Lancaster Laboratories

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# Analysis Report

ANALYTICAL RESULTS

Prepared for:

Chevron
5000 State Route 128
HOOVEN OH 45033

Prepared by:

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

December 22, 2009

Project: Hooven Cincinnati Final Remedy

Samples arrived at the laboratory on Thursday, December 10, 2009. The PO# for this group is 0015039270 and the release number is 50008931. The group number for this submittal is 1174583.

| Client Sample Description | Lancaster Labs (LLI) # |
|---|---|
| MW-85D,120909 Grab Water | 5860175 |
| MW-85D,120909 Filtered Grab Water | 5860176 |
| MW-52,120909 Grab Water | 5860177 |
| MW-52,120909 Filtered Grab Water | 5860178 |
| MW-112,120909 Grab Water | 5860179 |
| MW-112,120909 Filtered Grab Water | 5860180 |
| Trip Blank Water | 5860181 |
| FB-3,120909 Grab Water | 5860182 |

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 |

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# Analysis Report

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

Respectfully Submitted,

Robin C. Runkle
Senior Specialist

# Analysis Report

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**Sample Description: MW-85D,120909 Grab Water**
**2nd Semi-Annual 2009-Cincinnati Final Remedy**

**LLI Sample # WW 5860175**
**LLI Group # 1174583**
**OH**

**Project Name: Hooven Cincinnati Final Remedy**

Collected: 12/09/2009 14:25 by DB

Account Number: 11494

Submitted: 12/10/2009 09:35
Reported: 12/22/2009 at 13:57
Discard: 02/21/2010

Chevron
5000 State Route 128
HOOVEN OH 45033

MW-85 SDG#: HVQ37-01

| 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** | |
| 07582 | Benzene | 71-43-2 | N.D. | 0.5 | 1 |
| 07582 | Chlorobenzene | 108-90-7 | N.D. | 0.8 | 1 |
| 07582 | Ethylbenzene | 100-41-4 | N.D. | 0.8 | 1 |
| 07582 | Toluene | 108-88-3 | N.D. | 0.7 | 1 |
| 07582 | 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 | N093552AA | 12/21/2009 20:54 | Nicholas P Riehl | 1 |
| 07582 | PPL + Xylene (total) by 8260 | SW-846 8260B | 1 | N093552AA | 12/21/2009 20:54 | Nicholas P Riehl | 1 |

# Analysis Report

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**Sample Description: MW-85D,120909 Filtered Grab Water**
**2nd Semi-Annual 2009-Cincinnati Final Remedy**

**LLI Sample # WW 5860176**
**LLI Group # 1174583**
**OH**

**Project Name: Hooven Cincinnati Final Remedy**

Collected: 12/09/2009 14:25 by DB

Account Number: 11494

Submitted: 12/10/2009 09:35
Reported: 12/22/2009 at 13:57
Discard: 02/21/2010

Chevron
5000 State Route 128
HOOVEN OH 45033

MW85F SDG#: HVQ37-02

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Dilution Factor |
|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | **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 | 093491848003 | 12/16/2009 21:36 | John P Hook | 1 |
| 07055 | Lead | SW-846 6010B | 1 | 093491848003 | 12/16/2009 21:36 | John P Hook | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 093491848003 | 12/16/2009 03:00 | Mirit S Shenouda | 1 |

# Analysis Report

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**Sample Description: MW-52,120909 Grab Water**
**2nd Semi-Annual 2009-Cincinnati Final Remedy**

**LLI Sample # WW 5860177**
**LLI Group # 1174583**
**OH**

**Project Name: Hooven Cincinnati Final Remedy**

Collected: 12/09/2009 15:05 by DB

Account Number: 11494

Submitted: 12/10/2009 09:35
Reported: 12/22/2009 at 13:57
Discard: 02/21/2010

Chevron
5000 State Route 128
HOOVEN OH 45033

MW-52 SDG#: HVQ37-03

| 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** | |
| 07582 | Benzene | 71-43-2 | 140 | | 0.5 | 1 |
| 07582 | Chlorobenzene | 108-90-7 | N.D. | | 0.8 | 1 |
| 07582 | Ethylbenzene | 100-41-4 | 1 | J | 0.8 | 1 |
| 07582 | Toluene | 108-88-3 | 3 | J | 0.7 | 1 |
| 07582 | Xylene (Total) | 1330-20-7 | 3 | J | 0.8 | 1 |
| **GC Volatiles** | **SW-846 8015B** | | **ug/l** | | **ug/l** | |
| 01635 | TPH-GRO water C6-C10 | n.a. | 1,600 | | 20 | 1 |
| **GC Extractable TPH** | **SW-846 8015B** | | **ug/l** | | **ug/l** | |
| 08269 | TPH-DRO water C10-C28 | n.a. | 1,100 | | 31 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | |
| 07105 | Methane | 74-82-8 | 1,600 | | 100 | 20 |
| **Metals** | **SW-846 6010B** | | **mg/l** | | **mg/l** | |
| 01750 | Calcium | 7440-70-2 | 116 | | 0.0702 | 1 |
| 01754 | Iron | 7439-89-6 | 8.41 | | 0.0522 | 1 |
| 07058 | Manganese | 7439-96-5 | 1.09 | | 0.00084 | 1 |
| 01762 | Potassium | 7440-09-7 | 4.11 | | 0.239 | 1 |
| 01767 | Sodium | 7440-23-5 | 40.9 | | 0.433 | 1 |
| | **SW-846 6010B modified** | | **mg/l** | | **mg/l** | |
| 02268 | Ferric Iron | n.a. | 1.0 | J | 0.20 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **mg/l** | | **mg/l** | |
| 00224 | Chloride | 16887-00-6 | 69.4 | | 4.0 | 20 |
| 00228 | Sulfate | 14808-79-8 | 1.7 | J | 1.5 | 5 |
| | **EPA 351.2** | | **mg/l** | | **mg/l** | |
| 00217 | Kjeldahl Nitrogen | n.a. | 1.1 | | 0.50 | 1 |
| | **EPA 353.2** | | **mg/l** | | **mg/l** | |
| 00220 | Nitrate Nitrogen | 14797-55-8 | N.D. | | 0.040 | 1 |
| 00219 | Nitrite Nitrogen | 14797-65-0 | N.D. | | 0.015 | 1 |
| | **SM20 5310 C** | | **mg/l** | | **mg/l** | |
| 00273 | Total Organic Carbon | n.a. | 3.5 | | 0.50 | 1 |
| | **EPA 410.4** | | **mg/l** | | **mg/l** | |
| 04001 | Chemical Oxygen Demand | n.a. | 25.7 | J | 12.8 | 1 |
| | **SM20 2320 B** | | **mg/l as CaCO3** | | **mg/l as CaCO3** | |

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# Analysis Report



**Sample Description: MW-52,120909 Grab Water**
**2nd Semi-Annual 2009-Cincinnati Final Remedy**

**LLI Sample # WW 5860177**
**LLI Group # 1174583**
**OH**

**Project Name: Hooven Cincinnati Final Remedy**

Collected: 12/09/2009 15:05 by DB

Account Number: 11494

Submitted: 12/10/2009 09:35
Reported: 12/22/2009 at 13:57
Discard: 02/21/2010

Chevron
5000 State Route 128
HOOVEN OH 45033

MW-52 SDG#: HVQ37-03

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Dilution Factor |
|---|---|---|---|---|---|
| **Wet Chemistry** | **SM20 2320 B** | | **mg/l as CaCO3** | **mg/l as CaCO3** | |
| 00202 | Alkalinity to pH 4.5 | n.a. | 352 | 0.46 | 1 |
| 00201 | Alkalinity to pH 8.3 | n.a. | N.D. | 0.46 | 1 |
| | **SM20 3500 Fe B modified** | | **mg/l** | **mg/l** | |
| 08344 | Ferrous Iron | n.a. | 7.4 | 0.20 | 20 |
| | **SM20 4500 S2 D** | | **mg/l** | **mg/l** | |
| 00230 | Sulfide | 18496-25-8 | 0.054 J | 0.054 | 1 |
| | **SM20 4500NH3 B/C modified** | | **mg/l** | **mg/l** | |
| 00221 | Ammonia Nitrogen | 7664-41-7 | 0.89 | 0.20 | 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 | N093552AA | 12/21/2009 21:40 | Nicholas P Riehl | 1 |
| 07582 | PPL + Xylene (total) by 8260 | SW-846 8260B | 1 | N093552AA | 12/21/2009 21:40 | Nicholas P Riehl | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 09348B07A | 12/15/2009 19:22 | Matthew S Woods | 1 |
| 01635 | TPH-GRO water C6-C10 | SW-846 8015B | 1 | 09348B07A | 12/15/2009 19:22 | Matthew S Woods | 1 |
| 08269 | TPH-DRO water C10-C28 | SW-846 8015B | 1 | 093450005A | 12/15/2009 21:25 | Tracy A Cole | 1 |
| 07003 | Extraction - DRO (Waters) | SW-846 3510C | 1 | 093450005A | 12/11/2009 16:30 | JoElla L Rice | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 093450000A | 12/16/2009 08:42 | Dustin A Underkoffler | 20 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 093491848003 | 12/16/2009 03:00 | Mirit S Shenouda | 1 |
| 01750 | Calcium | SW-846 6010B | 1 | 093491848003 | 12/16/2009 21:45 | John P Hook | 1 |
| 01754 | Iron | SW-846 6010B | 1 | 093491848003 | 12/16/2009 21:45 | John P Hook | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 093491848003 | 12/16/2009 21:45 | John P Hook | 1 |
| 01762 | Potassium | SW-846 6010B | 1 | 093491848003 | 12/17/2009 11:36 | Eric L Eby | 1 |
| 01767 | Sodium | SW-846 6010B | 1 | 093491848003 | 12/16/2009 21:45 | John P Hook | 1 |
| 02268 | Ferric Iron | SW-846 6010B modified | 1 | 093512268001 | 12/17/2009 04:43 | Deborah A Krady | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 09350196601B | 12/16/2009 21:03 | Ashley M Adams | 20 |
| 00228 | Sulfate | EPA 300.0 | 1 | 09350196601B | 12/18/2009 14:46 | Ashley M Adams | 5 |
| 00217 | Kjeldahl Nitrogen | EPA 351.2 | 1 | 09348108101A | 12/18/2009 09:21 | K. Robert Caulfeild-James | 1 |
| 00220 | Nitrate Nitrogen | EPA 353.2 | 1 | 09350106102B | 12/16/2009 20:24 | Joseph E McKenzie | 1 |

# Analysis Report

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**Sample Description: MW-52,120909 Grab Water**
**2nd Semi-Annual 2009-Cincinnati Final Remedy**

**LLI Sample # WW 5860177**
**LLI Group # 1174583**
**OH**

**Project Name: Hooven Cincinnati Final Remedy**

Collected: 12/09/2009 15:05 by DB

Account Number: 11494

Submitted: 12/10/2009 09:35
Reported: 12/22/2009 at 13:57
Discard: 02/21/2010

Chevron
5000 State Route 128
HOOVEN OH 45033

MW-52 SDG#: HVQ37-03

## Laboratory Sample Analysis Record

| CAT No. | Analysis Name | Method | Trial# | Batch# | Analysis Date and Time | Analyst | Dilution Factor |
|---|---|---|---|---|---|---|---|
| 00219 | Nitrite Nitrogen | EPA 353.2 | 1 | 09344105103A | 12/10/2009 21:21 | Joseph E McKenzie | 1 |
| 00273 | Total Organic Carbon | SM20 5310 C | 1 | 09348049501A | 12/14/2009 03:01 | James S Mathiot | 1 |
| 01460 | Total Kjeldahl Nitrogen Digest | EPA 351.2 | 1 | 09348108101A | 12/14/2009 10:40 | Nancy J Shoop | 1 |
| 00202 | Alkalinity to pH 4.5 | SM20 2320 B | 1 | 09351020201A | 12/17/2009 13:27 | Geraldine C Smith | 1 |
| 00201 | Alkalinity to pH 8.3 | SM20 2320 B | 1 | 09351020201A | 12/17/2009 13:27 | Geraldine C Smith | 1 |
| 08344 | Ferrous Iron | SM20 3500 Fe B modified | 1 | 09344834401A | 12/10/2009 20:35 | Daniel S Smith | 20 |
| 00230 | Sulfide | SM20 4500 S2 D | 1 | 09345023001A | 12/11/2009 01:07 | Geraldine C Smith | 1 |
| 00221 | Ammonia Nitrogen | SM20 4500NH3 B/C modified | 1 | 09345022101A | 12/11/2009 19:00 | Luz M Groff | 1 |
| 04001 | Chemical Oxygen Demand | EPA 410.4 | 1 | 09345400102A | 12/11/2009 08:45 | Susan A Engle | 1 |

# Analysis Report

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**Sample Description: MW-52,120909 Filtered Grab Water**
**2nd Semi-Annual 2009-Cincinnati Final Remedy**

**LLI Sample # WW 5860178**
**LLI Group # 1174583**
**OH**

**Project Name: Hooven Cincinnati Final Remedy**

Collected: 12/09/2009 15:05 by DB

Account Number: 11494

Submitted: 12/10/2009 09:35
Reported: 12/22/2009 at 13:57
Discard: 02/21/2010

Chevron
5000 State Route 128
HOOVEN OH 45033

MW52F SDG#: HVQ37-04

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Dilution Factor |
|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | **mg/l** | **mg/l** | |
| 07035 | Arsenic | 7440-38-2 | N.D. | 0.0072 | 1 |
| 07055 | Lead | 7439-92-1 | N.D. | 0.0069 | 1 |
| 07058 | Manganese | 7439-96-5 | 1.09 | 0.00084 | 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 | 093491848003 | 12/16/2009 21:48 | John P Hook | 1 |
| 07055 | Lead | SW-846 6010B | 1 | 093491848003 | 12/16/2009 21:48 | John P Hook | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 093491848003 | 12/16/2009 21:48 | John P Hook | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 093491848003 | 12/16/2009 03:00 | Mirit S Shenouda | 1 |

# Analysis Report

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**Sample Description: MW-112,120909 Grab Water**
**2nd Semi-Annual 2009-Cincinnati Final Remedy**

**LLI Sample # WW 5860179**
**LLI Group # 1174583**
**OH**

**Project Name: Hooven Cincinnati Final Remedy**

Collected: 12/09/2009 09:45 by DB

Account Number: 11494

Submitted: 12/10/2009 09:35
Reported: 12/22/2009 at 13:57
Discard: 02/21/2010

Chevron
5000 State Route 128
HOOVEN OH 45033

MW112 SDG#: HVQ37-05

| 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** | |
| 07582 | Benzene | 71-43-2 | 0.7 | J | 0.5 | 1 |
| 07582 | Chlorobenzene | 108-90-7 | N.D. | | 0.8 | 1 |
| 07582 | Ethylbenzene | 100-41-4 | 1 | J | 0.8 | 1 |
| 07582 | Toluene | 108-88-3 | N.D. | | 0.7 | 1 |
| 07582 | Xylene (Total) | 1330-20-7 | 0.9 | J | 0.8 | 1 |
| **GC Miscellaneous** | **SW-846 8015B modified** | | **ug/l** | | **ug/l** | |
| 07105 | Methane | 74-82-8 | 200 | | 10 | 1 |
| **Metals** | **SW-846 6010B** | | **mg/l** | | **mg/l** | |
| 01750 | Calcium | 7440-70-2 | 72.8 | | 0.0702 | 1 |
| 01754 | Iron | 7439-89-6 | 4.31 | | 0.0522 | 1 |
| 07058 | Manganese | 7439-96-5 | 0.173 | | 0.00084 | 1 |
| 01762 | Potassium | 7440-09-7 | 3.16 | | 0.239 | 1 |
| 01767 | Sodium | 7440-23-5 | 43.2 | | 0.433 | 1 |
| | **SW-846 6010B modified** | | **mg/l** | | **mg/l** | |
| 02268 | Ferric Iron | n.a. | N.D. | | 0.10 | 1 |
| **Wet Chemistry** | **EPA 300.0** | | **mg/l** | | **mg/l** | |
| 00224 | Chloride | 16887-00-6 | 69.3 | | 4.0 | 20 |
| 00228 | Sulfate | 14808-79-8 | 41.3 | | 6.0 | 20 |
| | **EPA 351.2** | | **mg/l** | | **mg/l** | |
| 00217 | Kjeldahl Nitrogen | n.a. | N.D. | | 0.50 | 1 |
| | **EPA 353.2** | | **mg/l** | | **mg/l** | |
| 00220 | Nitrate Nitrogen | 14797-55-8 | N.D. | | 0.040 | 1 |
| 00219 | Nitrite Nitrogen | 14797-65-0 | N.D. | | 0.015 | 1 |
| | **SM20 5310 C** | | **mg/l** | | **mg/l** | |
| 00273 | Total Organic Carbon | n.a. | 2.1 | | 0.50 | 1 |
| | **EPA 410.4** | | **mg/l** | | **mg/l** | |
| 04001 | Chemical Oxygen Demand | n.a. | 21.2 | J | 12.8 | 1 |
| | **SM20 2320 B** | | **mg/l as CaCO3** | | **mg/l as CaCO3** | |
| 00202 | Alkalinity to pH 4.5 | n.a. | 232 | | 0.46 | 1 |
| 00201 | Alkalinity to pH 8.3 | n.a. | N.D. | | 0.46 | 1 |
| | **SM20 3500 Fe B modified** | | **mg/l** | | **mg/l** | |
| 08344 | Ferrous Iron | n.a. | 4.4 | | 0.10 | 10 |

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# Analysis Report



**Sample Description: MW-112,120909 Grab Water**
**2nd Semi-Annual 2009-Cincinnati Final Remedy**

**LLI Sample # WW 5860179**
**LLI Group # 1174583**
**OH**

**Project Name: Hooven Cincinnati Final Remedy**

Collected: 12/09/2009 09:45 by DB

Account Number: 11494

Submitted: 12/10/2009 09:35
Reported: 12/22/2009 at 13:57
Discard: 02/21/2010

Chevron
5000 State Route 128
HOOVEN OH 45033

MW112 SDG#: HVQ37-05

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Dilution Factor |
|---|---|---|---|---|---|
| **Wet Chemistry** | **SM20 4500 S2 D** | | **mg/l** | **mg/l** | |
| 00230 | Sulfide | 18496-25-8 | 0.071 J | 0.054 | 1 |
| | **SM20 4500NH3 B/C modified** | | **mg/l** | **mg/l** | |
| 00221 | Ammonia Nitrogen | 7664-41-7 | N.D. | 0.20 | 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 | N093552AA | 12/21/2009 22:03 | Nicholas P Riehl | 1 |
| 07582 | PPL + Xylene (total) by 8260 | SW-846 8260B | 1 | N093552AA | 12/21/2009 22:03 | Nicholas P Riehl | 1 |
| 07105 | Volatile Headspace Hydrocarbon | SW-846 8015B modified | 1 | 093450000A | 12/15/2009 17:02 | Dustin A Underkoffler | 1 |
| 01750 | Calcium | SW-846 6010B | 1 | 093491848003 | 12/16/2009 21:51 | John P Hook | 1 |
| 01754 | Iron | SW-846 6010B | 1 | 093491848003 | 12/16/2009 21:51 | John P Hook | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 093491848003 | 12/16/2009 21:51 | John P Hook | 1 |
| 01762 | Potassium | SW-846 6010B | 1 | 093491848003 | 12/17/2009 11:50 | Eric L Eby | 1 |
| 01767 | Sodium | SW-846 6010B | 1 | 093491848003 | 12/16/2009 21:51 | John P Hook | 1 |
| 02268 | Ferric Iron | SW-846 6010B modified | 1 | 093512268001 | 12/17/2009 04:44 | Deborah A Krady | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 093491848003 | 12/16/2009 03:00 | Mirit S Shenouda | 1 |
| 00224 | Chloride | EPA 300.0 | 1 | 09350196601B | 12/16/2009 21:52 | Ashley M Adams | 20 |
| 00228 | Sulfate | EPA 300.0 | 1 | 09350196601B | 12/16/2009 21:52 | Ashley M Adams | 20 |
| 00217 | Kjeldahl Nitrogen | EPA 351.2 | 1 | 09348108101A | 12/18/2009 09:24 | K. Robert Caulfeild-James | 1 |
| 00220 | Nitrate Nitrogen | EPA 353.2 | 1 | 09350106102B | 12/16/2009 20:28 | Joseph E McKenzie | 1 |
| 00219 | Nitrite Nitrogen | EPA 353.2 | 1 | 09344105103A | 12/10/2009 21:22 | Joseph E McKenzie | 1 |
| 00273 | Total Organic Carbon | SM20 5310 C | 1 | 09348049501A | 12/14/2009 03:08 | James S Mathiot | 1 |
| 01460 | Total Kjeldahl Nitrogen Digest | EPA 351.2 | 1 | 09348108101A | 12/14/2009 10:40 | Nancy J Shoop | 1 |
| 04001 | Chemical Oxygen Demand | EPA 410.4 | 1 | 09345400102A | 12/11/2009 08:45 | Susan A Engle | 1 |
| 00202 | Alkalinity to pH 4.5 | SM20 2320 B | 1 | 09351020201A | 12/17/2009 13:27 | Geraldine C Smith | 1 |
| 00201 | Alkalinity to pH 8.3 | SM20 2320 B | 1 | 09351020201A | 12/17/2009 13:27 | Geraldine C Smith | 1 |
| 08344 | Ferrous Iron | SM20 3500 Fe B modified | 1 | 09344834401A | 12/10/2009 20:35 | Daniel S Smith | 10 |
| 00230 | Sulfide | SM20 4500 S2 D | 1 | 09345023001A | 12/11/2009 01:07 | Geraldine C Smith | 1 |
| 00221 | Ammonia Nitrogen | SM20 4500NH3 B/C modified | 1 | 09345022101A | 12/11/2009 19:00 | Luz M Groff | 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-112,120909 Filtered Grab Water**
**2nd Semi-Annual 2009-Cincinnati Final Remedy**

**LLI Sample # WW 5860180**
**LLI Group # 1174583**
**OH**

**Project Name: Hooven Cincinnati Final Remedy**

Collected: 12/09/2009 09:45 by DB

Account Number: 11494

Submitted: 12/10/2009 09:35
Reported: 12/22/2009 at 13:57
Discard: 02/21/2010

Chevron
5000 State Route 128
HOOVEN OH 45033

112-F SDG#: HVQ37-06

| CAT No. | Analysis Name | CAS Number | As Received Result | As Received Method Detection Limit | Dilution Factor |
|---|---|---|---|---|---|
| **Metals Dissolved** | **SW-846 6010B** | | **mg/l** | **mg/l** | |
| 07035 | Arsenic | 7440-38-2 | N.D. | 0.0072 | 1 |
| 07055 | Lead | 7439-92-1 | N.D. | 0.0069 | 1 |
| 07058 | Manganese | 7439-96-5 | 0.178 | 0.00084 | 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 | 093491848003 | 12/16/2009 21:54 | John P Hook | 1 |
| 07055 | Lead | SW-846 6010B | 1 | 093491848003 | 12/16/2009 21:54 | John P Hook | 1 |
| 07058 | Manganese | SW-846 6010B | 1 | 093491848003 | 12/16/2009 21:54 | John P Hook | 1 |
| 01848 | WW SW846 ICP Digest (tot rec) | SW-846 3005A | 1 | 093491848003 | 12/16/2009 03:00 | Mirit S Shenouda | 1 |

# Analysis Report

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

**LLI Sample # WW 5860181**
**LLI Group # 1174583**
**OH**

**Project Name: Hooven Cincinnati Final Remedy**

Collected: 12/09/2009

Account Number: 11494

Submitted: 12/10/2009 09:35
Reported: 12/22/2009 at 13:57
Discard: 02/21/2010

Chevron
5000 State Route 128
HOOVEN OH 45033

112TB SDG#: HVQ37-07TB

| 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** | |
| 07582 | Benzene | 71-43-2 | N.D. | 0.5 | 1 |
| 07582 | Chlorobenzene | 108-90-7 | N.D. | 0.8 | 1 |
| 07582 | Ethylbenzene | 100-41-4 | N.D. | 0.8 | 1 |
| 07582 | Toluene | 108-88-3 | N.D. | 0.7 | 1 |
| 07582 | Xylene (Total) | 1330-20-7 | N.D. | 0.8 | 1 |
| **GC Volatiles** | **SW-846 8015B** | | **ug/l** | **ug/l** | |
| 01635 | TPH-GRO water C6-C10 | n.a. | N.D. | 20 | 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 | N093552AA | 12/21/2009 19:22 | Nicholas P Riehl | 1 |
| 07582 | PPL + Xylene (total) by 8260 | SW-846 8260B | 1 | N093552AA | 12/21/2009 19:22 | Nicholas P Riehl | 1 |
| 01146 | GC VOA Water Prep | SW-846 5030B | 1 | 09348B07A | 12/15/2009 10:22 | Tyler O Griffin | 1 |
| 01635 | TPH-GRO water C6-C10 | SW-846 8015B | 1 | 09348B07A | 12/15/2009 10:22 | Tyler O Griffin | 1 |

# Analysis Report

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**Sample Description: FB-3,120909 Grab Water**
**2nd Semi-Annual 2009-Cincinnati Final Remedy**

**LLI Sample # WW 5860182**
**LLI Group # 1174583**
**OH**

**Project Name: Hooven Cincinnati Final Remedy**

Collected: 12/09/2009 09:30 by DB

Account Number: 11494

Submitted: 12/10/2009 09:35
Reported: 12/22/2009 at 13:57
Discard: 02/21/2010

Chevron
5000 State Route 128
HOOVEN OH 45033

FB-3- SDG#: HVQ37-08FB*

| 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** | |
| 07582 | Benzene | 71-43-2 | N.D. | 0.5 | 1 |
| 07582 | Chlorobenzene | 108-90-7 | N.D. | 0.8 | 1 |
| 07582 | Ethylbenzene | 100-41-4 | N.D. | 0.8 | 1 |
| 07582 | Toluene | 108-88-3 | N.D. | 0.7 | 1 |
| 07582 | 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 | N093552AA | 12/21/2009 19:45 | Nicholas P Riehl | 1 |
| 07582 | PPL + Xylene (total) by 8260 | SW-846 8260B | 1 | N093552AA | 12/21/2009 19:45 | Nicholas P Riehl | 1 |

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# Analysis Report



## Quality Control Summary

Client Name: Chevron  Group Number: 1174583
Reported: 12/22/09 at 01:57 PM

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: N093552AA | Sample number(s): 5860175,5860177,5860179,5860181-5860182 | | | | | | | |
| Benzene | N.D. | 0.5 | ug/l | 105 | 104 | 79-120 | 1 | 30 |
| Chlorobenzene | N.D. | 0.8 | ug/l | 103 | 102 | 80-120 | 1 | 30 |
| Ethylbenzene | N.D. | 0.8 | ug/l | 101 | 99 | 79-120 | 1 | 30 |
| Toluene | N.D. | 0.7 | ug/l | 102 | 102 | 79-120 | 1 | 30 |
| Xylene (Total) | N.D. | 0.8 | ug/l | 100 | 99 | 80-120 | 2 | 30 |
| Batch number: 09348B07A | Sample number(s): 5860177,5860181 | | | | | | | |
| TPH-GRO water C6-C10 | N.D. | 20. | ug/l | 100 | 100 | 75-135 | 0 | 30 |
| Batch number: 093450005A | Sample number(s): 5860177 | | | | | | | |
| TPH-DRO water C10-C28 | N.D. | 32. | ug/l | 69 | 70 | 56-122 | 2 | 20 |
| Batch number: 093450000A | Sample number(s): 5860177,5860179 | | | | | | | |
| Methane | N.D. | 10. | ug/l | 88 | | 80-120 | | |
| Batch number: 093491848003 | Sample number(s): 5860176-5860180 | | | | | | | |
| Arsenic | N.D. | 0.0072 | mg/l | 103 | | 89-115 | | |
| Calcium | N.D. | 0.0702 | mg/l | 108 | | 90-112 | | |
| Iron | N.D. | 0.0522 | mg/l | 107 | | 90-112 | | |
| Lead | N.D. | 0.0069 | mg/l | 104 | | 80-120 | | |
| Manganese | N.D. | 0.00084 | mg/l | 105 | | 90-110 | | |
| Potassium | N.D. | 0.239 | mg/l | 95 | | 85-115 | | |
| Sodium | N.D. | 0.433 | mg/l | 106 | | 87-114 | | |
| Batch number: 09344105103A | Sample number(s): 5860177,5860179 | | | | | | | |
| Nitrite Nitrogen | N.D. | 0.015 | mg/l | 96 | | 90-110 | | |
| Batch number: 09348049501A | Sample number(s): 5860177,5860179 | | | | | | | |
| Total Organic Carbon | N.D. | 0.50 | mg/l | 103 | | 91-113 | | |
| Batch number: 09348108101A | Sample number(s): 5860177,5860179 | | | | | | | |
| Kjeldahl Nitrogen | N.D. | 0.50 | mg/l | 101 | | 90-110 | | |
| Batch number: 09350106102B | Sample number(s): 5860177,5860179 | | | | | | | |
| Nitrate Nitrogen | N.D. | 0.040 | mg/l | 104 | | 90-110 | | |
| Batch number: 09350196601B | Sample number(s): 5860177,5860179 | | | | | | | |
| Chloride | N.D. | 0.20 | mg/l | 99 | | 90-110 | | |
| Sulfate | N.D. | 0.30 | mg/l | 101 | | 89-110 | | |
| Batch number: 09344834401A | Sample number(s): 5860177,5860179 | | | | | | | |
| Ferrous Iron | N.D. | 0.010 | mg/l | 100 | | 92-105 | | |
| Batch number: 09345022101A | Sample number(s): 5860177,5860179 | | | | | | | |
| Ammonia Nitrogen | N.D. | 0.20 | mg/l | 95 | 94 | 85-105 | 1 | 5 |

*- 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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# Analysis Report



## Quality Control Summary

Client Name: Chevron  Group Number: 1174583
Reported: 12/22/09 at 01:57 PM

### Laboratory Compliance Quality Control

| Analysis Name | Blank Result | Blank MDL | Report Units | LCS %REC | LCSD %REC | LCS/LCSD Limits | RPD | RPD Max |
|---|---|---|---|---|---|---|---|---|
| Batch number: 09345023001A | Sample number(s): 5860177,5860179 | | | | | | | |
| Sulfide | N.D. | 0.054 | mg/l | 99 | | 90-110 | | |
| Batch number: 09345400102A | Sample number(s): 5860177,5860179 | | | | | | | |
| Chemical Oxygen Demand | | | | 101 | | 94-110 | | |
| Batch number: 09351020201A | Sample number(s): 5860177,5860179 | | | | | | | |
| Alkalinity to pH 4.5 | N.D. | 0.46 | mg/l as CaCO3 | 99 | | 98-103 | | |

### 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: N093552AA | Sample number(s): 5860175,5860177,5860179,5860181-5860182 UNSPK: 5860175 | | | | | | | | |
| Benzene | 110 | | 80-126 | | | | | | |
| Chlorobenzene | 108 | | 87-124 | | | | | | |
| Ethylbenzene | 106 | | 71-134 | | | | | | |
| Toluene | 108 | | 80-125 | | | | | | |
| Xylene (Total) | 105 | | 79-125 | | | | | | |
| Batch number: 093450000A | Sample number(s): 5860177,5860179 UNSPK: P858877 | | | | | | | | |
| Methane | 68 | 82 | 35-157 | 18 | 20 | | | | |
| Batch number: 093491848003 | Sample number(s): 5860176-5860180 UNSPK: P860080 BKG: P860080 | | | | | | | | |
| Arsenic | 107 | 107 | 75-125 | 0 | 20 | N.D. | N.D. | 0 (1) | 20 |
| Calcium | 111 (2) | 133 (2) | 75-125 | 2 | 20 | 39.3 | 39.6 | 1 | 20 |
| Iron | 105 | 110 | 75-125 | 1 | 20 | 2.65 | 2.64 | 0 | 20 |
| Lead | 103 | 102 | 75-125 | 0 | 20 | N.D. | N.D. | 0 (1) | 20 |
| Manganese | 105 | 105 | 75-125 | 0 | 20 | 0.266 | 0.265 | 0 | 20 |
| Potassium | 92 | 98 | 75-125 | 4 | 20 | 7.24 | 7.77 | 7 (1) | 20 |
| Sodium | 108 (2) | 152 (2) | 75-125 | 3 | 20 | 128 | 135 | 5 | 20 |
| Batch number: 09344105103A | Sample number(s): 5860177,5860179 UNSPK: P860168 BKG: P860168 | | | | | | | | |
| Nitrite Nitrogen | 93 | | 90-110 | | | 0.036 J | 0.035 J | 4 (1) | 20 |
| Batch number: 09348049501A | Sample number(s): 5860177,5860179 UNSPK: P859882 BKG: P859882 | | | | | | | | |
| Total Organic Carbon | 109 | | 64-141 | | | 6.0 | 5.7 | 5* | 4 |
| Batch number: 09348108101A | Sample number(s): 5860177,5860179 UNSPK: 5860177 BKG: 5860177 | | | | | | | | |
| Kjeldahl Nitrogen | 103 | | 90-110 | | | 1.1 | 1.1 | 8 (1) | 20 |
| Batch number: 09350106102B | Sample number(s): 5860177,5860179 UNSPK: 5860177 BKG: 5860177 | | | | | | | | |
| Nitrate Nitrogen | 104 | | 90-110 | | | N.D. | N.D. | 0 (1) | 2 |
| Batch number: 09350196601B | Sample number(s): 5860177,5860179 UNSPK: 5860177 BKG: 5860177 | | | | | | | | |
| Chloride | 111* | | 90-110 | | | 69.4 | 69.0 | 0 | 20 |
| Sulfate | 99 | | 90-110 | | | 1.7 J | 1.8 J | 2 (1) | 20 |

*- 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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# Analysis Report



## Quality Control Summary

Client Name: Chevron  Group Number: 1174583
Reported: 12/22/09 at 01:57 PM

### 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: 09344834401A | Sample number(s): 5860177,5860179 UNSPK: P860316 BKG: P860316 | | | | | | | | |
| Ferrous Iron | 101 | 104 | 66-130 | 1 | 6 | 17.1 | 17.1 | 0 (1) | 10 |
| Batch number: 09345022101A | Sample number(s): 5860177,5860179 BKG: P859983 | | | | | | | | |
| Ammonia Nitrogen | | | | | | 1.6 | 1.4 | 8* (1) | 2 |
| Batch number: 09345023001A | Sample number(s): 5860177,5860179 UNSPK: 5860177 BKG: 5860177 | | | | | | | | |
| Sulfide | 116 | 116 | 69-133 | 0 | 18 | 0.054 J | N.D. | 200* (1) | 7 |
| Batch number: 09345400102A | Sample number(s): 5860177,5860179 UNSPK: P859885 BKG: P859885 | | | | | | | | |
| Chemical Oxygen Demand | 94 | | 90-110 | | | 25.7 J | 25.7 J | 0 (1) | 5 |
| Batch number: 09351020201A | Sample number(s): 5860177,5860179 UNSPK: P861871 BKG: P861871 | | | | | | | | |
| Alkalinity to pH 4.5 | 80 | 79 | 64-130 | 1 | 2 | 150 | 151 | 1 | 4 |
| Alkalinity to pH 8.3 | | | | | | N.D. | N.D. | 0 (1) | 4 |

### 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: PPL + Xylene (total) by 8260
Batch number: N093552AA

| | Dibromofluoromethane | 1,2-Dichloroethane-d4 | Toluene-d8 | 4-Bromofluorobenzene |
|---|---|---|---|---|
| 5860175 | 99 | 102 | 100 | 91 |
| 5860177 | 98 | 104 | 103 | 98 |
| 5860179 | 97 | 104 | 101 | 93 |
| 5860181 | 98 | 102 | 100 | 91 |
| 5860182 | 98 | 103 | 99 | 90 |
| Blank | 98 | 103 | 99 | 89 |
| LCS | 99 | 102 | 102 | 98 |
| LCSD | 98 | 107 | 101 | 98 |
| MS | 98 | 102 | 101 | 98 |
| Limits: | 80-116 | 77-113 | 80-113 | 78-113 |

Analysis Name: TPH-GRO water C6-C10
Batch number: 09348B07A

| | Trifluorotoluene-F |
|---|---|
| 5860177 | 157* |
| 5860181 | 103 |
| Blank | 104 |
| LCS | 114 |
| LCSD | 113 |
| Limits: | 63-135 |

Analysis Name: Volatile Headspace Hydrocarbon

*- 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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# Analysis Report



## Quality Control Summary

Client Name: Chevron
Group Number: 1174583
Reported: 12/22/09 at 01:57 PM

### Surrogate Quality Control

Batch number: 093450000A

| | Propene |
|---|---|
| 5860177 | 97 |
| 5860179 | 62 |
| Blank | 102 |
| LCS | 98 |
| MS | 61 |
| MSD | 78 |
| Limits: | 42-131 |

Analysis Name: TPH-DRO water C10-C28
Batch number: 093450005A

| | Orthoterphenyl |
|---|---|
| 5860177 | 112 |
| Blank | 96 |
| LCS | 84 |
| LCSD | 85 |
| Limits: | 54-127 |

*- 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

Lancaster Laboratories

For Lancaster Laboratories use only

Acct. # 11494 Group# 1174583 Sample # 5860175-82

**COC #** 225014

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

(1)
Client: Chevron Acct. #: 11494
Project Name/#: 2nd Semi Annual 2009 PWSID #: MWRCN1700an20
Project Manager: Doug Lam P.O.#:
Sampler: Dale Barrett Quote #:
Name of state where samples were collected: Ohio

**For Lab Use Only**
FSC:
SCR#:

**Preservation Codes**
H=HCl T=Thiosulfate
N=$HNO_3$ B=NaOH
S=$H_2SO_4$ O=Other

(2) (3) (4) (5) (6)

| Sample Identification | Date Collected | Time Collected | Grab | Composite | Soil | Water | Other | Total # of Containers | VOC, PPL 8260 | Dissolved metals | TPH GRO | TPH DRO | MNA | | | | | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-85, 120909 (Dell Mitchell + labels, 12/15/09) | 12/9/09 | 1425 | X | | | X | | 4 | X | X | | | | | | | | See Attached |
| MW-52, 120909 | 12/9/09 | 1505 | X | | | X | | 21 | X | X | X | X | X | | | | | Analyte List |
| MW-112, 120909 | 12/9/09 | 0945 | X | | | X | | 16 | X | X | | | X | | | | | |
| Trip Blank | 12/9/09 | — | X | | | X | | 4 | X | | X | | | | | | | Dissolved metals |
| FB-3, 120909 | 12/9/09 | 0930 | X | | | X | | 3 | X | | | | | | | | | are field filtered |
| | | | | | | | | | | | | | | | | | | QC Summary |
| | | | | | | | | | | | | | | | | | | Data Package |

(7) **Turnaround Time Requested** (TAT) (please circle): Normal Rush
(Rush TAT is subject to Lancaster Laboratories approval and surcharge.)
Date results are needed:
Rush results requested by (please circle): Phone Fax E-mail
Phone #: 513-353-1323 Fax #: 513-353-4664
E-mail address: mmitchell@trihydro.com

(8) **Data Package Options** (please circle if required)
Type I (validation/NJ Reg) TX TRRP-13
Type II (Tier II) MA MCP CT RCP
Type III (Reduced NJ)
Type IV (CLP SOW)
Type VI (Raw Data Only)

SDG Complete? Yes No

Site-specific QC (MS/MSD/Dup)? Yes No
(If yes, indicate QC sample and submit triplicate volume.)
Internal COC Required? Yes / No

(9)

| Relinquished by: | Date | Time | Received by: | Date | Time |
|---|---|---|---|---|---|
| [signature] | 12/9/09 | 1600 | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | Mary Beth Read | 12/10/09 | 0935 |

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

## Kathy Klinefelter

**From:** Matthew Mitchell [mmitchell@trihydro.com]
**Sent:** Tuesday, December 15, 2009 8:21 AM
**To:** Kathy Klinefelter
**Subject:** RE: 1174583 - Sample designation discrepancy

Kathy,
The bottles were correct, the sample ID should be MW-85D, 120909.
Thanks for catching this.

Matt Mitchell

---

**From:** Kathy Klinefelter [mailto:KKlinefelter@lancasterlabs.com]
**Sent:** Monday, December 14, 2009 6:18 PM
**To:** Matthew Mitchell; Timothy Gunn
**Subject:** 1174583 - Sample designation discrepancy

<<1174583c.pdf>> <<1174583d.pdf>>

Hello,

Please see the attached COC and sample receipt doc log. A sample designation discrepancy was noted. The COC listed sample MW-85,120909, but the bottles were labeled MW-85D,120909. We entered the sample per the COC as MW-85,120909. Please confirm that this is correct.

Thanks,
Kathy

**Holiday Business Hours:**
For Christmas, the laboratory will be closed on December 24 and 25, 2009.
For New Year's, the laboratory will be closed on January 1, 2010.

Lancaster Laboratories

# Environmental Sample Administration
# Receipt Documentation Log

**Client/Project:** Chevron (OH)

**Date of Receipt:** 12/10/09

**Time of Receipt:** 0935

**Source Code:** 50-1

**Unpacker Emp. No.:** 1607

**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 | 0429975 | 1.3°C | 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:**

MW-85, 120909 is labeled as MW-85D, 120909

| Sample Administration Internal Chain of Custody | | | |
|---|---|---|---|
| Name | Date | Time | Reason for Transfer |
| Mary Beth Reed | 12/10/09 | 1045 | Unpacking |
| Ed Weslund | 12/10/09 | 1050 | Place in Storage or 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 limit of quantitation, 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 quatitated 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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