SEVERN TRENT STL Leaders in Environmental Testing

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Certificate of Analysis

# ANALYTICAL REPORT

Trace Analysis

Lot #: I6K220154

Nell Green

Trace Analysis
6701 Aberdeen Ave., Ste 9
Lubbock, TX 79424

SEVERN TRENT LABORATORIES, INC.

Neal J. Salcher
Project Manager

November 30, 2006

American Council of Independent Laboratories
International Association of Environmental Testing Laboratories

Case Narrative

STL LOT NUMBER: **I6K220154**

This report contains the analytical results for the **14** samples received under chain of custody by Severn Trent Laboratories (STL) on November 22, 2006. These samples are associated with your **Trace** Analysis project.

All samples were received in good condition and within temperature requirements.

All applicable quality control procedures met method-specified acceptance criteria except where noted in the case narrative or flagged on the result pages.

This report shall not be reproduced except in full, without the written approval of the laboratory.

If you have any questions, please feel free to call me at (512) 310-5215.

**Affected Samples:**
I6K220154 (1):
I6K220154 (2):
I6K220154 (3):
I6K220154 (4):
I6K220154 (5):
I6K220154 (6):
I6K220154 (7):
I6K220154 (8):
I6K220154 (9):
I6K220154 (10):
I6K220154 (11):
I6K220154 (12):
I6K220154 (13):
I6K220154 (14):

**Affected Methods:**
8015B

**Details:**
*Surrogate n-butanol was recovered low in closing CCV. Surrogate was recovered within limits in all samples and QC.*

# EXECUTIVE SUMMARY - Detection Highlights

I6K220154

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | ANALYTICAL METHOD |
|---|---|---|---|---|
| NO DETECTABLE PARAMETERS | | | | |

# ANALYTICAL METHODS SUMMARY

I6K220154

| PARAMETER | ANALYTICAL METHOD |
|---|---|
| Nonhalogenated Organics Using GC/FID | SW846 8015B |

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

# SAMPLE SUMMARY

I6K220154

| WO # | SAMPLE# | CLIENT SAMPLE ID | SAMPLED DATE | SAMP TIME |
|---|---|---|---|---|
| JJ8JH | 001 | 109577 | 11/16/06 | |
| JJ8JV | 002 | 109578 | 11/16/06 | |
| JJ8JW | 003 | 109579 | 11/16/06 | |
| JJ8JX | 004 | 109580 | 11/16/06 | |
| JJ8J2 | 005 | 109581 | 11/16/06 | |
| JJ8J3 | 006 | 109582 | 11/16/06 | |
| JJ8J4 | 007 | 109583 | 11/16/06 | |
| JJ8J5 | 008 | 109586 | 11/16/06 | |
| JJ8J6 | 009 | 109587 | 11/16/06 | |
| JJ8J7 | 010 | 109588 | 11/16/06 | |
| JJ8J8 | 011 | 109589 | 11/16/06 | |
| JJ8KA | 012 | 109590 | 11/16/06 | |
| JJ8KC | 013 | 109568 | 11/16/06 | |
| JJ8KH | 014 | 109569 | 11/16/06 | |

NOTE(S):

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

# QC DATA ASSOCIATION SUMMARY

I6K220154

Sample Preparation and Analysis Control Numbers

| SAMPLE# | MATRIX | ANALYTICAL METHOD | LEACH BATCH # | PREP BATCH # | MS RUN# |
|---|---|---|---|---|---|
| 001 | SO | SW846 8015B | | 6333301 | 6333182 |
| 002 | SO | SW846 8015B | | 6333301 | 6333182 |
| 003 | SO | SW846 8015B | | 6333301 | 6333182 |
| 004 | SO | SW846 8015B | | 6333301 | 6333182 |
| 005 | SO | SW846 8015B | | 6333301 | 6333182 |
| 006 | SO | SW846 8015B | | 6333301 | 6333182 |
| 007 | SO | SW846 8015B | | 6333301 | 6333182 |
| 008 | SO | SW846 8015B | | 6333301 | 6333182 |
| 009 | SO | SW846 8015B | | 6333301 | 6333182 |
| 010 | SO | SW846 8015B | | 6333301 | 6333182 |
| 011 | SO | SW846 8015B | | 6333301 | 6333182 |
| 012 | SO | SW846 8015B | | 6333301 | 6333182 |
| 013 | W | SW846 8015B | | 6333298 | 6333180 |
| 014 | W | SW846 8015B | | 6333298 | 6333180 |

Trace Analysis Inc

Client Sample ID: 109577

GC Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | I6K220154-001 | Work Order #...: | JJ8JH1AA | Matrix.....: | SO |
| Date Sampled...: | 11/16/06 | Date Received..: | 11/22/06 | MS Run #.....: | 6333182 |
| Prep Date.....: | 11/29/06 | Analysis Date..: | 11/30/06 | | |
| Prep Batch #...: | 6333301 | Analysis Time..: | 01:53 | | |
| Dilution Factor: | 1 | | | | |
| % Moisture.....: | | Method.....: | SW846 8015B | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS |
|---|---|---|---|
| Ethylene glycol | ND | 25 | mg/kg |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 89 | (50 - 142) |

Trace Analysis Inc

Client Sample ID: 109578

GC Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | I6K220154-002 | Work Order #...: | JJ8JV1AA | Matrix.....: | SO |
| Date Sampled...: | 11/16/06 | Date Received..: | 11/22/06 | MS Run #.....: | 6333182 |
| Prep Date.....: | 11/29/06 | Analysis Date..: | 11/30/06 | | |
| Prep Batch #...: | 6333301 | Analysis Time..: | 02:22 | | |
| Dilution Factor: | 1 | | | | |
| % Moisture.....: | | Method.....: | SW846 8015B | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS |
|---|---|---|---|
| Ethylene glycol | ND | 25 | mg/kg |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 77 | (50 - 142) |

Trace Analysis Inc

Client Sample ID: 109579

GC Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | I6K220154-003 | Work Order #...: | JJ8JW1AA | Matrix.....: | SO |
| Date Sampled...: | 11/16/06 | Date Received..: | 11/22/06 | MS Run #.....: | 6333182 |
| Prep Date.....: | 11/29/06 | Analysis Date..: | 11/30/06 | | |
| Prep Batch #...: | 6333301 | Analysis Time..: | 02:52 | | |
| Dilution Factor: | 1 | | | | |
| % Moisture.....: | | Method.....: | SW846 8015B | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS |
|---|---|---|---|
| Ethylene glycol | ND | 25 | mg/kg |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 78 | (50 - 142) |

Trace Analysis Inc

Client Sample ID: 109580

GC Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | I6K220154-004 | Work Order #...: | JJ8JX1AA | Matrix.....: | SO |
| Date Sampled...: | 11/16/06 | Date Received..: | 11/22/06 | MS Run #.....: | 6333182 |
| Prep Date.....: | 11/29/06 | Analysis Date..: | 11/30/06 | | |
| Prep Batch #...: | 6333301 | Analysis Time..: | 03:22 | | |
| Dilution Factor: | 1 | | | | |
| % Moisture.....: | | Method.....: | SW846 8015B | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS |
|---|---|---|---|
| Ethylene glycol | ND | 25 | mg/kg |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 91 | (50 - 142) |

Trace Analysis Inc

Client Sample ID: 109581

GC Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | I6K220154-005 | Work Order #...: | JJ8J21AA | Matrix.....: | SO |
| Date Sampled...: | 11/16/06 | Date Received..: | 11/22/06 | MS Run #.....: | 6333182 |
| Prep Date.....: | 11/29/06 | Analysis Date..: | 11/30/06 | | |
| Prep Batch #...: | 6333301 | Analysis Time..: | 03:51 | | |
| Dilution Factor: | 1 | | | | |
| % Moisture.....: | | Method.....: | SW846 8015B | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS |
|---|---|---|---|
| Ethylene glycol | ND | 25 | mg/kg |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 90 | (50 - 142) |

Trace Analysis Inc

Client Sample ID: 109582

GC Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | I6K220154-006 | Work Order #...: | JJ8J31AA | Matrix.....: | SO |
| Date Sampled...: | 11/16/06 | Date Received..: | 11/22/06 | MS Run #.....: | 6333182 |
| Prep Date.....: | 11/29/06 | Analysis Date..: | 11/30/06 | | |
| Prep Batch #...: | 6333301 | Analysis Time..: | 04:21 | | |
| Dilution Factor: | 1 | | | | |
| % Moisture.....: | | Method.....: | SW846 8015B | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS |
|---|---|---|---|
| Ethylene glycol | ND | 25 | mg/kg |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 79 | (50 - 142) |

Trace Analysis Inc

Client Sample ID: 109583

GC Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | I6K220154-007 | Work Order #...: | JJ8J41AA | Matrix.....: | SO |
| Date Sampled...: | 11/16/06 | Date Received..: | 11/22/06 | MS Run #.....: | 6333182 |
| Prep Date.....: | 11/29/06 | Analysis Date..: | 11/30/06 | | |
| Prep Batch #...: | 6333301 | Analysis Time..: | 04:51 | | |
| Dilution Factor: | 1 | | | | |
| % Moisture.....: | | Method.....: | SW846 8015B | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS |
|---|---|---|---|
| Ethylene glycol | ND | 25 | mg/kg |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 83 | (50 - 142) |

Trace Analysis Inc

Client Sample ID: 109586

GC Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | I6K220154-008 | Work Order #...: | JJ8J51AA | Matrix.....: | SO |
| Date Sampled...: | 11/16/06 | Date Received..: | 11/22/06 | MS Run #.....: | 6333182 |
| Prep Date.....: | 11/29/06 | Analysis Date..: | 11/30/06 | | |
| Prep Batch #...: | 6333301 | Analysis Time..: | 05:20 | | |
| Dilution Factor: | 1 | | | | |
| % Moisture.....: | | Method.....: | SW846 8015B | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS |
|---|---|---|---|
| Ethylene glycol | ND | 25 | mg/kg |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 78 | (50 - 142) |

Trace Analysis Inc

Client Sample ID: 109587

GC Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | I6K220154-009 | Work Order #...: | JJ8J61AA | Matrix.....: | SO |
| Date Sampled...: | 11/16/06 | Date Received..: | 11/22/06 | MS Run #.....: | 6333182 |
| Prep Date.....: | 11/29/06 | Analysis Date..: | 11/30/06 | | |
| Prep Batch #...: | 6333301 | Analysis Time..: | 05:50 | | |
| Dilution Factor: | 1 | | | | |
| % Moisture.....: | | Method.....: | SW846 8015B | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS |
|---|---|---|---|
| Ethylene glycol | ND | 25 | mg/kg |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 84 | (50 - 142) |

Trace Analysis Inc

Client Sample ID: 109588

GC Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | I6K220154-010 | Work Order #...: | JJ8J71AA | Matrix.....: | SO |
| Date Sampled...: | 11/16/06 | Date Received..: | 11/22/06 | MS Run #.....: | 6333182 |
| Prep Date.....: | 11/29/06 | Analysis Date..: | 11/30/06 | | |
| Prep Batch #...: | 6333301 | Analysis Time..: | 06:20 | | |
| Dilution Factor: | 1 | | | | |
| % Moisture.....: | | Method.....: | SW846 8015B | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS |
|---|---|---|---|
| Ethylene glycol | ND | 25 | mg/kg |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 91 | (50 - 142) |

Trace Analysis Inc

Client Sample ID: 109589

GC Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | I6K220154-011 | Work Order #...: | JJ8J81AA | Matrix.....: | SO |
| Date Sampled...: | 11/16/06 | Date Received..: | 11/22/06 | MS Run #.....: | 6333182 |
| Prep Date.....: | 11/29/06 | Analysis Date..: | 11/30/06 | | |
| Prep Batch #...: | 6333301 | Analysis Time..: | 06:49 | | |
| Dilution Factor: | 1 | | | | |
| % Moisture.....: | | Method.....: | SW846 8015B | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS |
|---|---|---|---|
| Ethylene glycol | ND | 25 | mg/kg |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 81 | (50 - 142) |

Trace Analysis Inc

Client Sample ID: 109590

GC Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | I6K220154-012 | Work Order #...: | JJ8KA1AA | Matrix.....: | SO |
| Date Sampled...: | 11/16/06 | Date Received..: | 11/22/06 | MS Run #.....: | 6333182 |
| Prep Date.....: | 11/29/06 | Analysis Date..: | 11/30/06 | | |
| Prep Batch #...: | 6333301 | Analysis Time..: | 07:19 | | |
| Dilution Factor: | 1 | | | | |
| % Moisture.....: | | Method.....: | SW846 8015B | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS |
|---|---|---|---|
| Ethylene glycol | ND | 25 | mg/kg |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 86 | (50 - 142) |

Trace Analysis Inc

Client Sample ID: 109568

GC Semivolatiles

| | | | | | |
|---|---|---|---|---|---|
| Lot-Sample #...: | I6K220154-013 | Work Order #...: | JJ8KC1AA | Matrix.....: | W |
| Date Sampled...: | 11/16/06 | Date Received..: | 11/22/06 | MS Run #.....: | 6333180 |
| Prep Date.....: | 11/29/06 | Analysis Date..: | 11/30/06 | | |
| Prep Batch #...: | 6333298 | Analysis Time..: | 00:24 | | |
| Dilution Factor: | 1 | | | | |
| | | Method.....: | SW846 8015B | | |

| PARAMETER | RESULT | REPORTING LIMIT | UNITS |
|---|---|---|---|
| Ethylene glycol | ND | 25 | mg/L |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 107 | (71 - 125) |

Trace Analysis Inc

Client Sample ID: 109569

GC Semivolatiles

Lot-Sample #...: I6K220154-014
Date Sampled...: 11/16/06
Prep Date.....: 11/29/06
Prep Batch #...: 6333298
Dilution Factor: 1

Work Order #...: JJ8KH1AA
Date Received..: 11/22/06
Analysis Date..: 11/30/06
Analysis Time..: 00:53

Method.....: SW846 8015B

Matrix.....: W
MS Run #.....: 6333180

| PARAMETER | RESULT | REPORTING LIMIT | UNITS |
|---|---|---|---|
| Ethylene glycol | ND | 25 | mg/L |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 104 | (71 - 125) |

# METHOD BLANK REPORT

## GC Semivolatiles

Client Lot #...: I6K220154
MB Lot-Sample #: I6K290000-298
Work Order #...: JKGV31AA
Matrix.....: WATER
Prep Date.....: 11/29/06
Analysis Time..: 21:55
Analysis Date..: 11/29/06
Prep Batch #...: 6333298
Dilution Factor: 1

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD |
|---|---|---|---|---|
| Ethylene glycol | ND | 25 | mg/L | SW846 8015B |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 86 | (71 - 125) |

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

# METHOD BLANK REPORT

## GC Semivolatiles

Client Lot #...: I6K220154
MB Lot-Sample #: I6K290000-301
Analysis Date..: 11/30/06
Dilution Factor: 1

Work Order #...: JKGWF1AA
Prep Date.....: 11/29/06
Prep Batch #...: 6333301

Matrix.....: SOLID
Analysis Time..: 01:23

| PARAMETER | RESULT | REPORTING LIMIT | UNITS | METHOD |
|---|---|---|---|---|
| Ethylene glycol | ND | 25 | mg/kg | SW846 8015B |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 82 | (50 - 142) |

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

# LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC Semivolatiles

Client Lot #...: I6K220154 Work Order #...: JKGV31AC Matrix.....: WATER
LCS Lot-Sample#: I6K290000-298
Prep Date.....: 11/29/06 Analysis Date..: 11/29/06
Prep Batch #...: 6333298 Analysis Time..: 16:28
Dilution Factor: 1

| PARAMETER | PERCENT RECOVERY | RECOVERY LIMITS | METHOD |
|---|---|---|---|
| Ethylene glycol | 106 | (82 - 127) | SW846 8015B |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 93 | (86 - 117) |

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

# LABORATORY CONTROL SAMPLE DATA REPORT

## GC Semivolatiles

Client Lot #...: I6K220154 Work Order #...: JKGV31AC Matrix.....: WATER
LCS Lot-Sample#: I6K290000-298
Prep Date.....: 11/29/06 Analysis Date..: 11/29/06
Prep Batch #...: 6333298 Analysis Time..: 16:28
Dilution Factor: 1

| PARAMETER | SPIKE AMOUNT | MEASURED AMOUNT | UNITS | PERCENT RECOVERY | METHOD |
|---|---|---|---|---|---|
| Ethylene glycol | 400 | 424 | mg/L | 106 | SW846 8015B |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 93 | (86 - 117) |

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

# LABORATORY CONTROL SAMPLE EVALUATION REPORT

## GC Semivolatiles

Client Lot #...: I6K220154 Work Order #...: JKGWF1AC Matrix.....: SOLID
LCS Lot-Sample#: I6K290000-301
Prep Date.....: 11/29/06 Analysis Date..: 11/29/06
Prep Batch #...: 6333301 Analysis Time..: 17:57
Dilution Factor: 1

| PARAMETER | PERCENT RECOVERY | RECOVERY LIMITS | METHOD |
|---|---|---|---|
| Ethylene glycol | 102 | (85 - 115) | SW846 8015B |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 94 | (75 - 126) |

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

# LABORATORY CONTROL SAMPLE DATA REPORT

## GC Semivolatiles

Client Lot #...: I6K220154 Work Order #...: JKGWF1AC Matrix.....: SOLID
LCS Lot-Sample#: I6K290000-301
Prep Date.....: 11/29/06 Analysis Date..: 11/29/06
Prep Batch #...: 6333301 Analysis Time..: 17:57
Dilution Factor: 1

| PARAMETER | SPIKE AMOUNT | MEASURED AMOUNT | UNITS | PERCENT RECOVERY | METHOD |
|---|---|---|---|---|---|
| Ethylene glycol | 400 | 408 | mg/kg | 102 | SW846 8015B |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 94 | (75 - 126) |

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

# MATRIX SPIKE SAMPLE EVALUATION REPORT

## GC Semivolatiles

Client Lot #...: I6K220154 Work Order #...: JJJ721AC-MS Matrix.....: WATER
MS Lot-Sample #: I6K130106-005 JJJ721AD-MSD
Date Sampled...: 11/13/06 08:00 Date Received..: 11/13/06 MS Run #.....: 6333180
Prep Date.....: 11/29/06 Analysis Date..: 11/29/06
Prep Batch #...: 6333298 Analysis Time..: 16:58
Dilution Factor: 1

| PARAMETER | PERCENT RECOVERY | RECOVERY LIMITS | RPD | RPD LIMITS | METHOD |
|---|---|---|---|---|---|
| Ethylene glycol | 107 | (82 - 127) | | | SW846 8015B |
| | 103 | (82 - 127) | 4.7 | (0-20) | SW846 8015B |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 91 | (71 - 125) |
| | 87 | (71 - 125) |

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

# MATRIX SPIKE SAMPLE DATA REPORT

## GC Semivolatiles

Client Lot #...: I6K220154 Work Order #...: JJJ721AC-MS Matrix.....: WATER
MS Lot-Sample #: I6K130106-005 JJJ721AD-MSD
Date Sampled...: 11/13/06 08:00 Date Received..: 11/13/06 MS Run #.....: 6333180
Prep Date.....: 11/29/06 Analysis Date..: 11/29/06
Prep Batch #...: 6333298 Analysis Time..: 16:58
Dilution Factor: 1

| PARAMETER | SAMPLE AMOUNT | SPIKE AMT | MEASRD AMOUNT | UNITS | PERCNT RECVRY | RPD | METHOD |
|---|---|---|---|---|---|---|---|
| Ethylene glycol | ND | 400 | 430 | mg/L | 107 | | SW846 8015B |
| | ND | 400 | 410 | mg/L | 103 | 4.7 | SW846 8015B |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 91 | (71 - 125) |
| | 87 | (71 - 125) |

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

# MATRIX SPIKE SAMPLE EVALUATION REPORT

## GC Semivolatiles

Client Lot #...: I6K220154
MS Lot-Sample #: I6K220154-001
Date Sampled...: 11/16/06
Prep Date.....: 11/29/06
Prep Batch #...: 6333301
Dilution Factor: 1

Work Order #...: JJ8JH1AC-MS
JJ8JH1AD-MSD
Date Received..: 11/22/06
Analysis Date..: 11/29/06
Analysis Time..: 18:27

Matrix.....: SO
MS Run #.....: 6333182

| PARAMETER | PERCENT RECOVERY | RECOVERY LIMITS | RPD | RPD LIMITS | METHOD |
|---|---|---|---|---|---|
| Ethylene glycol | 62 a | (85 - 115) | | | SW846 8015B |
| | 56 a | (85 - 115) | 9.7 | (0-30) | SW846 8015B |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 76 | (50 - 142) |
| | 79 | (50 - 142) |

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

# MATRIX SPIKE SAMPLE DATA REPORT

## GC Semivolatiles

Client Lot #...: I6K220154
MS Lot-Sample #: I6K220154-001
Date Sampled...: 11/16/06
Prep Date.....: 11/29/06
Prep Batch #...: 6333301
Dilution Factor: 1

Work Order #...: JJ8JH1AC-MS
JJ8JH1AD-MSD
Date Received..: 11/22/06
Analysis Date..: 11/29/06
Analysis Time..: 18:27

Matrix.....: SO
MS Run #.....: 6333182

| PARAMETER | SAMPLE AMOUNT | SPIKE AMT | MEASRD AMOUNT | UNITS | PERCNT RECVRY | RPD | METHOD |
|---|---|---|---|---|---|---|---|
| Ethylene glycol | ND | 400 | 248 | mg/kg | 62 a | | SW846 8015B |
| | ND | 400 | 225 | mg/kg | 56 a | 9.7 | SW846 8015B |

| SURROGATE | PERCENT RECOVERY | RECOVERY LIMITS |
|---|---|---|
| n-Butanol | 76 | (50 - 142) |
| | 79 | (50 - 142) |

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

## Report Attachment

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan and meet all requirements of the NELAC standards. All data have been found to be compliant with laboratory protocol except as otherwise noted.

Note that if this report contains tests performed for the following methods, the associated method deviations are applicable.

EPA 410.4, COD: Laboratory uses different analytical wavelength as specified by instrument manufacturer.
EPA 340.2, Fluoride: Preliminary Bellack distillation not performed.
EPA 624: The laboratory uses a different desorb time and purge volume than stated in the method.
EPA 8151A: Laboratory utilizes alternate extraction solvent.
Iowa OA1: Benzene, toluene, ethylbenzene and xylenes (BTEX) are not analyzed along with the Gasoline Range Organics if client does not require BTEX.
EPA TO-12: Samples not analyzed in duplicate.
EPA TO-14A and TO-15: Zero humidified nitrogen is used in place of air for method blanks.

## TRRP Reporting Requirements

If this package contains reports requiring TRRP (Texas Risk Reduction Program) reporting criteria, the following information applies.

The REPORTING LIMIT is equivalent to the TRRP acronym MQL (method quantitation limit).
The MDL is equivalent to the TRRP acronym SQL (sample quantitation limit).

SEVERN TRENT STL

# CHAIN–OF–CUSTODY ADDENDUM

Lot No: IOK220154

RECEIVED BY: BJ

COC NUMBER:

DATE/TIME RECEIVED: 11/22/06 0935

QUOTE/PROFILE: 61969

UNPACKED DATE/TIME: 11/22/06 0940

CLIENT/PROJECT: Trace Analysis

SAMPLES LOGGED IN: [signature]

LOG-IN REVIEWED: BJ

Number of Shipping Containers Received with Chain of Custody 1

VOC AIR / FILTER SAMPLES ☐ YES SEE SECTIONS 1.0, 2.0, & 6.0

## 1.0 CONTAINERS EXAMINED UPON RECEIPT: BJ

Container Sealed: ☑ YES ☐ NO

Custody Seal Signed/Dated: ☑ YES ☐ NO

Custody Seal Present: ☑ YES ☐ NO

Containers checked for radioactivity: ☐ YES ☐ NO ☑ N/A

If seal not intact or Geiger counter reading >0.5 mR/hr, list air bill number of that container(s):

## 2.0 VOC CANISTERS EXAMINED UPON RECEIPT:

Canister Valves Closed: ☐ YES ☐ NO

Canister Valves Capped: ☐ YES ☐ NO

Valve Cap Tightened Properly: ☐ YES ☐ NO

Packing Material Used: (circle)

None / Absorbent / Paper / Bubble Wrap

Samples Received Match Chain: ☐ YES ☐ NO

Other Equipment Received: ☐ YES ☐ NO

See Additional Comments (Section 5.0 and / or 7.0) ☐ YES ☐ NO

Chain-of-Custody form properly maintained: ☐ YES ☐ NO

Can Size: ☐ 6L ☐ 15L Other

## 3.0 SAMPLE TEMPERATURE UPON RECEIPT BY: BJ

IR THERMOMETER #: P.5

Temperature of the container(s):

Circle selection: TB = Temp. Blank and/or SC = Sample Container [*acceptable tolerance 4°C ± 2°; (NC, WI: 1-4.4°C)*]

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| TB | TB | TB | TB | TB | TB | TB | TB | TB | TB |
| SC 2.0°C | SC | SC | SC | SC | SC | SC | SC | SC | SC |

If temperature is outside acceptable tolerance, Project Manager was notified (_____PM). Date: _____ Time: _____

Samples received do not require cooling _____

OK to analyze samples: ☑ YES ☐ NO

PRESERVATION OF SAMPLES REQUIRED: ☐ NA ☑ YES ☐ VOA Samples VERIFIED BY: BJ

NOTE: pH CHECK OF VOLATILE SAMPLES PERFORMED AFTER ANALYSIS BY THE BENCH ANALYST.

Base samples are>pH 12: ☐ YES ☐ NO

Acid preserved are<pH 2: ☑ YES ☐ NO

Cyanide samples checked for sulfides: ☐ YES

Sulfide samples appear to be preserved with zinc acetate: ☐ YES ☐ NO

Samples checked for chlorine per specification (N.C.) ☐ YES

Free chlorine present: ☐ YES ☐ NO

If sample preservation is outside acceptable tolerance, Project Manager was notified (_____PM)

Date: _____ Time: _____ ☐ see pH adjustment form

VOLATILE SAMPLES FILLED COMPLETELY, IF NOT, LIST ID AND HEADSPACE OF VOA's CONTAINING BUBBLES EXCEEDING 6MM IN DIAMETER:

| Sample ID | mm Headspace |
|---|---|
| | |
| | |
| | |
| | |

| Sample ID | mm Headspace |
|---|---|
| | |
| | |
| | |
| | |

## 4.0 CONDITION OF BOTTLES/CONTAINERS

VERIFIED BY: [signature]

Samples received match COC: ☑ YES ☐ NO
See additional discrepancies/comments section: ☐ YES ☑ NO
Chain-of-Custody form properly maintained: ☑ YES ☐ NO
Bottles received intact: ☑ YES ☐ NO
Samples received from USDA restricted area: ☐ YES ☑ NO
VOA trip blanks included: ☐ YES ☐ NO ☑ N/A

## 5.0 ADDITIONAL DISCREPANCIES

| Appears on COC | | Appears on Label | | |
|---|---|---|---|---|
| Sample ID | Date/Time | Sample ID | Date/Time | Comments |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

## 6.0 SHIPPING DOCUMENTATION:

Air/freight bill is available and attached to COC: ☑ YES ☐ NO Air bill #: _____
Hand-delivered Carrier: _____ Date: _____ Time: _____

## 7.0 OTHER COMMENTS:

## CORRECTIVE ACTION:

Client's Name: _____ Informed verbally on: _____ By: _____
Client's Name: _____ Informed verbally on: _____ By: _____
Sample(s) processed "as is" comments: _____

Samples(s) on hold until: _____ If released, notify: _____

REVIEW:
Project Management: Neal Salker Date: 11/29/06

SIGNED ORIGINAL MUST BE RETAINED IN THE PROJECT FILE

LAB Order ID # IGX 220154 Page ____ of ____

# TraceAnalysis, Inc.

email: lab@traceanalysis.com

6701 Aberdeen Avenue, Suite 9
Lubbock, Texas 79424
Tel (806) 794-1296
Fax (806) 794-1298
1 (800) 378-1296

5002 Basin Street, Suite A1
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200 East Sunset Rd., Suite E
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Tel (915) 585-3443
Fax (915) 585-4944
1 (888) 588-3443

6015 Harris Pkwy., Suite 110
Ft. Worth, Texas 76132
Tel (817) 201-5260

ompany Name: Phone #:

ddress: (Street, City, Zip) Fax #:

ontact Person: Nell Green E-mail:

ıvoice to:
f different from above)

roject #: Project Name:

roject Location (including state): Sampler Signature:

## ANALYSIS REQUEST
## (Circle or Specify Method No.)

| LAB # (LAB USE ONLY) | FIELD CODE | # CONTAINERS | Volume / Amount | MATRIX: WATER | MATRIX: SOIL | MATRIX: AIR | MATRIX: SLUDGE | PRESERVATIVE METHOD: HCl | PRESERVATIVE METHOD: $HNO_3$ | PRESERVATIVE METHOD: $H_2SO_4$ | PRESERVATIVE METHOD: NaOH | PRESERVATIVE METHOD: ICE | PRESERVATIVE METHOD: NONE | SAMPLING: DATE | SAMPLING: TIME | MTBE 8021B / 602 / 8260B / 624 | BTEX 8021B / 602 / 8260B / 624 | TPH 418.1 / TX1005 / TX1005 Ext(C35) | TPH 8015 GRO / DRO / TVHC | PAH 8270C / 625 | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC/MS Vol. 8260B / 624 | GC/MS Semi. Vol. 8270C / 625 | PCB's 8082 / 608 | Pesticides 8081A / 608 | BOD, TSS, pH | Moisture Content | Ethylene Glycol | | | | | Turn Around Time if different from standard | Hold |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 109577 | 1 | | | ✓ | | | | | | | | | 11-16-06 | | | | | | | | | | | | | | | | | | | X | | | | | | |
| | 109578 | 1 | | | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | |
| | 109579 | 1 | | | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | |
| | 109580 | 1 | | | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | |
| | 109581 | 1 | | | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | |
| | 109582 | 1 | | | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | |
| | 109583 | 1 | | | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | |
| | 109586 | 1 | | | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | |
| | 109587 | 1 | | | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | |
| | 109588 | 1 | | | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | |
| | 109589 | 1 | | | ✓ | | | | | | | | | | | | | | | | | | | | | | | | | | | | X | | | | | | |

| elinquished by: | Date: | Time: | Received by: | Date: | Time: |
|---|---|---|---|---|---|
| Vick [signature] | 11-21-06 | | Bill [signature] | 11/22/06 | ~~08~~ 0935 |
| elinquished by: | Date: | Time: | Received by: | Date: | Time: |
| elinquished by: | Date: | Time: | Received at Laboratory by: | Date: | Time: |

**LAB USE ONLY**

Intact Y / N
Headspace Y / N
Temp °
Log-in-Review

REMARKS:

☐ Dry Weight Basis Required
☐ TRRP Report Required
☐ Check If Special Reporting Limits Are Needed

Carrier #

ıbmittal of samples constitutes agreement to Terms and Conditions listed on reverse side of C. O. C.

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LAB Order ID #_____ Page_____ of _____

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email: lab@traceanalysis.com


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ompany Name: Phone #:

ddress: (Street, City, Zip) Fax #:

ontact Person: Nell Green E-mail:

voice to:
f different from above)

roject #: Project Name:

roject Location (including state): Sampler Signature:

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## (Circle or Specify Method No.)

| LAB # (LAB USE ONLY) | FIELD CODE | # CONTAINERS | Volume / Amount | MATRIX: WATER | MATRIX: SOIL | MATRIX: AIR | MATRIX: SLUDGE | | PRESERVATIVE METHOD: HCl | PRESERVATIVE METHOD: $HNO_3$ | PRESERVATIVE METHOD: $H_2SO_4$ | PRESERVATIVE METHOD: NaOH | PRESERVATIVE METHOD: ICE | PRESERVATIVE METHOD: NONE | | SAMPLING: DATE | SAMPLING: TIME |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 109590 | 1 | | | X | | | | | | | | | | | 11-16-06 | |

| MTBE 8021B / 602 / 8260B / 624 | BTEX 8021B / 602 / 8260B / 624 | TPH 418.1 / TX1005 / TX1005 Ext(C35) | TPH 8015 GRO / DRO / TVHC | PAH 8270C / 625 | Total Metals Ag As Ba Cd Cr Pb Se Hg 6010B/200.7 | TCLP Metals Ag As Ba Cd Cr Pb Se Hg | TCLP Volatiles | TCLP Semi Volatiles | TCLP Pesticides | RCI | GC/MS Vol. 8260B / 624 | GC/MS Semi. Vol. 8270C / 625 | PCB's 8082 / 608 | Pesticides 8081A / 608 | BOD, TSS, pH | Moisture Content | Ethylene Glycol | | | | Turn Around Time if different from standard | Hold |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | | | X | | | | | | |

| Relinquished by: | Date: | Time: | Received by: | Date: | Time: |
|---|---|---|---|---|---|
| Vicki [illegible] | 11-21-06 | | Bill [illegible] | 11/21/06 | 0935 |
| Relinquished by: | Date: | Time: | Received by: | Date: | Time: |
| | | | | | |
| Relinquished by: | Date: | Time: | Received at Laboratory by: | Date: | Time: |

**LAB USE ONLY**

Intact ___ Y / N ___
Headspace ___ Y / N ___
Temp ___ °
Log-in-Review ___

REMARKS:

☐ Dry Weight Basis Required
☐ TRRP Report Required
☐ Check If Special Reporting Limits Are Needed

Carrier # _____

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LAB Order ID #_____ . Page_____ of _____

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ontact Person: Nell Green. E-mail:

voice to:
different from above)

roject #: Project Name:

roject Location (including state): Sampler Signature:

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 109568 | 2 | | ✓ | | | | | | | | | ✓ | ✓ | | 11-16-06 | | | | | | | | | | | | | | | | | | X | | | | | | |
| | 109569 | 2 | | | | | | | | | | | ✓ | ✓ | | ↓ | | | | | | | | | | | | | | | | | | X | | | | | | |

| Relinquished by: | Date: | Time: | Received by: | Date: | Time: |
|---|---|---|---|---|---|
| [signature] | 11-21-06 | | Bill [signature] | 11/24/06 | 0945 |
| Relinquished by: | Date: | Time: | Received by: | Date: | Time: |
| Relinquished by: | Date: | Time: | Received at Laboratory by: | Date: | Time: |

**LAB USE ONLY**

Intact Y / N

Headspace Y / N

Temp ____ °

Log-in-Review ____

REMARKS:

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- ☐ Check If Special Reporting Limits Are Needed

Carrier # _____

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