ID	1.1E+8 {C}	1.5E+6	9.0E+5 {M}	9.0E+5 {M}	9.0E+5 {M}	1.3E+8	1.1E+8 {C}	1.1E+8

SOIL: INDUSTRIAL AND COMMERCIAL II, III, AND IV

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

Developed under the authority of the

NATURAL RESOURCES AND ENVIRONMENTAL PROTECTION ACT, 1994 PA 451, AS AMENDED

Soil criteria were calculated using currently available chemical-specific data and U.S. Environmental Protection Agency risk assessment guidance. Criteria may change for the next annual revision of the criteria tables. All criteria are expressed in units of parts per billion (ppb;ug/Kg). Scientific notation is represented by E+ or E- a value; for example, 2 x 10^6 is reported as 2.0E+6. Analytical results must be expressed as dry-weight concentrations for comparison to criteria. Please refer to Operational Memorandum #6 for recommended analytical methods and target detection limits.

			Groundwater Protection				Indoor Air	Ambient Air {Y}				Direct Contact			
Guidesheet Number →		#10	#21		#12	#13	#22	#23	#24	#25	#26	#27	#28	#29	#20
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Industrial And Commercial Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Industrial and Commercial II	Commercial III	Commercial IV	Soil Saturation Concentration Screening Levels
BTEX + MTBE															
Benzene {I}	71432	NA	100	100	4,000 {X}	2.2E+5	8,400	45,000	99,000	2.3E+5	4.7E+8	4.0E+5 {C}	4.0E+5 {C}	4.0E+5 {C}	4.0E+5
Ethylbenzene {I}	100414	NA	1,500	1,500	360	1.4E+5 {C}	1.4E+5 {C}	1.1E+7	1.4E+7	3.0E+7	2.9E+10	1.4E+5 {C}	1.4E+5 {C}	1.4E+5 {C}	1.4E+5
Methyl-tert-butyl ether (MTBE)	1634044	NA	800	800	15,000 {X}	5.9E+6 {C}	5.9E+6 {C}	3.0E+7	4.1E+7	8.9E+7	8.8E+10	5.9E+6 {C}	5.9E+6 {C}	5.9E+6 {C}	5.9E+6
Toluene {I}	108883	NA	16,000	16,000	2,800	2.5E+5 {C}	2.5E+5 {C}	3.3E+6	3.6E+7	3.6E+7	1.2E+10	2.5E+5 {C}	2.5E+5 {C}	2.5E+5 {C}	2.5E+5
Xylenes {I}	1330207	NA	5,600	5,600	700	1.5E+5 {C}	1.5E+5 {C}	5.4E+7	6.5E+7	1.3E+8	1.3E+11	1.5E+5 {C}	1.5E+5 {C}	1.5E+5 {C}	1.5E+5
VOLATILES															
Acetone {I}	67641	NA	15,000	42,000	34,000	1.1E+8 {C}	1.1E+8 {C}	1.6E+8	1.6E+8	2.0E+8	1.7E+11	1.1E+8	1.1E+8 {C}	1.1E+8 {C}	1.1E+8
Acrolein {I}	107028	NA	2,400	6,600	NA	2.3E+7 {C}	760	370	370	630	5.9E+5	1.8E+7	2.3E+7 {C}	2.3E+7	2.3E+7
Acrylonitrile {I}	107131	NA	52	220	98 {X}	2.8E+5	35,000	17,000	17,000	31,000	5.8E+7	1.1E+5	2.0E+5	1.5E+5	8.3E+6
Benzyl chloride	100447	NA	200 {M}	640	NA	72,000	33,000	48,000	48,000	52,000	7.8E+7	2.3E+5 {C}	2.3E+5 {C}	2.3E+5 {C}	2.3E+5
Bromobenzene {I}	108861	NA	550	1,500	NA	3.6E+5	5.8E+5	5.4E+5	5.4E+5	5.4E+5	2.4E+8	7.6E+5 {C}	7.6E+5 {C}	7.6E+5 {C}	7.6E+5
Bromodichloromethane	75274	NA	2,000 {W}	2,000 {W}	ID	2.8E+5	6,400	31,000	31,000	57,000	1.1E+8	7.5E+5	1.3E+6	9.7E+5	1.5E+6
Bromoform	75252	NA	2,000 {W}	2,000 {W}	ID	8.7E+5 {C}	7.7E+5	3.1E+6	3.1E+6	3.1E+6	3.6E+9	8.7E+5 {C}	8.7E+5 {C}	8.7E+5 {C}	8.7E+5
Bromomethane	74839	NA	200	580	700	1.4E+6	1,600	13,000	57,000	1.4E+5	1.5E+8	1.6E+6	2.2E+6 {C}	2.0E+6	2.2E+6
n-Butanol {I}	71363	NA	19,000	54,000	NA	8.7E+6 {C}	NLV	NLV	NLV	NLV	1.0E+10	8.7E+6 {C}	8.7E+6 {C}	8.7E+6 {C}	8.7E+6
2-Butanone (MEK) {I}	78933	NA	2.6E+5	7.6E+5	44,000	2.7E+7 {C}	2.7E+7 {C}	3.5E+7	3.5E+7	3.6E+7	2.9E+10	2.7E+7 {C,AD}	2.7E+7 {C,AD}	2.7E+7 {C,AD}	2.7E+7
n-Butyl acetate	123864	NA	11,000	32,000	NA	1.1E+6 {C}	1.1E+6 {C}	1.4E+8	3.1E+8	3.5E+8	2.1E+11	1.1E+6 {C}	1.1E+6 {C}	1.1E+6 {C}	1.1E+6
t-Butyl alcohol	75650	NA	78,000	2.2E+5	NA	1.1E+8 {C}	1.1E+8 {C}	1.2E+8	ID	ID	5.6E+10	1.1E+8 {C}	1.1E+8 {C}	1.1E+8 {C}	1.1E+8
n-Butylbenzene	104518	NA	1,600	4,600	NA	1.2E+5	ID	ID	ID	ID	ID	1.0E+7 {C}	1.0E+7 {C}	1.0E+7 {C}	1.0E+7
sec-Butylbenzene	135988	NA	1,600	4,600	NA	88,000	ID	ID	ID	ID	ID	1.0E+7 {C}	1.0E+7 {C}	1.0E+7 {C}	1.0E+7
tert-Butylbenzene {I}	98066	NA	1,600	4,600	NA	1.8E+5	ID	ID	ID	ID	ID	1.0E+7 {C}	1.0E+7 {C}	1.0E+7 {C}	1.0E+7
Carbon disulfide {I,R}	75150	NA	16,000	46,000	ID	2.8E+5 {C}	1.4E+5	1.6E+6	8.0E+6	1.9E+7	2.1E+10	2.8E+5 {C,AD}	2.8E+5 {C,AD}	2.8E+5 {C,AD}	2.8E+5
Carbon tetrachloride	56235	NA	100	100	900 {X}	92,000	990	12,000	34,000	79,000	1.7E+8	3.9E+5 {C}	3.9E+5 {C}	3.9E+5 {C}	3.9E+5
Chlorobenzene {I}	108907	NA	2,000	2,000	940	2.6E+5 {C}	2.2E+5	9.2E+5	1.1E+6	2.1E+6	2.1E+9	2.6E+5 {C}	2.6E+5 {C}	2.6E+5 {C}	2.6E+5
1-Chloro-1,1-difluoroethane	75683	NA	3.0E+5	8.8E+5	NA	9.6E+5 {C}	9.6E+5 {C}	9.4E+7	ID	ID	1.5E+12	9.6E+5 {C}	9.6E+5 {C}	9.6E+5 {C}	9.6E+5

SOIL: INDUSTRIAL AND COMMERCIAL II, III, AND IV

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

			Groundwater Protection				Indoor Air	Ambient Air {Y}				Direct Contact			
Guidesheet Number →		#10	#21		#12	#13	#22	#23	#24	#25	#26	#27	#28	#29	#20
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Industrial And Commercial Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Industrial and Commercial II	Commercial III	Commercial IV	Soil Saturation Concentration Screening Levels
Chloroethane	75003	NA	8,600	34,000	ID	9.5E+5 {C}	9.5E+5 {C}	3.6E+7	1.2E+8	2.8E+8	2.9E+11	9.5E+5 {C}	9.5E+5 {C}	9.5E+5 {C}	9.5E+5
2-Chloroethyl vinyl ether	110758	NA	ID	ID	NA	ID	ID	ID	ID	ID	ID	ID	ID	ID	1.9E+6
Chloroform	67663	NA	2,000 {W}	2,000 {W}	3,400 {X}	1.5E+6 {C}	38,000	1.5E+5	3.4E+5	7.9E+5	1.6E+9	1.5E+6 {C}	1.5E+6 {C}	1.5E+6 {C}	1.5E+6
Chloromethane {I}	74873	NA	5,200	22,000	ID	1.1E+6 {C}	12,000	1.4E+5	1.2E+6	2.9E+6	6.1E+9	1.1E+6 {C}	1.1E+6 {C}	1.1E+6 {C}	1.1E+6
o-Chlorotoluene {I}	95498	NA	3,300	9,300	NA	5.0E+5 {C}	5.0E+5 {C}	ID	ID	ID	7.6E+10	5.0E+5 {C}	5.0E+5 {C}	5.0E+5 {C}	5.0E+5
Dibromochloromethane	124481	NA	2,000 {W}	2,000 {W}	ID	3.6E+5	21,000	80,000	80,000	98,000	1.6E+8	6.1E+5 {C}	6.1E+5 {C}	6.1E+5 {C}	6.1E+5
Dibromochloropropane	96128	NA	4.0	4.0 {M}	NA	1,200 {C}	1,200 {C}	1.5E+4	ID	ID	5.9E+6	1,200 {C}	1,200 {C}	1,200 {C}	1,200
Dibromomethane	74953	NA	1,600	4,600	NA	2.0E+6 {C}	ID	ID	ID	ID	ID	2.0E+6 {C}	2.0E+6 {C}	2.0E+6 {C}	2.0E+6
Dichlorodifluoromethane	75718	NA	95,000	2.7E+5	ID	1.0E+6 {C}	1.0E+6 {C}	6.3E+7	5.5E+8	1.4E+9	1.5E+12	1.0E+6 {C}	1.0E+6 {C}	1.0E+6 {C}	1.0E+6
1,1-Dichloroethane	75343	NA	18,000	50,000	ID	8.9E+5 {C}	4.3E+5	2.5E+6	6.0E+6	1.4E+7	1.5E+10	8.9E+5 {C}	8.9E+5 {C}	8.9E+5 {C}	8.9E+5
1,2-Dichloroethane {I}	107062	NA	100	100	7,200 {X}	3.8E+5	11,000	21,000	33,000	74,000	1.5E+8	6.4E+5	1.1E+6	8.4E+5	1.2E+6
1,1-Dichloroethylene {I}	75354	NA	140	140	1,300 {X}	2.2E+5	330	3,700	15,000	37,000	7.8E+7	5.7E+5 {C}	5.7E+5 {C}	5.7E+5 {C}	5.7E+5
cis-1,2-Dichloroethylene	156592	NA	1,400	1,400	ID	6.4E+5 {C}	42,000	2.1E+5	4.3E+5	1.0E+6	1.0E+9	6.4E+5 {C}	6.4E+5 {C}	6.4E+5 {C}	6.4E+5
trans-1,2-Dichloroethylene	156605	NA	2,000	2,000	ID	1.4E+6 {C}	43,000	3.3E+5	8.4E+5	2.0E+6	2.1E+9	1.4E+6 {C}	1.4E+6 {C}	1.4E+6 {C}	1.4E+6
1,2-Dichloropropane {I}	78875	NA	100	100	5,800 {X}	3.2E+5	7,400	30,000	51,000	1.2E+5	1.2E+8	5.5E+5 {C}	5.5E+5 {C}	5.5E+5 {C}	5.5E+5
1,3-Dichloropropene	542756	NA	420	1,300	NA	2.6E+5	10 {M}	31	100	240	5.0E+5	6.2E+5 {C}	6.2E+5 {C}	6.2E+5 {C}	6.2E+5
Diethyl ether	60297	NA	200	200	ID	7.4E+6 {C}	7.4E+6 {C}	1.0E+8	1.6E+8	3.5E+8	3.5E+11	7.4E+6 {C}	7.4E+6 {C}	7.4E+6 {C}	7.4E+6
Diisopropyl ether	108203	NA	600	1,300 {C}	NA	1,300 {C}	ID	ID	ID	ID	ID	1,300 {C}	1,300 {C}	1,300 {C}	1,300
Dimethylformamide {I}	68122	NA	14,000	40,000	NA	1.1E+8 {C}	NLV	NLV	NLV	NLV	8.8E+8	1.1E+8	1.1E+8 {C}	1.1E+8 {C}	1.1E+8
Dimethylsulfoxide	67685	NA	4.4E+6	1.3E+7	3.8E+6	1.8E+7 {C}	NLV	NLV	NLV	NLV	ID	1.8E+7 {C}	1.8E+7 {C}	1.8E+7 {C}	1.8E+7
1,4-Dioxane {I}	123911	NA	1,700	7,000	56,000	3.4E+7	NLV	NLV	NLV	NLV	7.1E+8	3.7E+6	6.7E+6	4.9E+6	9.7E+7
Epichlorohydrin {I}	106898	NA	100	120	NA	2.2E+5	1.2E+5	37,000	37,000	37,000	2.9E+7	63,000	1.1E+5	82,000	7.3E+6
Ethanol {I}	64175	NA	3.8E+7	7.6E+7	IP	1.1E+8 {C}	NLV	NLV	NLV	NLV	5.6E+11	1.1E+8 {C,AD}	1.1E+8 {C,AD}	1.1E+8 {C,AD}	1.1E+8
Ethyl acetate {I}	141786	NA	1.3E+5	3.8E+5	NA	7.5E+6 {C}	7.5E+6 {C}	5.9E+7	5.9E+7	1.0E+8	9.4E+10	7.5E+6 {C}	7.5E+6 {C}	7.5E+6 {C}	7.5E+6
Ethylene dibromide	106934	NA	10 {M}	10 {M}	20	500	3,600	5,800	5,800	9,800	1.8E+7	660	1,200	850	8.9E+5
n-Heptane	142825	NA	2.4E+5 {C}	2.4E+5 {C}	NA	2.4E+5 {C}	2.4E+5 {C}	2.5E+7	ID	ID	1.0E+11	2.4E+5 {C}	2.4E+5 {C}	2.4E+5 {C}	2.4E+5
n-Hexane	110543	NA	44,000 {C}	44,000 {C}	NA	44,000 {C}	44,000 {C}	3.5E+6	ID	ID	5.9E+9	44,000 {C}	44,000 {C}	44,000 {C}	44,000
2-Hexanone	591786	NA	20,000	58,000	NA	2.5E+6 {C}	1.8E+6	1.3E+6	ID	ID	1.2E+9	2.5E+6 {C}	2.5E+6 {C}	2.5E+6 {C}	2.5E+6
Isobutyl alcohol {I}	78831	NA	46,000	1.3E+5	NA	8.9E+6 {C}	8.9E+6 {C}	9.5E+7	9.5E+7	9.5E+7	4.4E+10	8.9E+6 {C}	8.9E+6 {C}	8.9E+6 {C}	8.9E+6
Isopropyl alcohol {I}	67630	NA	9,400	26,000	NA	1.1E+8 {C}	NLV	NLV	NLV	NLV	6.5E+9	7.2E+7	1.1E+8 {C}	9.3E+7	1.1E+8
Isopropyl benzene	98828	NA	91,000	2.6E+5	ID	3.9E+5 {C}	3.9E+5 {C}	2.0E+6	ID	ID	2.6E+9	3.9E+5 {C}	3.9E+5 {C}	3.9E+5 {C}	3.9E+5
Methane	74828	NA	ID	ID	ID	ID	{K}	ID	ID	ID	ID	ID	ID	ID	ID

SOIL: INDUSTRIAL AND COMMERCIAL II, III, AND IV
PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

			Groundwater Protection				Indoor Air	Ambient Air (Y)				Direct Contact			
Guidesheet Number →		#10	#21		#12	#13	#22	#23	#24	#25	#26	#27	#28	#29	#20
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Industrial And Commercial Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Industrial and Commercial II	Commercial III	Commercial IV	Soil Saturation Concentration Screening Levels
Methanol	67561	NA	74,000	2.0E+5	9,600	3.1E+6 {C}	1.2E+6	3.7E+7	4.6E+7	9.7E+7	9.6E+10	3.1E+6 {C}	3.1E+6 {C}	3.1E+6 {C}	3.1E+6
4-Methyl-2-pentanone (MIBK) {I}	108101	NA	36,000	1.0E+5	ID	2.7E+6 {C}	2.7E+6 {C}	5.3E+7	5.3E+7	7.0E+7	6.0E+10	2.7E+6 {C}	2.7E+6 {C}	2.7E+6 {C}	2.7E+6
Methylene chloride	75092	NA	100	100	19,000 {X}	2.3E+6 {C}	2.4E+5	7.0E+5	1.7E+6	4.0E+6	8.3E+9	2.3E+6 {C}	2.3E+6 {C}	2.3E+6 {C}	2.3E+6
Pentane	109660	NA	ID	ID	NA	ID	2.4E+5 {C}	4.4E+7	ID	ID	5.2E+11	ID	ID	ID	2.4E+5
2-Pentene {I}	109682	NA	ID	ID	NA	ID	ID	ID	ID	ID	ID	ID	ID	ID	2.2E+5
Propyl alcohol {I}	71238	NA	28,000	80,000	NA	1.1E+8 {C}	NLV	NLV	NLV	NLV	2.1E+10	1.1E+8 {AD}	1.1E+8 {C,AD}	1.1E+8 {C,AD}	1.1E+8
n-Propylbenzene {I}	103651	NA	1,600	4,600	NA	3.0E+5	ID	ID	ID	ID	5.9E+8	1.0E+7 {C}	1.0E+7 {C}	1.0E+7 {C}	1.0E+7
Styrene	100425	NA	2,700	2,700	2,200	2.7E+5	5.2E+5 {C}	3.3E+6	3.3E+6	4.2E+6	6.9E+9	5.2E+5 {C}	5.2E+5 {C}	5.2E+5 {C}	5.2E+5
1,1,1,2-Tetrachloroethane	630206	NA	1,500	6,400	NA	4.4E+5 {C}	33,000	1.2E+5	2.1E+5	3.3E+5	5.3E+8	4.4E+5 {C}	4.4E+5 {C}	4.4E+5 {C}	4.4E+5
1,1,2,2-Tetrachloroethane	79345	NA	170	700	1,600 {X}	94,000	23,000	34,000	34,000	34,000	6.8E+7	3.7E+5	6.7E+5	4.9E+5	8.7E+5
Tetrachloroethylene	127184	NA	100	100	900 {X}	88,000 {C}	60,000	6.0E+5	1.4E+6	3.3E+6	6.8E+9	88,000 {C}	88,000 {C}	88,000 {C}	88,000
Tetrahydrofuran	109999	NA	1,900	5,400	2.2E+5 {X}	3.2E+7	2.4E+6	1.5E+7	ID	ID	1.7E+11	1.5E+7	2.6E+7	1.9E+7	1.2E+8
1,1,1-Trichloroethane	71556	NA	4,000	4,000	4,000	4.6E+5 {C}	4.6E+5	4.5E+6	1.5E+7	3.1E+7	2.9E+10	4.6E+5 {C}	4.6E+5 {C}	4.6E+5 {C}	4.6E+5
1,1,2-Trichloroethane	79005	NA	100	100	6,600 {X}	4.2E+5	24,000	57,000	57,000	1.2E+5	2.5E+8	9.2E+5 {C}	9.2E+5 {C}	9.2E+5 {C}	9.2E+5
Trichloroethylene	79016	NA	100	100	4,000 {X}	5.0E+5 {C}	37,000	2.6E+5	4.4E+5	1.1E+6	2.3E+9	5.0E+5 {C}	5.0E+5 {C}	5.0E+5 {C}	5.0E+5
Trichlorofluoromethane	75694	NA	52,000	1.5E+5	NA	5.6E+5 {C}	5.6E+5 {C}	1.1E+8	1.4E+11	1.4E+11	1.7E+12	5.6E+5 {C}	5.6E+5 {C}	5.6E+5 {C}	5.6E+5
1,2,3-Trichloropropane	96184	NA	840	2,400	NA	8.3E+5 {C}	ID	ID	ID	ID	ID	8.3E+5 {C}	8.3E+5 {C}	8.3E+5 {C}	8.3E+5
1,1,2-Trichloro-1,2,2-trifluoroethane	76131	NA	5.5E+5 {C}	5.5E+5 {C}	NA	5.5E+5 {C}	5.5E+5 {C}	2.1E+8	8.9E+8	2.1E+9	2.3E+12	5.5E+5 {C}	5.5E+5 {C}	5.5E+5 {C}	5.5E+5
Triethanolamine	102716	NA	74,000	2.0E+5	NA	1.1E+8 {C}	NLV	NLV	NLV	NLV	1.5E+9	1.1E+8 {C}	1.1E+8 {C}	1.1E+8 {C}	1.1E+8
2,2,4-Trimethyl pentane	540841	NA	ID	ID	NA	ID	ID	ID	ID	ID	ID	ID	ID	ID	19,000
2,4,4-Trimethyl-2-pentene {I}	107404	NA	ID	ID	NA	ID	ID	ID	ID	ID	ID	ID	ID	ID	56,000
1,2,4-Trimethylbenzene {I}	95636	NA	2,100	2,100	ID	1.1E+5 {C}	1.1E+5 {C}	2.5E+7	6.0E+8	6.0E+8	3.6E+10	1.1E+5 {C}	1.1E+5 {C}	1.1E+5 {C}	1.1E+5
1,3,5-Trimethylbenzene {I}	108678	NA	1,800	1,800	ID	94,000 {C}	94,000 {C}	1.9E+7	4.6E+8	4.6E+8	3.6E+10	94,000 {C}	94,000 {C}	94,000 {C}	94,000
Vinyl acetate {I}	108054	NA	13,000	36,000	NA	2.4E+6 {C}	1.5E+6	2.0E+6	2.7E+6	5.9E+6	5.9E+9	2.4E+6 {C,AD}	2.4E+6 {C,AD}	2.4E+6 {C,AD}	2.4E+6
Vinyl chloride	75014	NA	40	40	300	11,000	150	1,500	9,000	22,000	4.7E+7	29,000	51,000	37,000	4.9E+5

SOIL: INDUSTRIAL AND COMMERCIAL II, III, AND IV

PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

			Groundwater Protection				Indoor Air	Ambient Air {Y}				Direct Contact			
Guidesheet Number →		#10	#21		#12	#13	#22	#23	#24	#25	#26	#27	#28	#29	#20
Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Industrial And Commercial Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Industrial and Commercial II	Commercial III	Commercial IV	Soil Saturation Concentration Screening Levels
INORGANICS															
Aluminum {B}	7429905	6.9E+6	1,000	1,000	NA	1.0E+9 {D}	NLV	NLV	NLV	NLV	ID	6.6E+8 {AD}	8.1E+8 {AD}	7.3E+8 {AD}	NA
Antimony	7440360	NA	500 {M}	4,300	ID	4.9E+7	NLV	NLV	NLV	NLV	5.9E+6	1.2E+6	1.4E+6	1.3E+6	NA
Arsenic {B}	7440382	5,800	23,000	23,000	70,000 {X}	2.0E+6	NLV	NLV	NLV	NLV	9.1E+5	61,000	90,000	74,000	NA
Barium	7440393	75,000	1.3E+6	1.3E+6	{G,X}	1.0E+9 {D}	NLV	NLV	NLV	NLV	1.5E+8	2.5E+8	2.9E+8	2.7E+8	NA
Beryllium	7440417	NA	51,000	51,000	{G}	1.0E+9 {D}	NLV	NLV	NLV	NLV	5.9E+5	3.1E+6	3.1E+6	3.1E+6	NA
Boron {B}	7440428	NA	10,000	10,000	38,000	1.0E+9 {D}	NLV	NLV	NLV	NLV	ID	6.4E+8 {AD}	7.8E+8 {AD}	7.1E+8 {AD}	NA
Cadmium {B}	7440439	1,200	6,000	6,000	{G,X}	2.3E+8	NLV	NLV	NLV	NLV	2.2E+6	4.1E+6	4.2E+6	4.1E+6	NA
Chromium (III) {B,H}	16065831	18,000 (total)	1.0E+9 {D}	1.0E+9 {D}	{G,X}	1.0E+9 {D}	NLV	NLV	NLV	NLV	1.5E+8	1.0E+9 {D}	1.0E+9 {D}	1.0E+9 {D}	NA
Chromium (VI)	18540299	18,000 (total)	30,000	30,000	3,300	1.4E+8	NLV	NLV	NLV	NLV	2.4E+5	1.7E+7	2.0E+7	1.8E+7	NA
Cobalt	7440484	6,800	800	2,000	2,000	4.8E+7	NLV	NLV	NLV	NLV	5.9E+6	1.8E+7	2.1E+7	1.9E+7	NA
Copper	7440508	32,000	5.8E+6	5.8E+6	{G}	1.0E+9 {D}	NLV	NLV	NLV	NLV	5.9E+7	1.4E+8	1.6E+8	1.5E+8	NA
Iron {B}	7439896	1.2E+7	6,000	6,000	NA	1.0E+9 {D}	NLV	NLV	NLV	NLV	ID	1.0E+9 {D}	1.0E+9 {D}	1.0E+9 {D}	NA
Lead	7439921	21,000	7.0E+5	7.0E+5	{G,M,X}	ID	NLV	NLV	NLV	NLV	4.4E+7	9.0E+5 (draft)	4.0E+5	4.0E+5	NA
Lithium {B}	7439932	9,800	3,400	7,000	500	1.1E+8	NLV	NLV	NLV	NLV	ID	5.6E+7 {AD}	6.9E+7 {AD}	6.2E+7 {AD}	NA
Magnesium {B}	7439954	NA	8.0E+6	2.2E+7	NA	1.0E+9 {D}	NLV	NLV	NLV	NLV	2.9E+9	1.0E+9 {D}	1.0E+9 {D}	1.0E+9 {D}	NA
Manganese {B}	7439965	4.4E+5	1,000	1,000	{G,X}	1.8E+8	NLV	NLV	NLV	NLV	1.5E+6	1.7E+8	1.9E+8	1.8E+8	NA
Mercury (Inorganic)	7439976	130	1,700	1,700	100 {M}	47,000	NLV	NLV	NLV	NLV	ID	1.1E+6	1.2E+6	1.2E+6	NA
Molybdenum {B}	7439987	NA	740	2,000	16,000 {X}	1.9E+7	NLV	NLV	NLV	NLV	ID	1.8E+7	2.1E+7	1.9E+7	NA
Nickel {B}	7440020	20,000	1.0E+5	1.0E+5	{G}	1.0E+9 {D}	NLV	NLV	NLV	NLV	1.6E+7	2.7E+8	3.1E+8	2.9E+8	NA
Selenium {B}	7782492	410	4,000	4,000	400	7.8E+7	NLV	NLV	NLV	NLV	5.9E+7	1.8E+7	2.1E+7	1.9E+7	NA
Silver {B}	7440224	1,000	4,500	13,000	500 {M}	2.0E+8	NLV	NLV	NLV	NLV	2.9E+6	1.7E+7	1.9E+7	1.8E+7	NA
Sodium	17341252	NA	2.5E+6	7.0E+6	NA	1.0E+9 {D}	NLV	NLV	NLV	NLV	ID	1.0E+9 {D}	1.0E+9 {D}	1.0E+9 {D}	NA
Strontium {B}	7440246	NA	92,000	2.6E+5	15,000	1.0E+9 {D}	NLV	NLV	NLV	NLV	ID	1.0E+9 {D}	1.0E+9 {D}	1.0E+9 {D}	NA
Thallium {B}	7440280	NA	2,300	2,300	4,200 {X}	1.5E+7	NLV	NLV	NLV	NLV	ID	2.4E+5	2.8E+5	2.6E+5	NA
Vanadium	7440622	NA	72,000	9.9E+5	1.9E+5	1.0E+9 {D}	NLV	NLV	NLV	NLV	ID	1.0E+7	1.2E+7	1.1E+7	NA
White phosphorus {R}	12185103	NA	2.2	6.0	NA	58,000	NLV	NLV	NLV	NLV	ID	30,000 {AD}	37,000 {AD}	33,000 {AD}	NA
Zinc {B}	7440666	47,000	2.4E+6	5.0E+6	{G}	1.0E+9 {D}	NLV	NLV	NLV	NLV	ID	1.0E+9 {D}	1.0E+9 {D}	1.0E+9 {D}	NA
PAHs															
Acenaphthene	83329	NA	3.0E+5	8.8E+5	4,400	9.7E+5	3.5E+8	9.7E+7	9.7E+7	9.7E+7	6.2E+9	2.0E+8	3.6E+8	2.6E+8	NA
Acenaphthylene	208968	NA	5,900	17,000	ID	4.4E+5	3.0E+6	2.7E+6	2.7E+6	2.7E+6	1.0E+9	8.0E+6	1.4E+7	1.0E+7	NA
Anthracene	120127	NA	41,000	41,000	ID	41,000	1.0E+9 {D}	1.6E+9	1.6E+9	1.6E+9	2.9E+10	1.0E+9 {D}	1.0E+9 {D}	1.0E+9 {D}	NA

SOIL: INDUSTRIAL AND COMMERCIAL II, III, AND IV
PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

			Groundwater Protection				Indoor Air	Ambient Air {Y}				Direct Contact			
Guidesheet Number →		#10	#21		#12	#13	#22	#23	#24	#25	#26	#27	#28	#29	#20
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Benzo(a)anthracene {Q}	56553	NA	NLL	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	1.0E+5	3.0E+5	1.6E+5	NA
Benzo(b)fluoranthene {Q}	205992	NA	NLL	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	1.0E+5	3.0E+5	1.6E+5	NA
Benzo(k)fluoranthene {Q}	207089	NA	NLL	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	1.0E+6	3.0E+6	1.6E+6	NA
Benzo(g,h,i)perylene	191242	NA	NLL	NLL	NLL	NLL	NLV	NLV	NLV	NLV	3.5E+8	9.1E+6	2.7E+7	1.4E+7	NA
Benzo(a)pyrene {Q}	50328	NA	NLL	NLL	NLL	NLL	NLV	NLV	NLV	NLV	1.9E+6	10,000	30,000	16,000	NA
beta-Chloronaphthalene	91587	NA	6.2E+5	1.8E+6	NA	2.3E+6	ID	ID	ID	ID	ID	2.8E+8	5.0E+8	3.6E+8	NA
Chrysene {Q}	218019	NA	NLL	NLL	NLL	NLL	ID	ID	ID	ID	ID	1.0E+7	3.0E+7	1.6E+7	NA
Dibenzo(a,h)anthracene {Q}	53703	NA	NLL	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	10,000	30,000	16,000	NA
Dibenzofuran	132649	NA	ID	ID	1,700	ID	ID	ID	ID	ID	ID	ID	ID	ID	NA
Fluoranthene	206440	NA	7.3E+5	7.3E+5	5,500	7.3E+5	1.0E+9 {D}	8.9E+8	8.8E+8	8.8E+8	4.1E+9	1.8E+8	4.6E+8	2.7E+8	NA
Fluorene	86737	NA	3.9E+5	8.9E+5	5,300	8.9E+5	1.0E+9 {D}	1.5E+8	1.5E+8	1.5E+8	4.1E+9	1.3E+8	2.4E+8	1.7E+8	NA
Indeno(1,2,3-cd)pyrene {Q}	193395	NA	NLL	NLL	NLL	NLL	NLV	NLV	NLV	NLV	ID	1.0E+5	3.0E+5	1.6E+5	NA
2-Methylnaphthalene	91576	NA	57,000	1.7E+5	ID	5.5E+6	ID	ID	ID	ID	ID	4.0E+7	7.2E+7	5.2E+7	NA
Naphthalene	91203	NA	35,000	1.0E+5	870	2.1E+6	4.7E+5	3.5E+5	3.5E+5	3.5E+5	8.8E+7	8.0E+7	1.4E+8	1.0E+8	NA
Phenanthrene	85018	NA	56,000	1.6E+5	5,300	1.1E+6	5.1E+6	1.9E+5	1.9E+5	1.9E+5	2.9E+6	8.0E+6	1.4E+7	1.0E+7	NA
Pyrene	129000	NA	4.8E+5	4.8E+5	ID	4.8E+5	1.0E+9 {D}	7.8E+8	7.7E+8	7.7E+8	2.9E+9	1.1E+8	2.9E+8	1.7E+8	NA
SEMIVOLATILES															
Acetonitrile	75058	NA	2,800	8,000	NA	2.2E+7 {C}	8.8E+6	1.9E+6	1.9E+6	2.2E+6	1.8E+9	2.1E+7	2.2E+7 {C}	2.2E+7 {C}	2.2E+7
Acetophenone	98862	NA	30,000	88,000	NA	1.1E+6 {C}	1.1E+6 {C}	5.2E+7	ID	ID	1.4E+10	1.1E+6 {C}	1.1E+6 {C}	1.1E+6 {C}	1.1E+6
Acrylamide	79061	NA	6.0	24	NA	2.6E+5	NLV	NLV	NLV	NLV	3.0E+6	13,000	24,000	17,000	NA
Acrylic acid	79107	NA	78,000	2.2E+5	NA	1.1E+8 {C}	5.5E+6	2.2E+5	2.7E+5	2.7E+5	2.9E+7	1.1E+8 {C,AD}	1.1E+8 {C,AD}	1.1E+8 {C,AD}	1.1E+8
Aniline	62533	NA	1,700 {M}	4,400	1,700 {M}	2.8E+6	NLV	NLV	NLV	NLV	2.9E+7	2.3E+6	4.2E+6	3.0E+6	4.5E+6
Azobenzene	103333	NA	4,200	17,000	NA	3.0E+5	3.2E+7	2.1E+6	ID	ID	1.3E+8	1.0E+6	1.8E+6	1.3E+6	NA
Benzidine	92875	NA	1,000 {M}	1,000 {M}	ID	1,000 {M}	NLV	NLV	NLV	NLV	59,000	1,000 {M}	1,000 {M}	1,000 {M}	NA
Benzoic acid	65850	NA	6.4E+5	1.8E+6	NA	7.0E+7	NLV	NLV	NLV	NLV	ID	1.0E+9 {D}	1.0E+9 {D}	1.0E+9 {D}	NA
Benzyl alcohol	100516	NA	2.0E+5	5.8E+5	NA	5.8E+6 {C}	NLV	NLV	NLV	NLV	1.5E+11	5.8E+6 {C}	5.8E+6 {C}	5.8E+6 {C}	5.8E+6
bis(2-Chloroethoxy)ethane	112265	NA	ID	ID	NA	ID	NLV	NLV	NLV	NLV	ID	ID	ID	ID	2.7E+6
bis(2-Chloroethyl)ether {I}	111444	NA	330 {M}	330 {M}	NA	1.1E+5	44,000	13,000	13,000	13,000	1.2E+7	89,000	1.6E+5	1.2E+5	2.2E+6
Camphene {I}	79925	NA	ID	ID	NA	ID	ID	ID	ID	ID	ID	ID	ID	ID	NA
Caprolactam	105602	NA	1.2E+5	3.4E+5	NA	1.0E+9 {D}	NLV	NLV	NLV	NLV	2.9E+8	4.5E+8 {AD}	9.4E+8 {AD}	6.2E+8 {AD}	NA
Carbazole	86748	NA	9,400	39,000	1,100	8.2E+5	NLV	NLV	NLV	NLV	ID	3.7E+6	6.7E+6	4.9E+6	NA
Decabromodiphenyl ether	1163195	NA	1.4E+5	1.4E+5	NA	1.4E+5	1.0E+9 {D}	1.0E+8	ID	ID	1.0E+9	1.5E+7	3.8E+7	2.2E+7	NA

SOIL: INDUSTRIAL AND COMMERCIAL II, III, AND IV
PART 201 GENERIC CLEANUP CRITERIA AND SCREENING LEVELS

			Groundwater Protection				Indoor Air	Ambient Air {Y}				Direct Contact			
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Hazardous Substance	Chemical Abstract Service Number	Statewide Default Background Levels	Residential Drinking Water Protection Criteria	Industrial And Commercial Drinking Water Protection Criteria	Groundwater Surface Water Interface Protection Criteria	Groundwater Contact Protection Criteria	Soil Volatilization to Indoor Air Inhalation Criteria	Infinite Source Volatile Soil Inhalation Criteria (VSIC)	Finite VSIC for 5 Meter Source Thickness	Finite VSIC for 2 Meter Source Thickness	Particulate Soil Inhalation Criteria	Industrial and Commercial II	Commercial III	Commercial IV	Soil Saturation Concentration Screening Levels
Di(2-ethylhexyl) adipate	103231	NA	9.6E+5 {C}	9.6E+5 {C}	NA	9.6E+5 {C}	NLV	NLV	NLV	NLV	1.2E+10	9.6E+5 {C,AD}	9.6E+5 {C,AD}	9.6E+5 {C,AD}	9.6E+5
Diacetone alcohol {I}	123422	NA	ID	ID	NA	ID	NLV	NLV	NLV	NLV	7.1E+10	ID	ID	ID	1.1E+8
1,2-Dichlorobenzene	95501	NA	14,000	14,000	360	2.1E+5 {C}	2.1E+5 {C}	4.6E+7	4.6E+7	5.5E+7	4.4E+10	2.1E+5 {C}	2.1E+5 {C}	2.1E+5 {C}	2.1E+5
1,3-Dichlorobenzene	541731	NA	170	480	1,100	51,000	ID	ID	ID	ID	ID	1.7E+5 {C}	1.7E+5 {C}	1.7E+5 {C}	1.7E+5
1,4-Dichlorobenzene	106467	NA	1,700	1,700	290	1.4E+5	1.0E+5	2.6E+5	2.6E+5	3.4E+5	5.7E+8	2.9E+6	5.1E+6	3.7E+6	NA
3,3'-Dichlorobenzidine	91941	NA	2,000 {M}	2,000 {M}	2,000 {M,X}	4,600	NLV	NLV	NLV	NLV	8.2E+6	47,000	83,000	61,000	NA
2,6-Dichloro-4-nitroaniline	99309	NA	44,000	1.3E+5	NA	1.4E+5	NLV	NLV	NLV	NLV	ID	3.4E+8	6.0E+8	4.4E+8	NA
Diisopropylamine {I}	108189	NA	110	320	NA	4.2E+5	ID	ID	ID	ID	ID	8.6E+5	1.5E+6	1.1E+6	6.7E+6
Dimethyl phthalate	131113	NA	7.9E+5 {C}	7.9E+5 {C}	NA	7.9E+5 {C}	NLV	NLV	NLV	NLV	1.5E+9	7.9E+5 {C}	7.9E+5 {C}	7.9E+5 {C}	7.9E+5
N,N-Dimethylacetamide	127195	NA	3,600	10,000	82,000 {X}	1.1E+8 {C}	NLV	NLV	NLV	NLV	ID	2.8E+7	5.0E+7	3.6E+7	1.1E+8
N,N-Dimethylaniline	121697	NA	320	920	NA	4.0E+5	8.0E+5 {C}	5.2E+5	ID	ID	3.3E+8	8.0E+5 {C}	8.0E+5 {C}	8.0E+5 {C}	8.0E+5
2,4-Dinitrotoluene	121142	NA	430	640	NA	1.7E+5	NLV	NLV	NLV	NLV	2.0E+7	3.4E+5	6.1E+5	4.4E+5	NA
1-Formylpiperidine	2591868	NA	1,600	4,600	NA	ID	ID	ID	ID	ID	ID	1.0E+7 {C}	1.0E+7 {C}	1.0E+7 {C}	1.0E+7
Gentian violet	548629	NA	300	1,300	NA	2.0E+7	NLV	NLV	NLV	NLV	ID	6.8E+5	1.2E+6	8.8E+5	NA
Hexabromobenzene	87821	NA	3.2E+5	3.2E+5	ID	3.2E+5	ID	ID	ID	ID	ID	4.3E+6	1.1E+7	6.3E+6	NA
Hexachlorobenzene (C-66)	118741	NA	1,800	1,800	ID	8,200	2.2E+5	56,000	56,000	56,000	8.5E+6	51,000	1.3E+5	75,000	NA
Hexachlorobutadiene (C-46)	87683	NA	26,000	72,000	330 {M}	3.5E+5 {C}	3.5E+5 {C}	4.6E+5	4.6E+5	4.6E+5	1.8E+8	3.5E+5 {C}	3.5E+5 {C}	3.5E+5 {C}	3.5E+5
alpha-Hexachlorocyclohexane	319846	NA	18	71	NA	2,500	1.6E+5	41,000	86,000	86,000	2.1E+6	19,000	33,000	24,000	NA
beta-Hexachlorocyclohexane	319857	NA	37	150	NA	5,100	NLV	NLV	NLV	NLV	7.4E+6	38,000	69,000	50,000	NA
Hexachlorocyclopentadiene (C-56)	77474	NA	3.2E+5	3.2E+5	ID	7.2E+5 {C}	ID	ID	ID	ID	ID	7.2E+5 {C}	7.2E+5 {C}	7.2E+5 {C}	7.2E+5
Hexachloroethane	67721	NA	430	1,200	1,800 {X}	1.1E+5	79,000	6.6E+5	1.4E+6	1.4E+6	1.0E+8	1.1E+6	2.0E+6	1.5E+6	NA
Isophorone	78591	NA	15,000	62,000	11,000 {X}	2.4E+6 {C}	NLV	NLV	NLV	NLV	8.2E+9	2.4E+6 {C}	2.4E+6 {C}	2.4E+6 {C}	2.4E+6
2-Methoxyethanol {I}	109864	NA	150	420	NA	1.7E+7	NLV	NLV	NLV	NLV	5.9E+8	1.1E+6	2.0E+6	1.5E+6	1.1E+8
N-Methyl-morpholine {I}	109024	NA	400	1,100	NA	3.0E+7	NLV	NLV	NLV	NLV	ID	3.0E+6	5.4E+6	3.9E+6	1.1E+8
Methylcyclopentane {I}	96377	NA	ID	ID	NA	ID	ID	ID	ID	ID	ID	ID	ID	ID	3.5E+5
4,4'-Methylene-bis-2-chloroaniline (MBOCA)	101144	NA	NLL	NLL	NLL	NLL	NLV	NLV	NLV	NLV	1.1E+8	48,000	87,000	63,000	NA
Nitrobenzene {I}	98953	NA	330 {M}	330 {M}	3,600 {X}	2.2E+5	4.9E+5 {C}	4.6E+6	4.6E+6	4.6E+6	1.5E+9	4.9E+5 {C}	4.9E+5 {C}	4.9E+5 {C}	4.9E+5
n-Nitroso-di-n-propylamine	621647	NA	330 {M}	330 {M}	NA	7,200	NLV	NLV	NLV	NLV	2.0E+6	8,300	15,000	11,000	1.5E+6
N-Nitrosodiphenylamine	86306	NA	5,400	22,000	NA	7.0E+5	NLV	NLV	NLV	NLV	ID	1.2E+7	2.2E+7	1.6E+7	NA
Oxo-hexyl acetate	88230357	NA	1,500	4,200	NA	ID	ID	ID	ID	ID	2.4E+9	1.0E+7 {C}	1.0E+7 {C}	1.0E+7 {C}	1.0E+7
Pentachlorobenzene	608935	NA	29,000	81,000	NA	1.9E+5 {C}	ID	ID	ID	ID	ID	1.9E+5 {C}	1.9E+5 {C}	1.9E+5 {C}	1.9E+5
Pentachloronitrobenzene	82688	NA	37,000	37,000	NA	37,000	2.2E+5	2.8E+5	2.8E+5	2.8E+5	1.5E+8	8.4E+6	1.5E+7	1.1E+7	NA