

US EPA ARCHIVE DOCUMENT

ANALYTICAL RESULTS

Prepared for:

Chevron
5000 State Route 128
HOOVEN OH 45033

Prepared by:

Lancaster Laboratories
2425 New Holland Pike
Lancaster, PA 17605-2425

January 07, 2010

Project: Hooven Cincinnati Final Remedy

Samples arrived at the laboratory on Tuesday, December 29, 2009. The PO# for this group is 0015039270 and the release number is 50008931. The group number for this submittal is 1176742.

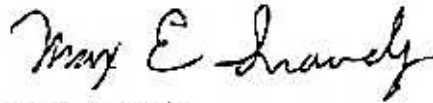
<u>Client Sample Description</u>	<u>Lancaster Labs (LLI) #</u>
MW-95S,122809 Grab Water	5873647
MW-95S,122809 Filtered Grab Water	5873648
MW-113,122809 Grab Water	5873649
MW-113,122809 Filtered Grab Water	5873650
Trip Blank,122809 Water	5873651

The specific methodologies used in obtaining the enclosed analytical results are indicated on the Laboratory Sample Analysis Record.

ELECTRONIC COPY TO	Trihydro Corporation	Attn: Trihydro Database
ELECTRONIC COPY TO	Trihydro Corporation	Attn: Tim Gunn
ELECTRONIC COPY TO	Trihydro Corporation	Attn: Matthew Mitchell

Questions? Contact your Client Services Representative
Katherine A Klinefelter at (717) 656-2300

Respectfully Submitted,



Max E. Snavelly
Senior Specialist



Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: MW-95S,122809 Grab Water
2nd Semi-Annual 2009-Cincinnati Final Remedy

LLI Sample # WW 5873647
LLI Group # 1176742
OH

Project Name: Hooven Cincinnati Final Remedy

Collected: 12/28/2009 13:05 by DB

Account Number: 11494

Submitted: 12/29/2009 09:10

Chevron

Reported: 01/07/2010 at 07:20

5000 State Route 128

Discard: 03/09/2010

HOOVEN OH 45033

SE95S SDG#: HVQ38-01

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	
10903	Benzene	71-43-2	N.D.	0.5	1
10903	Chlorobenzene	108-90-7	N.D.	0.8	1
10903	Ethylbenzene	100-41-4	N.D.	0.8	1
10903	Toluene	108-88-3	N.D.	0.7	1
10903	Xylene (Total)	1330-20-7	N.D.	0.8	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W093641AA	12/30/2009 21:46	Sara E Johnson	1
10903	8260 BTEX + Chlorobenzene	SW-846 8260B	1	W093641AA	12/30/2009 21:46	Sara E Johnson	1



Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

**Sample Description: MW-95S,122809 Filtered Grab Water
2nd Semi-Annual 2009-Cincinnati Final Remedy**

**LLI Sample # WW 5873648
LLI Group # 1176742
OH**

Project Name: Hooven Cincinnati Final Remedy

Collected: 12/28/2009 13:05 by DB

Account Number: 11494

Submitted: 12/29/2009 09:10

Chevron

Reported: 01/07/2010 at 07:20

5000 State Route 128

Discard: 03/09/2010

HOOVEN OH 45033

F-95S SDG#: HVQ38-02

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Metals Dissolved			mg/l	mg/l	
07035	Arsenic	7440-38-2	N.D.	0.0072	1
07055	Lead	7439-92-1	N.D.	0.0069	1

General Sample Comments

This sample was field filtered for metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07035	Arsenic	SW-846 6010B	1	093651848009	01/05/2010 11:25	Eric L Eby	1
07055	Lead	SW-846 6010B	1	093651848009	01/05/2010 11:25	Eric L Eby	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093651848009	01/04/2010 10:12	Denise K Connors	1



Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: MW-113,122809 Grab Water
2nd Semi-Annual 2009-Cincinnati Final Remedy

LLI Sample # WW 5873649
LLI Group # 1176742
OH

Project Name: Hooven Cincinnati Final Remedy

Collected: 12/28/2009 13:25 by DB

Account Number: 11494

Submitted: 12/29/2009 09:10

Chevron

Reported: 01/07/2010 at 07:20

5000 State Route 128

Discard: 03/09/2010

HOOVEN OH 45033

SE113 SDG#: HVQ38-03

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	
10903	Benzene	71-43-2	N.D.	0.5	1
10903	Chlorobenzene	108-90-7	N.D.	0.8	1
10903	Ethylbenzene	100-41-4	N.D.	0.8	1
10903	Toluene	108-88-3	N.D.	0.7	1
10903	Xylene (Total)	1330-20-7	N.D.	0.8	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W093641AA	12/30/2009 22:09	Sara E Johnson	1
10903	8260 BTEX + Chlorobenzene	SW-846 8260B	1	W093641AA	12/30/2009 22:09	Sara E Johnson	1



Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

**Sample Description: MW-113,122809 Filtered Grab Water
2nd Semi-Annual 2009-Cincinnati Final Remedy**

**LLI Sample # WW 5873650
LLI Group # 1176742
OH**

Project Name: Hooven Cincinnati Final Remedy

Collected: 12/28/2009 13:25 by DB

Account Number: 11494

Submitted: 12/29/2009 09:10

Chevron

Reported: 01/07/2010 at 07:20

5000 State Route 128

Discard: 03/09/2010

HOOVEN OH 45033

F-113 SDG#: HVQ38-04

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
Metals Dissolved			mg/l	mg/l	
07035	Arsenic	7440-38-2	N.D.	0.0072	1
07055	Lead	7439-92-1	N.D.	0.0069	1

General Sample Comments

This sample was field filtered for metals.

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
07035	Arsenic	SW-846 6010B	1	093651848009	01/05/2010 11:28	Eric L Eby	1
07055	Lead	SW-846 6010B	1	093651848009	01/05/2010 11:28	Eric L Eby	1
01848	WW SW846 ICP Digest (tot rec)	SW-846 3005A	1	093651848009	01/04/2010 10:12	Denise K Connors	1



Analysis Report

2425 New Holland Pike, PO Box 12425, Lancaster, PA 17605-2425 • 717-656-2300 Fax: 717-656-2681 • www.lancasterlabs.com

Sample Description: Trip Blank, 122809 Water
2nd Semi-Annual 2009-Cincinnati Final Remedy

LLI Sample # WW 5873651
LLI Group # 1176742
OH

Project Name: Hooven Cincinnati Final Remedy

Collected: 12/28/2009

Account Number: 11494

Submitted: 12/29/2009 09:10

Chevron

Reported: 01/07/2010 at 07:20

5000 State Route 128

Discard: 03/09/2010

HOOVEN OH 45033

TBSEM SDG#: HVQ38-05TB*

CAT No.	Analysis Name	CAS Number	As Received Result	As Received Method Detection Limit	Dilution Factor
GC/MS	Volatiles	SW-846 8260B	ug/l	ug/l	
10903	Benzene	71-43-2	N.D.	0.5	1
10903	Chlorobenzene	108-90-7	N.D.	0.8	1
10903	Ethylbenzene	100-41-4	N.D.	0.8	1
10903	Toluene	108-88-3	N.D.	0.7	1
10903	Xylene (Total)	1330-20-7	N.D.	0.8	1

General Sample Comments

All QC is compliant unless otherwise noted. Please refer to the Quality Control Summary for overall QC performance data and associated samples.

Laboratory Sample Analysis Record

CAT No.	Analysis Name	Method	Trial#	Batch#	Analysis Date and Time	Analyst	Dilution Factor
01163	GC/MS VOA Water Prep	SW-846 5030B	1	W093641AA	12/30/2009 21:23	Sara E Johnson	1
10903	8260 BTEX + Chlorobenzene	SW-846 8260B	1	W093641AA	12/30/2009 21:23	Sara E Johnson	1

Quality Control Summary

Client Name: Chevron

Group Number: 1176742

Reported: 01/07/10 at 07:20 AM

Matrix QC may not be reported if site-specific QC samples were not submitted. In these situations, to demonstrate precision and accuracy at a batch level, a LCS/LCSD was performed, unless otherwise specified in the method.

Laboratory Compliance Quality Control

Analysis Name	Blank Result	Blank MDL	Report Units	LCS %REC	LCSD %REC	LCS/LCSD Limits	RPD	RPD Max
Batch number: W093641AA	Sample number(s): 5873647, 5873649, 5873651							
Benzene	N.D.	0.5	ug/l	104	101	79-120	2	30
Chlorobenzene	N.D.	0.8	ug/l	102	101	80-120	2	30
Ethylbenzene	N.D.	0.8	ug/l	101	101	79-120	0	30
Toluene	N.D.	0.7	ug/l	101	102	79-120	1	30
Xylene (Total)	N.D.	0.8	ug/l	101	101	80-120	0	30
Batch number: 093651848009	Sample number(s): 5873648, 5873650							
Arsenic	N.D.	0.0072	mg/l	105		89-115		
Lead	N.D.	0.0069	mg/l	104		80-120		

Sample Matrix Quality Control

Unspiked (UNSPK) = the sample used in conjunction with the matrix spike
 Background (BKG) = the sample used in conjunction with the duplicate

Analysis Name	MS %REC	MSD %REC	MS/MSD Limits	RPD	RPD MAX	BKG Conc	DUP Conc	DUP RPD	Dup RPD Max
Batch number: W093641AA	Sample number(s): 5873647, 5873649, 5873651 UNSPK: 5873647								
Benzene	109		80-126						
Chlorobenzene	104		87-124						
Ethylbenzene	104		71-134						
Toluene	105		80-125						
Xylene (Total)	105		79-125						
Batch number: 093651848009	Sample number(s): 5873648, 5873650 UNSPK: P872412 BKG: P872412								
Arsenic	106	105	75-125	1	20	N.D.	N.D.	0 (1)	20
Lead	99	100	75-125	1	20	N.D.	N.D.	0 (1)	20

Surrogate Quality Control

Surrogate recoveries which are outside of the QC window are confirmed unless attributed to dilution or otherwise noted on the Analysis Report.

Analysis Name: 8260 Std. Water Master
 Batch number: W093641AA

	Dibromofluoromethane	1,2-Dichloroethane-d4	Toluene-d8	4-Bromofluorobenzene
5873647	90	89	91	84
5873649	92	86	91	84
5873651	92	89	90	84

*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

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Quality Control Summary

Client Name: Chevron
Reported: 01/07/10 at 07:20 AM

Group Number: 1176742

Surrogate Quality Control

Blank	91	88	90	85
LCS	92	89	91	87
LCSD	92	88	91	88
MS	94	84	90	87
Limits:	80-116	77-113	80-113	78-113

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*- Outside of specification

- (1) The result for one or both determinations was less than five times the LOQ.
- (2) The unspiked result was more than four times the spike added.

Analysis Request/ Environmental Services Chain of Custody



For Lancaster Laboratories use only

Acct. # 11494 Group# 1176742 Sample # 5873647-51 **COC #** 225013

Please print. Instructions on reverse side correspond with circled numbers.

1 Client: <u>Chevron</u> Acct. #: <u>11494</u> Project Name/#: <u>2nd Semi-Annual 2009</u> PWSID #: <u>MWREN17000M</u> Project Manager: <u>Doug Lam</u> P.O.#: _____ Sampler: <u>Dale Barrett</u> Quote #: _____ Name of state where samples were collected: <u>Ohio</u>		4 Matrix <input type="checkbox"/> Potable <input type="checkbox"/> Check if Applicable <input type="checkbox"/> NPDES <input type="checkbox"/> Other		5 Analyses Requested Preservation Codes					For Lab Use Only FSC: _____ SCR#: _____									
				<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 5%; text-align: center;">H</td> <td style="width: 5%; text-align: center;">N</td> <td style="width: 5%;"></td> <td style="width: 5%;"></td> <td style="width: 5%;"></td> <td style="width: 5%;"></td> </tr> <tr> <td style="text-align: center;">VOCs PAL 8260</td> <td style="text-align: center;">Pb/As</td> <td style="text-align: center;">Dissolved Metals</td> <td style="text-align: center;">TPH GRO</td> <td style="text-align: center;">TPX BRO</td> <td style="text-align: center;">MNA</td> </tr> </table>					H	N					VOCs PAL 8260	Pb/As	Dissolved Metals	TPH GRO
H	N																	
VOCs PAL 8260	Pb/As	Dissolved Metals	TPH GRO	TPX BRO	MNA													

Date Collected		Time Collected		3		4		5					6				
Sample Identification				Grate	Composite	Soil	Water	Other	Total # of Containers	VOCs PAL 8260	Pb/As	Dissolved Metals	TPH GRO	TPX BRO	MNA	Remarks	Temperature of samples upon receipt (if requested)
<u>MW-95, 122809</u>		<u>12/28/09</u>		<u>1305</u>		<input checked="" type="checkbox"/>			4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<u>See Attached</u>	
<u>MW-113, 122809</u>		<u>12/28/09</u>		<u>1325</u>		<input checked="" type="checkbox"/>			4	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>					<u>Analytic List</u>	
<u>TRIP Blank, 122809</u>		<u>12/28/09</u>		<u>---</u>		<input checked="" type="checkbox"/>			2	<input checked="" type="checkbox"/>						<u>Dissolved metals are field filtered</u>	
<div style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%); opacity: 0.5;"> <p><u>QC Summary Data Package</u></p> </div>																	

7 Turnaround Time Requested (TAT) (please circle): <u>Normal</u> Rush (Rush TAT is subject to Lancaster Laboratories approval and surcharge.) Date results are needed: _____ Rush results requested by (please circle): Phone Fax <u>E-mail</u> Phone #: <u>513-353-1323</u> Fax #: <u>513-353-4664</u> E-mail address: <u>mm.itckill@trihydro.com</u>				Relinquished by: <u>[Signature]</u>		Date	Time	Received by:		Date	Time
						<u>12/28/09</u>	<u>1400</u>				

8 Data Package Options (please circle if required)		SDG Complete? <u>Yes</u> No		Relinquished by: <u>[Signature]</u>		Date	Time	Received by:		Date	Time
Type I (validation/NJ Reg)	<input type="checkbox"/> TX TRRP-13										
Type II (Tier II)	<input type="checkbox"/> MA MCP <input type="checkbox"/> CT RCP										
Type III (Reduced NJ)	<input type="checkbox"/> Site-specific QC (MS/MSD/Dup)? Yes No										
Type IV (CLP SOW)	(If yes, indicate QC sample and submit triplicate volume.)										
Type VI (Raw Data Only)	Internal COC Required? Yes / No _____										

Lancaster Laboratories, Inc., 2425 New Holland Pike, Lancaster, PA 17601 (717) 656-2300 Fax: (717) 656-6766
 Copies: White and yellow should accompany samples to Lancaster Laboratories. The pink copy should be retained by the client.

Analytical Requests for Groundwater
Chevron Cincinnati Facility, Hooven, Ohio

Volatile Organics

Benzene
Chlorobenzene
Ethylbenzene
Toluene
Xylenes (total)

Dissolved Metals- field filtered

Arsenic
Lead

TPH

GRO
DRO

Monitored Natural Attenuation

Alkalinity
Calcium
Chemical Oxygen Demand
Chloride
Iron (II) and Iron (III)
Dissolved and Total Manganese
Methane
Nitrate Nitrogen
Nitrite Nitrogen
Ammonia Nitrogen
Total Kjeldahl Nitrogen
Potassium
Sodium
Sulfate
Sulfide
Total Organic Carbon

Environmental Sample Administration Receipt Documentation Log

Client/Project: Cheriton
 Date of Receipt: 12/29/09
 Time of Receipt: 9:10
 Source Code: 501
 Unpacker Emp. No.: 2316

Shipping Container Sealed: YES NO
 Custody Seal Present * : YES NO
 * Custody seal was intact unless otherwise noted in the discrepancy section
 Package: Chilled Not Chilled

Temperature of Shipping Containers							
Cooler #	Thermometer ID	Temperature (°C)	Temp Bottle (TB) or Surface Temp (ST)	Wet Ice (WI) or Dry Ice (DI) or Ice Packs (IP)	Ice Present? Y/N	Loose (L) Bagged Ice (B) or NA	Comments
1	D121465	0.82	TB	WI	Y	L	
2							
3							
4							
5							
6							

Number of Trip Blanks received NOT listed on chain of custody: 0

Paperwork Discrepancy/Unpacking Problems:

Sample Administration Internal Chain of Custody			
Name	Date	Time	Reason for Transfer
<i>Mary Beth Reed</i>	12/29/09	1038	Unpacking / Storage
<i>Mary Beth Reed</i>	12/29/09	1041	Place in Storage or <input checked="" type="radio"/> Entry
			Entry
			Entry

Lancaster Laboratories Explanation of Symbols and Abbreviations

The following defines common symbols and abbreviations used in reporting technical data:

N.D.	none detected	BMQL	Below Minimum Quantitation Level
TNTC	Too Numerous To Count	MPN	Most Probable Number
IU	International Units	CP Units	cobalt-chloroplatinate units
umhos/cm	micromhos/cm	NTU	nephelometric turbidity units
C	degrees Celsius	F	degrees Fahrenheit
Cal	(diet) calories	lb.	pound(s)
meq	milliequivalents	kg	kilogram(s)
g	gram(s)	mg	milligram(s)
ug	microgram(s)	l	liter(s)
ml	milliliter(s)	ul	microliter(s)
m3	cubic meter(s)	fib >5 um/ml	fibers greater than 5 microns in length per ml
<	less than – The number following the sign is the <u>limit of quantitation</u> , the smallest amount of analyte which can be reliably determined using this specific test.		
>	greater than		
ppm	parts per million – One ppm is equivalent to one milligram per kilogram (mg/kg), or one gram per million grams. For aqueous liquids, ppm is usually taken to be equivalent to milligrams per liter (mg/l), because one liter of water has a weight very close to a kilogram. For gases or vapors, one ppm is equivalent to one microliter of gas per liter of gas.		
ppb	parts per billion		
Dry weight basis	Results printed under this heading have been adjusted for moisture content. This increases the analyte weight concentration to approximate the value present in a similar sample without moisture.		

U.S. EPA data qualifiers:

Organic Qualifiers

A	TIC is a possible aldol-condensation product
B	Analyte was also detected in the blank
C	Pesticide result confirmed by GC/MS
D	Compound quantitated on a diluted sample
E	Concentration exceeds the calibration range of the instrument
J	Estimated value
N	Presumptive evidence of a compound (TICs only)
P	Concentration difference between primary and confirmation columns >25%
U	Compound was not detected
X,Y,Z	Defined in case narrative

Inorganic Qualifiers

B	Value is <CRDL, but ≥IDL
E	Estimated due to interference
M	Duplicate injection precision not met
N	Spike amount not within control limits
S	Method of standard additions (MSA) used for calculation
U	Compound was not detected
W	Post digestion spike out of control limits
*	Duplicate analysis not within control limits
+	Correlation coefficient for MSA <0.995

Analytical test results for methods listed on the laboratories' accreditation scope meet all requirements of NELAC unless otherwise noted under the individual analysis.

Tests results relate only to the sample tested. Clients should be aware that a critical step in a chemical or microbiological analysis is the collection of the sample. Unless the sample analyzed is truly representative of the bulk of material involved, the test results will be meaningless. If you have questions regarding the proper techniques of collecting samples, please contact us. We cannot be held responsible for sample integrity, however, unless sampling has been performed by a member of our staff. This report shall not be reproduced except in full, without the written approval of the laboratory.

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