General

Los Alamos
NATIONAL LABORATORY
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*Environmental Protection Division*
*Water Quality & RCRA (ENV-RCRA)*
P.O. Box 1663, Mail Stop K490
Los Alamos, New Mexico 87545
(505) 667-7969/FAX: (505) 665-9344

Date: November 27, 2006
Refer To: ENV-RCRA: 06-103
LA-UR: 06-8186

Mr. John Young
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303

Mr. Christopher F. Vick
Ground Water Quality Bureau
New Mexico Environment Department
P.O. Box 26110
Santa Fe, New Mexico 87502-6110

**SUBJECT: REQUEST FOR NMED COORDINATION, LAND APPLICATION OF DRILLING AND DEVELOPMENT WATER, LOS ALAMOS NATIONAL LABORATORY**

Dear Mr. Young and Mr. Vick:

On May 12, 2006, Los Alamos National Laboratory (Laboratory) submitted a letter (ENV-WQH: 06-092) requesting your agency's coordination in the land application of drilling and development water produced during the construction of seven new wells on the Pajarito Plateau. The referenced wells were LAOI-3.2, LAOI-3.2a, LAOI-7, CdV-16-2(i)r, R-16r, R-23i, and R-24. In a July 5, 2006, email (Mr. John Young [NMED-HWB] to Mr. Bob Beers [LANL]) you concurred with the Laboratory's request to land apply drilling and development water from CdV-16-2(i)r and R-24, but found that the disposal options for LAOI-3.2, LAOI-3.2a, LAOI-7, R-16r, and R-23i must also include an additional regulatory path under RCRA due to the presence of toluene (LAOI-3.2, LAOI-3.2a, LAOI-7, and R-16r) and PAHs (R-23i). Subsequently, verbal concurrence for the land application of water from R-23i was provided during a July 21, 2006, meeting at the NMED's HWB office.

On August 22, 2006, during a conference call (Mr. John Young [NMED-HWB], Ms. Kelly VanDerpoel [LANL] and Mr. Bob Beers [LANL]) regarding the disposal options for LAOI-3.2, LAOI-3.2a, LAOI-7, and R-16r, the option of re-sampling each of the storage containers at these four sites for Volatile Organic Analysis (VOA) was discussed and endorsed. On October 17-19, 2006, all tanks, pits and drums containing drilling and development water from wells LAOI-3.2, LAOI-3.2a, LAOI-7, and R-16r were re-sampled for VOAs. This report contains the analytical results from that sampling event.

The following information is attached for your review:

- Attachment 1.0: Updated NOI Fact Sheets for LAOI-3.2, LAOI-3.2a, LAOI-7, and R-16r. The updated NOI Fact Sheets provide data from the May 2006 and October 2006 sampling events. The October 2006 data are highlighted in bold.



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- Attachment 2.0: Copies of analytical reports from the October 2006 VOA re-sampling.

No VOAs were detected in any of the nine samples collected in October 2006 from the tanks, pits and drums containing drilling and development water at wells LAOI-3.2, LAOI-3.2a, LAOI-7, and R-16r (see Attachment 2.0). At your agency's request, sampling methods were employed to ensure that the samples collected were representative and accounted for potential stratification. Individual composite samples were prepared from each tank and pit by collecting an aliquot from the bottom, middle, and top of the water column using a thief sampler. At well LAOI-3.2, a single, volume-weighted composite sample was prepared from the eight drums on site after the contents of each drum was mixed.

Based upon the absence of any VOAs in the stored water at LAOI-3.2, LAOI-3.2a, LAOI-7, and R-16r, the Laboratory requests your agency's coordination in the land application of the approximately 51,000 gallons of drilling and development water in storage at these four well sites. As presented in Attachment 1.0, NOI Fact Sheets, the water in storage at LAOI-3.2, LAOI-3.2a, LAOI-7, and R-16r does not exceed any NM WQCC 3103 ground water standards or RCRA regulatory limits with the exception of manganese at LAOI-3.2a.

Please contact me at (505) 667-7969 if you have questions regarding the attached information.

Sincerely,

Bob Beers
Water Quality & RCRA Group

BB/tag

w/ Attachment 1.0
J. Bearzi, NMED/HWB, Santa Fe, NM
W. Olson, NMED/GWQB, Santa Fe, NM
S. Yanicek, NMED DOE/OB, Santa Fe, NM
M. Johansen, NNSA/LASO, MS A316
G. Turner, NNSA/LASO, MS A316
J. A. Van Prooyen, PADOPS, MS A102
R. Watkins, ADESHQ, MS K491
V. George, ENV-DO, MS J978
J. Dewart, ENV-LWSP, MS M992
T. Sandoval, ENV-RCRA, MS K490
M. Saladen, ENV-RCRA, MS K490
K. VanDerpoel, ENV-RCRA, MS K490
M. Everett, ERSS-RS, MS M992

w/ Attachments1.0 and 2.0
ENV-RCRA File, MS K490
IRM-RMMSO, MS A150

# Attachment 1.0

# Updated NOI Fact Sheets

## LAOI-3.2
## LAOI-3.2a
## LAOI-7
## R-16r

# NOI Fact Sheet LAOI-3.2a (Revised 11/15/06)

| | | | |
|---|---|---|---|
| **Date:** | 11/15/2006 | **Well Type:** | intermediate |
| **Location (Canyon):** | Los Alamos | **Location (TA):** | 72 |
| **Static Water Level:** | 15.8 ft bgs | **Alluvial Water?:** | yes |
| **Volume in Storage:** | 7,778 gal. | **Type of Storage:** | poly tanks(3), 20-yd rolloff (1) |
| **Source of Water:** | ground water | **Drilling Additives:** | none |
| **Location of Land Applic.** | drill site | **Method of Applic.** | irrigation sprinklers |

**Samples Collected**

| Sample Id | Collection Point | Collection Date | Filtered (y/n) | Composite (y/n) |
|---|---|---|---|---|
| CALA-06-66636 | 1500-gal poly | 2/14/2006 | y (metals only) | n |
| CALA-06-66637 | rolloff | 2/14/2006 | y (metals only) | n |
| CALA-06-66638 | 2-3000 gal poly | 2/14/2006 | y (metals only) | y |
| **CALA-07-74304** | **poly tank #1** | **10/17/2006** | **n** | **y** |
| **CALA-07-74305** | **poly tank #2** | **10/17/2006** | **n** | **y** |
| **CALA-07-74306** | **poly tank #2** | **10/17/2006** | **n** | **y** |
| **CALA-07-74307** | **rolloff** | **10/17/2006** | **n** | **y** |

**Analytical Results/Detections**

| Sample Id/Suite | Analyte | Result | 3103 Standard | Exceedence |
|---|---|---|---|---|
| **CALA-06-66636** | | | | |
| VOA | acetone | 4.46J ppb | | |
| VOA | toluene | 1.8 ppb | 750 ppb | n |
| PAHs | ND | | | |
| metals (filtered) | <3103 standards | | | |
| CN, F, Cl, SO4, NO3, TDS | <3103 standards | | | |
| PCBs | ND | | | |
| Ra-226/228 | ND | | | |
| **CALA-06-66637** | | | | |
| VOA | acetone | 14.2 ppb | | |
| VOA | toluene | 0.37J ppb | 750 ppb | n |
| VOA | 2-butanone | 1.53J ppb | | |
| PAHs | ND | | | |
| metals (filtered) | Mn=407 ppb | | 200 ppb | y |
| CN, F, Cl, SO4, NO3, TDS | <3103 standards | | | |
| PCBs | ND | | | |
| Ra-226/228 | 1.69 pCi/L | | 30 pCi/L | n |
| **CALA-06-66638** | | | | |
| VOA | acetone | ND | | |
| VOA | toluene | 1.38 ppb | 750 ppb | n |
| PAHs | ND | | | |
| metals (filtered) | <3103 standards | | | |
| CN, F, Cl, SO4, NO3, TDS | <3103 standards | | | |
| PCBs | ND | | | |
| Ra-226/228 | ND | | | |
| **CALA-07-74304: VOA** | **ND** | | | |
| **CALA-07-74305: VOA** | **ND** | | | |
| **CALA-07-74306: VOA** | **ND** | | | |
| **CALA-07-74307: VOA** | **ND** | | | |

**Summary:**

On October 17, 2006, the three poly tanks and the rolloff were resampled for volatile organic analytes (VOA). A composite sample was prepared from each container by collecting aliquots from the bottom, middle, and top of the water column using a thief sampler. No target analytes were detected, including toluene. The water in storage at the LAOI-3.2a drill site does not exceed any RCRA regulatory limits or NM WQCC 3103 ground water standards with the exception of manganese at 407 ppb (NM WQCC standard=200 ppb). The Laboratory proposes to land apply approximately 7,778 gallons of water produced during the drilling of LAOI-3.2a at the drill site.

# NOI Fact Sheet LAOI-3.2a (Revised 11/15/06)

| | | | |
|---|---|---|---|
| **Date:** | 11/15/2006 | **Well Type:** | intermediate |
| **Location (Canyon):** | Los Alamos | **Location (TA):** | 72 |
| **Static Water Level:** | 15.8 ft bgs | **Alluvial Water?:** | yes |
| **Volume in Storage:** | 7,778 gal. | **Type of Storage:** | poly tanks(3), 20-yd rolloff (1) |
| **Source of Water:** | ground water | **Drilling Additives:** | none |
| **Location of Land Applic.** | drill site | **Method of Applic.** | irrigation sprinklers |

## Samples Collected

| Sample Id | Collection Point | Collection Date | Filtered (y/n) | Composite (y/n) |
|---|---|---|---|---|
| CALA-06-66636 | 1500-gal poly | 2/14/2006 | y (metals only) | n |
| CALA-06-66637 | rolloff | 2/14/2006 | y (metals only) | n |
| CALA-06-66638 | 2-3000 gal poly | 2/14/2006 | y (metals only) | y |
| **CALA-07-74304** | **poly tank #1** | **10/17/2006** | **n** | **y** |
| **CALA-07-74305** | **poly tank #2** | **10/17/2006** | **n** | **y** |
| **CALA-07-74306** | **poly tank #2** | **10/17/2006** | **n** | **y** |
| **CALA-07-74307** | **rolloff** | **10/17/2006** | **n** | **y** |

## Analytical Results/Detections

| Sample Id/Suite | Analyte | Result | 3103 Standard | Exceedence |
|---|---|---|---|---|
| **CALA-06-66636** | | | | |
| VOA | acetone | 4.46J ppb | | |
| VOA | toluene | 1.8 ppb | 750 ppb | n |
| PAHs | ND | | | |
| metals (filtered) | <3103 standards | | | |
| CN, F, Cl, SO4, NO3, TDS | <3103 standards | | | |
| PCBs | ND | | | |
| Ra-226/228 | ND | | | |
| **CALA-06-66637** | | | | |
| VOA | acetone | 14.2 ppb | | |
| VOA | toluene | 0.37J ppb | 750 ppb | n |
| VOA | 2-butanone | 1.53J ppb | | |
| PAHs | ND | | | |
| metals (filtered) | Mn=407 ppb | | 200 ppb | y |
| CN, F, Cl, SO4, NO3, TDS | <3103 standards | | | |
| PCBs | ND | | | |
| Ra-226/228 | 1.69 pCi/L | | 30 pCi/L | n |
| **CALA-06-66638** | | | | |
| VOA | acetone | ND | | |
| VOA | toluene | 1.38 ppb | 750 ppb | n |
| PAHs | ND | | | |
| metals (filtered) | <3103 standards | | | |
| CN, F, Cl, SO4, NO3, TDS | <3103 standards | | | |
| PCBs | ND | | | |
| Ra-226/228 | ND | | | |
| **CALA-07-74304: VOA** | **ND** | | | |
| **CALA-07-74305: VOA** | **ND** | | | |
| **CALA-07-74306: VOA** | **ND** | | | |
| **CALA-07-74307: VOA** | **ND** | | | |

## Summary:

On October 17, 2006, the three poly tanks and the rolloff were resampled for volatile organic compounds (VOA). A composite sample was prepared from each container by collecting aliquots from the bottom, middle, and top of the water column using a thief sampler. No target analytes were detected, including toluene. The water in storage at the LAOI-3.2a drill site does not exceed any NM WQCC 3103 ground water standards nor does it exceed any RCRA regulatory limits with the exception of manganese at 407 ppb (NM WQCC standard=200 ppb). The Laboratory proposes to land apply approximately 7,778 gallons of water produced during the drilling of LAOI-3.2a at the drill site.

# NOI Fact Sheet LAOI-7 (Revised 11/15/06)

| | | | |
|---|---|---|---|
| **Date:** | 11/15/2006 | **Well Type:** | intermediate |
| **Location (Canyon):** | Los Alamos | **Location (TA):** | 72 |
| **Static Water Level:** | 221 ft bgs | **Alluvial Water?:** | None |
| **Screened Interval:** | 240' to 259' | **Perched Water?:** | 21 ft |
| **Volume in Storage:** | 4,126 gal. | **Type of Storage:** | poly tanks |
| **Source of Water:** | ground & decon water | **Drilling Additives:** | none |
| **Location of Land Application** | drill site | **Method of Applic.** | irrigation sprinklers |

**Samples Collected**

| Sample Id | Collection Point | Collection Date | Filtered (y/n) | Composite (y/n) |
|---|---|---|---|---|
| GWi7-06-63281 | poly tank #1 | 9/30/2005 | n | n |
| GWi7-06-63282 | poly tank #2 | 9/30/2005 | n | n |
| GWi7-06-66391 | tanks #1 & #2 | 12/21/2005 | y | y |
| **CALA-07-74310** | **poly tank #1** | **10/18/2006** | **n** | **y** |
| **CALA-07-74308** | **poly tank #2** | **10/18/2006** | **n** | **y** |

**Analytical Results/Detections**

| Sample Id/Suite | Analyte | Result | 3103 Standard | Exceedence |
|---|---|---|---|---|
| GWi7-06-63281 | | | | |
| VOA | toluene | 1.1 ppb | 750 ppb | n |
| SVOA | ND | | | |
| metals (nonfiltered) | <3103 stds | | | |
| Radiologicals | ND | | | |
| GWi7-06-63282 | | | | |
| VOA | toluene | 1.2 ppb | 750 ppb | n |
| SVOA | ND | | | |
| metals (nonfiltered) | <3103 stds | | | |
| Radiologicals | ND | | | |
| GWi7-06-63282 | | | | |
| metals (filtered) | <3103 stds | | | |
| CN, F, Cl, SO4, NO3, TDS | <3103 stds | | | |
| Ra-226/228 | <3103 stds | | | |
| **CALA-07-74310** | | | | |
| **VOA** | **ND** | | | |
| **CALA-07-74308** | | | | |
| **VOA** | **ND** | | | |

**Summary:**

On October 18, 2006, poly tanks #1 and #2 were resampled for volatile organic compounds (VOA). Composite samples were prepared from each tank by collecting aliquots from the bottom, middle, and top of the water column using a thief sampler. No target analytes were detected, including toluene. The water in storage at the LAOI-7 drill site does not exceed any NMWQCC 3103 ground water standards nor does it exceed any RCRA regulatory limits. The Laboratory proposes to land apply approximately 4,126 gallons of water produced during the drilling of LAOI-7 at the drill site.

# NOI Fact Sheet R-16r (Revised 11/15/06)

| | | | |
|---|---|---|---|
| **Date:** | 11/15/2006 | **Well Type:** | regional |
| **Location (Canyon):** | Overlook Park, White Rock | **Location (TA):** | LA County property |
| **Static Water Level:** | 563.6 ft bgs | **Alluvial Water?:** | None |
| **Volume in Storage:** | 36,140 gal. | **Type of Storage:** | pit |
| **Source of Water:** | 83% gw, 17% potable | **Drilling Additives:** | QuikFoam, EZ Mud |
| **Location of Land Applic.:** | drill site | **Method of Applic.:** | irrigation sprinklers |

**Samples Collected**

| Sample Id | Collection Point | Collection Date | Filtered (y/n) | Composite (y/n) |
|---|---|---|---|---|
| GW16-06-64316 | pit, east end | 10/17/2005 | n | n |
| GW16-06-64317 | pit, east end | 10/17/2005 | n | n |
| GW16-06-64318 | pit, east end | 10/17/2005 | n | n |
| GW16-06-66383 | pit | 12/20/2005 | y | y |
| **GW16-07-71311** | **pit** | **10/19/2006** | **n** | **y** |

**Analytical Results/Detections**

| Sample Id/Suite | Analyte | Result | 3103 Standard | Exceedence |
|---|---|---|---|---|
| GW16-06-64316 | | | | |
| VOA | toluene | 8.6 ppb | 750 ppb | n |
| VOA | acetone | 313 ppb | none | n |
| SVOA | bis(2-Ethylhexyl)phthalate | =5.2J ppb | none | n |
| metals (nonfiltered) | iron | 2,020 ppb | | |
| Radiologicals | ND | | | |
| GW16-06-64317 | | | | |
| VOA | toluene | 7.8 ppb | 750 ppb | n |
| VOA | acetone | 258 ppb | none | n |
| SVOA | bis(2-Ethylhexyl)phthalate | =2.7J ppb | none | n |
| metals (nonfiltered) | iron | 1360 ppb | | |
| Radiologicals | ND | | | |
| GW16-06-64318 | | | | |
| VOA | toluene | 8.1 ppb | 750 ppb | n |
| VOA | acetone | 304 ppb | none | n |
| SVOA | ND | | | |
| metals (nonfiltered) | iron | 1,150 ppb | | |
| Radiologicals | ND | | | |
| GW16-06-66383 | | | | |
| metals (filtered) | <3103 standards | | | n |
| CN, F, Cl, SO4, NO3, TDS | <3103 standards | | | n |
| Ra-226/228 | <3103 standards | | | n |
| **GW16-07-71311** | | | | |
| **VOA** | **ND** | | | |

**Summary:**

On October 19, 2006, the pit at the R-16r drill site was resampled for volatile organic compounds (VOA). A composite sample was prepared by collecting aliquots from the bottom, middle, and top of the water column using a thief sampler. No target analytes were detected, including toluene. The water in storage at the R-16r drill site does not exceed any NM WQCC 3103 ground water standards nor does it exceed any RCRA regulatory limits. The Laboratory proposes to land apply approximately 36,140 gallons of water produced during the drilling of R-16r at the drill site.

# Attachment 2.0

# VOA Resampling Analytical Reports

## LAOI-3.2
## LAOI-3.2a
## LAOI-7
## R-16r
## Trip Blank

# GENERAL ENGINEERING LABORATORIES, LLC

2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

LAOI-3.2

## Certificate of Analysis

-TANK #1-

Company : Los Alamos National Laboratories
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL GW Project**

Report Date: November 9, 2006



Client Sample ID: CALA-07-74303
Sample ID: 174620001
Matrix: Water
Collect Date: 17-OCT-06 12:00
Receive Date: 20-OCT-06
Collector: Client

Project: LANL00601
Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics Federal** | | | | | | | | | | |
| *GEL 8260B Method List unpreserved* | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | CDS1 10/23/06 | 1101 | 581879 | 1 |
| 1,1,1-Trichloroethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 1,1,2,2-Tetrachloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,1,2-Trichloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,1-Dichloroethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 1,1-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 1,1-Dichloropropene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2,3-Trichloropropane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 1,2,4-Trimethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dibromo-3-chloropropane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dibromoethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dichloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dichloropropane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,3,5-Trimethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,3-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,3-Dichloropropane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,4-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 2,2-Dichloropropane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 2-Butanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| 2-Chlorotoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 2-Hexanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| 4-Chlorotoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 4-Isopropyltoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 4-Methyl-2-pentanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Acetone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Benzene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| Bromobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Bromochloromethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| Bromodichloromethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Bromoform | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Bromomethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| Carbon disulfide | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Carbon tetrachloride | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Chlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Chloroethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| Chloroform | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Chloromethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |

**GENERAL ENGINEERING LABORATORIES, LLC**
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

# Certificate of Analysis

Company : Los Alamos National Laboratories
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL GW Project**

Report Date: November 9, 2006



Client Sample ID: CALA-07-74303
Sample ID: 174620001

Project: LANL00601
Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics Federal** | | | | | | | | | | |
| *GEL 8260B Method List unpreserved* | | | | | | | | | | |
| Dibromochloromethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Dibromomethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| Dichlorodifluoromethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| Ethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Iodomethane | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Isopropylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Methylene chloride | U | ND | 2.00 | 5.00 | ug/L | 1 | | | | |
| Styrene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Tetrachloroethylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Toluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Trichloroethylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Trichlorofluoromethane | U | ND | 0.310 | 1.00 | ug/L | 1 | | | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | U | ND | 1.00 | 5.00 | ug/L | 1 | | | | |
| Vinyl chloride | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| cis-1,2-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| cis-1,3-Dichloropropylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| m,p-Xylenes | U | ND | 0.250 | 2.00 | ug/L | 1 | | | | |
| n-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| n-Propylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| o-Xylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| sec-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| tert-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| trans-1,2-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| trans-1,3-Dichloropropylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |

**The following Analytical Methods were performed**

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 8260B DOE-AL | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | GEL 8260B Method List unpreserved | 61.9 | 60.0 | 103 | (70%-120%) |
| Bromofluorobenzene | GEL 8260B Method List unpreserved | 62.7 | 60.0 | 105 | (80%-120%) |
| Dibromofluoromethane | GEL 8260B Method List unpreserved | 66.6 | 60.0 | 111 | (76%-123%) |
| Toluene-d8 | GEL 8260B Method List unpreserved | 66.0 | 60.0 | 110 | (85%-120%) |

Notes:
The Qualifiers in this report are defined as follows :

* A quality control analyte recovery is outside of specified acceptance criteria

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# Certificate of Analysis

Company : Los Alamos National Laboratories
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL GW Project**

Report Date: November 9, 2006



Client Sample ID: CALA-07-74303 Project: LANL00601
Sample ID: 174620001 Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|

< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
E Organics--Concentration of the target analyte exceeds the instrument calibration range
H Analytical holding time was exceeded
J Value is estimated
N Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

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LAOI-3.2
— Drums —

# Certificate of Analysis

Company : Los Alamos National Laboratories
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U
Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL ER Project**

Report Date: October 30, 2006



Client Sample ID: CALA-07-74309
Sample ID: 174659002
Matrix: Water
Collect Date: 18-OCT-06 12:00
Receive Date: 21-OCT-06
Collector: Client

Project: LANL00600
Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics Federal** | | | | | | | | | | | |
| *GEL 8260B Method List Liquid F* | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | YS1 | 10/27/06 | 1441 | 583487 | 1 |
| 1,1,1-Trichloroethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 1,1,2,2-Tetrachloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,1,2-Trichloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,1-Dichloroethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 1,1-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 1,1-Dichloropropene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2,3-Trichloropropane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 1,2,4-Trimethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dibromo-3-chloropropane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dibromoethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dichloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dichloropropane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,3,5-Trimethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,3-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,3-Dichloropropane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,4-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 2,2-Dichloropropane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 2-Butanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| 2-Chlorotoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 2-Hexanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| 4-Chlorotoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 4-Isopropyltoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 4-Methyl-2-pentanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| Acetone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| Benzene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| Bromobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Bromochloromethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| Bromodichloromethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Bromoform | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Bromomethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | | |
| Carbon disulfide | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| Carbon tetrachloride | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Chlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Chloroethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | | |
| Chloroform | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Chloromethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | | |

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# Certificate of Analysis

Company : Los Alamos National Laboratories
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U
Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL ER Project**

Report Date: October 30, 2006



Client Sample ID: CALA-07-74309 Project: LANL00600
Sample ID: 174659002 Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics Federal** | | | | | | | | | | |
| *GEL 8260B Method List Liquid F* | | | | | | | | | | |
| Dibromochloromethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Dibromomethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| Dichlorodifluoromethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| Ethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Iodomethane | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Isopropylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Methylene chloride | U | ND | 2.00 | 5.00 | ug/L | 1 | | | | |
| Styrene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Tetrachloroethylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Toluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Trichloroethylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Trichlorofluoromethane | U | ND | 0.310 | 1.00 | ug/L | 1 | | | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | U | ND | 1.00 | 5.00 | ug/L | 1 | | | | |
| Vinyl chloride | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| cis-1,2-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| cis-1,3-Dichloropropylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| m,p-Xylenes | U | ND | 0.250 | 2.00 | ug/L | 1 | | | | |
| n-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| n-Propylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| o-Xylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| sec-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| tert-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| trans-1,2-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| trans-1,3-Dichloropropylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |

**The following Analytical Methods were performed**

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 8260B | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | GEL 8260B Method List Liquid F | 53.9 | 60.0 | 90 | (70%-120%) |
| Bromofluorobenzene | GEL 8260B Method List Liquid F | 54.5 | 60.0 | 91 | (80%-120%) |
| Dibromofluoromethane | GEL 8260B Method List Liquid F | 58.0 | 60.0 | 97 | (76%-123%) |
| Toluene-d8 | GEL 8260B Method List Liquid F | 59.6 | 60.0 | 99 | (85%-120%) |

Notes:
The Qualifiers in this report are defined as follows :

* A quality control analyte recovery is outside of specified acceptance criteria

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# Certificate of Analysis

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Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL ER Project**

Report Date: October 30, 2006



Client Sample ID: CALA-07-74309 Project: LANL00600
Sample ID: 174659002 Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|

< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
E Organics--Concentration of the target analyte exceeds the instrument calibration range
H Analytical holding time was exceeded
J Value is estimated
N Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

# GENERAL ENGINEERING LABORATORIES, LLC

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LAOI-3.29

## Certificate of Analysis

-TANK #1-

Company : Los Alamos National Laboratories
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL GW Project**

Report Date: November 9, 2006



Client Sample ID: CALA-07-74304
Sample ID: 174620002
Matrix: Water
Collect Date: 17-OCT-06 12:00
Receive Date: 20-OCT-06
Collector: Client

Project: LANL00601
Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics Federal** | | | | | | | | | | |
| *GEL 8260B Method List unpreserved* | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | CDS1 10/23/06 | 1129 | 581879 | 1 |
| 1,1,1-Trichloroethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 1,1,2,2-Tetrachloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,1,2-Trichloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,1-Dichloroethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 1,1-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 1,1-Dichloropropene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2,3-Trichloropropane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 1,2,4-Trimethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dibromo-3-chloropropane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dibromoethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dichloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dichloropropane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,3,5-Trimethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,3-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,3-Dichloropropane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,4-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 2,2-Dichloropropane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 2-Butanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| 2-Chlorotoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 2-Hexanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| 4-Chlorotoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 4-Isopropyltoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 4-Methyl-2-pentanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Acetone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Benzene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| Bromobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Bromochloromethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| Bromodichloromethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Bromoform | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Bromomethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| Carbon disulfide | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Carbon tetrachloride | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Chlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Chloroethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| Chloroform | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Chloromethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |

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# Certificate of Analysis

Company : Los Alamos National Laboratories
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL GW Project**

Report Date: November 9, 2006



Client Sample ID: CALA-07-74304
Sample ID: 174620002
Project: LANL00601
Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics Federal** | | | | | | | | | | |
| *GEL 8260B Method List unpreserved* | | | | | | | | | | |
| Dibromochloromethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Dibromomethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| Dichlorodifluoromethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| Ethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Iodomethane | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Isopropylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Methylene chloride | U | ND | 2.00 | 5.00 | ug/L | 1 | | | | |
| Styrene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Tetrachloroethylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Toluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Trichloroethylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Trichlorofluoromethane | U | ND | 0.310 | 1.00 | ug/L | 1 | | | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | U | ND | 1.00 | 5.00 | ug/L | 1 | | | | |
| Vinyl chloride | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| cis-1,2-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| cis-1,3-Dichloropropylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| m,p-Xylenes | U | ND | 0.250 | 2.00 | ug/L | 1 | | | | |
| n-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| n-Propylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| o-Xylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| sec-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| tert-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| trans-1,2-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| trans-1,3-Dichloropropylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |

**The following Analytical Methods were performed**

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 8260B DOE-AL | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | GEL 8260B Method List unpreserved | 59.1 | 60.0 | 98 | (70%-120%) |
| Bromofluorobenzene | GEL 8260B Method List unpreserved | 64.5 | 60.0 | 107 | (80%-120%) |
| Dibromofluoromethane | GEL 8260B Method List unpreserved | 65.9 | 60.0 | 110 | (76%-123%) |
| Toluene-d8 | GEL 8260B Method List unpreserved | 65.6 | 60.0 | 109 | (85%-120%) |

Notes:
The Qualifiers in this report are defined as follows :

* A quality control analyte recovery is outside of specified acceptance criteria

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# Certificate of Analysis

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Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL GW Project**

Report Date: November 9, 2006



Client Sample ID: CALA-07-74304 Project: LANL00601
Sample ID: 174620002 Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|

< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
E Organics--Concentration of the target analyte exceeds the instrument calibration range
H Analytical holding time was exceeded
J Value is estimated
N Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

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LAOI-3.29

## Certificate of Analysis

- TANK #2 -

Company : Los Alamos National Laboratories
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL GW Project**

Report Date: November 9, 2006



Client Sample ID: CALA-07-74305
Sample ID: 174620003
Matrix: Water
Collect Date: 17-OCT-06 12:00
Receive Date: 20-OCT-06
Collector: Client

Project: LANL00601
Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics Federal** | | | | | | | | | | |
| *GEL 8260B Method List unpreserved* | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | CDS1 10/23/06 | 1158 | 581879 | 1 |
| 1,1,1-Trichloroethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 1,1,2,2-Tetrachloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,1,2-Trichloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,1-Dichloroethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 1,1-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 1,1-Dichloropropene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2,3-Trichloropropane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 1,2,4-Trimethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dibromo-3-chloropropane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dibromoethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dichloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dichloropropane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,3,5-Trimethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,3-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,3-Dichloropropane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,4-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 2,2-Dichloropropane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 2-Butanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| 2-Chlorotoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 2-Hexanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| 4-Chlorotoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 4-Isopropyltoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 4-Methyl-2-pentanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Acetone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Benzene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| Bromobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Bromochloromethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| Bromodichloromethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Bromoform | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Bromomethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| Carbon disulfide | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Carbon tetrachloride | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Chlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Chloroethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| Chloroform | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Chloromethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |

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# Certificate of Analysis

Company : Los Alamos National Laboratories
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL GW Project**

Report Date: November 9, 2006



Client Sample ID: CALA-07-74305
Sample ID: 174620003

Project: LANL00601
Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics Federal** | | | | | | | | | | |
| *GEL 8260B Method List unpreserved* | | | | | | | | | | |
| Dibromochloromethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Dibromomethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| Dichlorodifluoromethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| Ethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Iodomethane | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Isopropylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Methylene chloride | U | ND | 2.00 | 5.00 | ug/L | 1 | | | | |
| Styrene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Tetrachloroethylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Toluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Trichloroethylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Trichlorofluoromethane | U | ND | 0.310 | 1.00 | ug/L | 1 | | | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | U | ND | 1.00 | 5.00 | ug/L | 1 | | | | |
| Vinyl chloride | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| cis-1,2-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| cis-1,3-Dichloropropylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| m,p-Xylenes | U | ND | 0.250 | 2.00 | ug/L | 1 | | | | |
| n-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| n-Propylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| o-Xylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| sec-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| tert-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| trans-1,2-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| trans-1,3-Dichloropropylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |

**The following Analytical Methods were performed**

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 8260B DOE-AL | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | GEL 8260B Method List unpreserved | 56.2 | 60.0 | 94 | (70%-120%) |
| Bromofluorobenzene | GEL 8260B Method List unpreserved | 62.1 | 60.0 | 103 | (80%-120%) |
| Dibromofluoromethane | GEL 8260B Method List unpreserved | 65.8 | 60.0 | 110 | (76%-123%) |
| Toluene-d8 | GEL 8260B Method List unpreserved | 65.7 | 60.0 | 110 | (85%-120%) |

Notes:
The Qualifiers in this report are defined as follows :

* A quality control analyte recovery is outside of specified acceptance criteria

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# Certificate of Analysis

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Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL GW Project**

Report Date: November 9, 2006



Client Sample ID: CALA-07-74305 Project: LANL00601
Sample ID: 174620003 Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|

< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
E Organics--Concentration of the target analyte exceeds the instrument calibration range
H Analytical holding time was exceeded
J Value is estimated
N Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

# GENERAL ENGINEERING LABORATORIES, LLC

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LAOI-3.2.a

## Certificate of Analysis

— TANK #3 —

Company : Los Alamos National Laboratories
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL GW Project**

Report Date: November 9, 2006



Client Sample ID: CALA-07-74306
Sample ID: 174620004
Matrix: Water
Collect Date: 17-OCT-06 12:00
Receive Date: 20-OCT-06
Collector: Client

Project: LANL00601
Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics Federal** | | | | | | | | | | |
| *GEL 8260B Method List unpreserved* | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | CDS1 10/23/06 | 1226 | 581879 | 1 |
| 1,1,1-Trichloroethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 1,1,2,2-Tetrachloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,1,2-Trichloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,1-Dichloroethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 1,1-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 1,1-Dichloropropene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2,3-Trichloropropane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 1,2,4-Trimethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dibromo-3-chloropropane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dibromoethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dichloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dichloropropane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,3,5-Trimethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,3-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,3-Dichloropropane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,4-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 2,2-Dichloropropane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 2-Butanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| 2-Chlorotoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 2-Hexanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| 4-Chlorotoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 4-Isopropyltoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 4-Methyl-2-pentanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Acetone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Benzene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| Bromobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Bromochloromethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| Bromodichloromethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Bromoform | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Bromomethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| Carbon disulfide | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Carbon tetrachloride | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Chlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Chloroethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| Chloroform | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Chloromethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |

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# Certificate of Analysis

Company : Los Alamos National Laboratories
Address : PO Box 1663
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Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL GW Project**

Report Date: November 9, 2006



Client Sample ID: CALA-07-74306
Sample ID: 174620004
Project: LANL00601
Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics Federal** | | | | | | | | | | |
| *GEL 8260B Method List unpreserved* | | | | | | | | | | |
| Dibromochloromethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Dibromomethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| Dichlorodifluoromethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| Ethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Iodomethane | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Isopropylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Methylene chloride | U | ND | 2.00 | 5.00 | ug/L | 1 | | | | |
| Styrene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Tetrachloroethylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Toluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Trichloroethylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Trichlorofluoromethane | U | ND | 0.310 | 1.00 | ug/L | 1 | | | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | U | ND | 1.00 | 5.00 | ug/L | 1 | | | | |
| Vinyl chloride | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| cis-1,2-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| cis-1,3-Dichloropropylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| m,p-Xylenes | U | ND | 0.250 | 2.00 | ug/L | 1 | | | | |
| n-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| n-Propylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| o-Xylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| sec-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| tert-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| trans-1,2-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| trans-1,3-Dichloropropylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |

**The following Analytical Methods were performed**

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 8260B DOE-AL | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | GEL 8260B Method List unpreserved | 53.5 | 60.0 | 89 | (70%-120%) |
| Bromofluorobenzene | GEL 8260B Method List unpreserved | 63.6 | 60.0 | 106 | (80%-120%) |
| Dibromofluoromethane | GEL 8260B Method List unpreserved | 63.6 | 60.0 | 106 | (76%-123%) |
| Toluene-d8 | GEL 8260B Method List unpreserved | 66.2 | 60.0 | 110 | (85%-120%) |

Notes:
The Qualifiers in this report are defined as follows :

* A quality control analyte recovery is outside of specified acceptance criteria

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# Certificate of Analysis

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Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL GW Project**

Report Date: November 9, 2006



Client Sample ID: CALA-07-74306 Project: LANL00601
Sample ID: 174620004 Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|

< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
E Organics--Concentration of the target analyte exceeds the instrument calibration range
H Analytical holding time was exceeded
J Value is estimated
N Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

# GENERAL ENGINEERING LABORATORIES, LLC

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LAOI-3.29
— Roll off —

## Certificate of Analysis

Company : Los Alamos National Laboratories
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL GW Project**

Report Date: November 9, 2006



Client Sample ID: CALA-07-74307
Sample ID: 174620005
Matrix: Water
Collect Date: 17-OCT-06 12:00
Receive Date: 20-OCT-06
Collector: Client

Project: LANL00601
Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics Federal** | | | | | | | | | | |
| *GEL 8260B Method List unpreserved* | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | CDS1 10/23/06 | 1254 | 581879 | 1 |
| 1,1,1-Trichloroethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 1,1,2,2-Tetrachloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,1,2-Trichloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,1-Dichloroethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 1,1-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 1,1-Dichloropropene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2,3-Trichloropropane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 1,2,4-Trimethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dibromo-3-chloropropane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dibromoethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dichloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,2-Dichloropropane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,3,5-Trimethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,3-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,3-Dichloropropane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 1,4-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 2,2-Dichloropropane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| 2-Butanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| 2-Chlorotoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 2-Hexanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| 4-Chlorotoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 4-Isopropyltoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| 4-Methyl-2-pentanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Acetone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Benzene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| Bromobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Bromochloromethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| Bromodichloromethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Bromoform | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Bromomethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| Carbon disulfide | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Carbon tetrachloride | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Chlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Chloroethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| Chloroform | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Chloromethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |

**GENERAL ENGINEERING LABORATORIES, LLC**
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

# Certificate of Analysis

Company : Los Alamos National Laboratories
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL GW Project**

Report Date: November 9, 2006



Client Sample ID: CALA-07-74307
Sample ID: 174620005
Project: LANL00601
Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics Federal** | | | | | | | | | | |
| *GEL 8260B Method List unpreserved* | | | | | | | | | | |
| Dibromochloromethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Dibromomethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| Dichlorodifluoromethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| Ethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Iodomethane | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Isopropylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Methylene chloride | U | ND | 2.00 | 5.00 | ug/L | 1 | | | | |
| Styrene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Tetrachloroethylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Toluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Trichloroethylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Trichlorofluoromethane | U | ND | 0.310 | 1.00 | ug/L | 1 | | | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | U | ND | 1.00 | 5.00 | ug/L | 1 | | | | |
| Vinyl chloride | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| cis-1,2-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| cis-1,3-Dichloropropylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| m,p-Xylenes | U | ND | 0.250 | 2.00 | ug/L | 1 | | | | |
| n-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| n-Propylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| o-Xylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| sec-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| tert-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| trans-1,2-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| trans-1,3-Dichloropropylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |

**The following Analytical Methods were performed**

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 8260B DOE-AL | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | GEL 8260B Method List unpreserved | 52.6 | 60.0 | 88 | (70%-120%) |
| Bromofluorobenzene | GEL 8260B Method List unpreserved | 63.0 | 60.0 | 105 | (80%-120%) |
| Dibromofluoromethane | GEL 8260B Method List unpreserved | 62.8 | 60.0 | 105 | (76%-123%) |
| Toluene-d8 | GEL 8260B Method List unpreserved | 66.1 | 60.0 | 110 | (85%-120%) |

Notes:
The Qualifiers in this report are defined as follows :

* A quality control analyte recovery is outside of specified acceptance criteria

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# Certificate of Analysis

Company : Los Alamos National Laboratories
Address : PO Box 1663
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Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL GW Project**

Report Date: November 9, 2006



Client Sample ID: CALA-07-74307
Sample ID: 174620005

Project: LANL00601
Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|

< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
E Organics--Concentration of the target analyte exceeds the instrument calibration range
H Analytical holding time was exceeded
J Value is estimated
N Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

**GENERAL ENGINEERING LABORATORIES, LLC**
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LAOI-7
-TANK #2-

# Certificate of Analysis

Company : Los Alamos National Laboratories
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U
Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL ER Project**

Report Date: October 30, 2006



Client Sample ID: CALA-07-74308
Sample ID: 174659001
Matrix: Water
Collect Date: 18-OCT-06 12:00
Receive Date: 21-OCT-06
Collector: Client

Project: LANL00600
Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics Federal** | | | | | | | | | | | |
| *GEL 8260B Method List Liquid F* | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | YS1 | 10/27/06 | 1413 | 583487 | 1 |
| 1,1,1-Trichloroethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 1,1,2,2-Tetrachloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,1,2-Trichloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,1-Dichloroethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 1,1-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 1,1-Dichloropropene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2,3-Trichloropropane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 1,2,4-Trimethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dibromo-3-chloropropane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dibromoethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dichloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dichloropropane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,3,5-Trimethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,3-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,3-Dichloropropane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,4-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 2,2-Dichloropropane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 2-Butanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| 2-Chlorotoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 2-Hexanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| 4-Chlorotoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 4-Isopropyltoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 4-Methyl-2-pentanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| Acetone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| Benzene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| Bromobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Bromochloromethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| Bromodichloromethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Bromoform | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Bromomethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | | |
| Carbon disulfide | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| Carbon tetrachloride | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Chlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Chloroethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | | |
| Chloroform | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Chloromethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | | |

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# Certificate of Analysis

Company : Los Alamos National Laboratories
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U
Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL ER Project**

Report Date: October 30, 2006



Client Sample ID: CALA-07-74308
Sample ID: 174659001

Project: LANL00600
Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics Federal** | | | | | | | | | | |
| *GEL 8260B Method List Liquid F* | | | | | | | | | | |
| Dibromochloromethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Dibromomethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| Dichlorodifluoromethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| Ethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Iodomethane | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Isopropylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Methylene chloride | U | ND | 2.00 | 5.00 | ug/L | 1 | | | | |
| Styrene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Tetrachloroethylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Toluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Trichloroethylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Trichlorofluoromethane | U | ND | 0.310 | 1.00 | ug/L | 1 | | | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | U | ND | 1.00 | 5.00 | ug/L | 1 | | | | |
| Vinyl chloride | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| cis-1,2-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| cis-1,3-Dichloropropylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| m,p-Xylenes | U | ND | 0.250 | 2.00 | ug/L | 1 | | | | |
| n-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| n-Propylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| o-Xylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| sec-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| tert-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| trans-1,2-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| trans-1,3-Dichloropropylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |

**The following Analytical Methods were performed**

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 8260B | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | GEL 8260B Method List Liquid F | 55.8 | 60.0 | 93 | (70%-120%) |
| Bromofluorobenzene | GEL 8260B Method List Liquid F | 54.7 | 60.0 | 91 | (80%-120%) |
| Dibromofluoromethane | GEL 8260B Method List Liquid F | 59.7 | 60.0 | 100 | (76%-123%) |
| Toluene-d8 | GEL 8260B Method List Liquid F | 59.1 | 60.0 | 98 | (85%-120%) |

Notes:
The Qualifiers in this report are defined as follows :

* A quality control analyte recovery is outside of specified acceptance criteria

**GENERAL ENGINEERING LABORATORIES, LLC**
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# Certificate of Analysis

Company : Los Alamos National Laboratories
Address : PO Box 1663
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Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL ER Project**

Report Date: October 30, 2006



Client Sample ID: CALA-07-74308 Project: LANL00600
Sample ID: 174659001 Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|

< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
E Organics--Concentration of the target analyte exceeds the instrument calibration range
H Analytical holding time was exceeded
J Value is estimated
N Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

GENERAL ENGINEERING LABORATORIES, LLC
2040 Savage Road Charleston SC 29407 - (843) 556-8171 - www.gel.com

LAOI-7
TANK #1

# Certificate of Analysis

Company : Los Alamos National Laboratories
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U
Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL ER Project**

Report Date: October 30, 2006



Client Sample ID: CALA-07-74310
Sample ID: 174659003
Matrix: Water
Collect Date: 18-OCT-06 12:00
Receive Date: 21-OCT-06
Collector: Client

Project: LANL00600
Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics Federal** | | | | | | | | | | | |
| *GEL 8260B Method List Liquid F* | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | YS1 | 10/27/06 | 1509 | 583487 | 1 |
| 1,1,1-Trichloroethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 1,1,2,2-Tetrachloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,1,2-Trichloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,1-Dichloroethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 1,1-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 1,1-Dichloropropene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2,3-Trichloropropane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 1,2,4-Trimethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dibromo-3-chloropropane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dibromoethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dichloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dichloropropane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,3,5-Trimethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,3-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,3-Dichloropropane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,4-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 2,2-Dichloropropane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 2-Butanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| 2-Chlorotoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 2-Hexanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| 4-Chlorotoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 4-Isopropyltoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 4-Methyl-2-pentanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| Acetone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| Benzene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| Bromobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Bromochloromethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| Bromodichloromethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Bromoform | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Bromomethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | | |
| Carbon disulfide | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| Carbon tetrachloride | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Chlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Chloroethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | | |
| Chloroform | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Chloromethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | | |

GENERAL ENGINEERING LABORATORIES, LLC
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# Certificate of Analysis

Company : Los Alamos National Laboratories
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U
Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL ER Project**

Report Date: October 30, 2006



Client Sample ID: CALA-07-74310
Sample ID: 174659003
Project: LANL00600
Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics Federal** | | | | | | | | | | |
| *GEL 8260B Method List Liquid F* | | | | | | | | | | |
| Dibromochloromethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Dibromomethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| Dichlorodifluoromethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| Ethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Iodomethane | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Isopropylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Methylene chloride | U | ND | 2.00 | 5.00 | ug/L | 1 | | | | |
| Styrene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Tetrachloroethylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Toluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Trichloroethylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Trichlorofluoromethane | U | ND | 0.310 | 1.00 | ug/L | 1 | | | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | U | ND | 1.00 | 5.00 | ug/L | 1 | | | | |
| Vinyl chloride | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| cis-1,2-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| cis-1,3-Dichloropropylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| m,p-Xylenes | U | ND | 0.250 | 2.00 | ug/L | 1 | | | | |
| n-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| n-Propylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| o-Xylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| sec-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| tert-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| trans-1,2-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| trans-1,3-Dichloropropylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |

**The following Analytical Methods were performed**

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 8260B | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | GEL 8260B Method List Liquid F | 53.9 | 60.0 | 90 | (70%-120%) |
| Bromofluorobenzene | GEL 8260B Method List Liquid F | 53.8 | 60.0 | 90 | (80%-120%) |
| Dibromofluoromethane | GEL 8260B Method List Liquid F | 58.6 | 60.0 | 98 | (76%-123%) |
| Toluene-d8 | GEL 8260B Method List Liquid F | 58.4 | 60.0 | 97 | (85%-120%) |

Notes:
The Qualifiers in this report are defined as follows :

* A quality control analyte recovery is outside of specified acceptance criteria

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# Certificate of Analysis

Company : Los Alamos National Laboratories
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U
Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL ER Project**

Report Date: October 30, 2006



Client Sample ID: CALA-07-74310 Project: LANL00600
Sample ID: 174659003 Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|

< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
E Organics--Concentration of the target analyte exceeds the instrument calibration range
H Analytical holding time was exceeded
J Value is estimated
N Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

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# Certificate of Analysis

Company : Los Alamos National Laboratories
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U
Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL ER Project**

Report Date: October 30, 2006



Client Sample ID: GW16-07-71311
Sample ID: 174658001
Matrix: Water
Collect Date: 19-OCT-06 12:00
Receive Date: 21-OCT-06
Collector: Client

Project: LANL00600
Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics Federal** | | | | | | | | | | | |
| *GEL 8260B Method List Liquid F* | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | YS1 | 10/27/06 | 1346 | 583487 | 1 |
| 1,1,1-Trichloroethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 1,1,2,2-Tetrachloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,1,2-Trichloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,1-Dichloroethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 1,1-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 1,1-Dichloropropene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2,3-Trichloropropane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 1,2,4-Trimethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dibromo-3-chloropropane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dibromoethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dichloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dichloropropane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,3,5-Trimethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,3-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,3-Dichloropropane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,4-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 2,2-Dichloropropane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 2-Butanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| 2-Chlorotoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 2-Hexanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| 4-Chlorotoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 4-Isopropyltoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 4-Methyl-2-pentanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| Acetone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| Benzene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| Bromobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Bromochloromethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| Bromodichloromethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Bromoform | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Bromomethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | | |
| Carbon disulfide | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| Carbon tetrachloride | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Chlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Chloroethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | | |
| Chloroform | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Chloromethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | | |

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# Certificate of Analysis

Company : Los Alamos National Laboratories
Address : PO Box 1663
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Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL ER Project**

Report Date: October 30, 2006



Client Sample ID: GW16-07-71311 Project: LANL00600
Sample ID: 174658001 Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics Federal** | | | | | | | | | | |
| *GEL 8260B Method List Liquid F* | | | | | | | | | | |
| Dibromochloromethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Dibromomethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| Dichlorodifluoromethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| Ethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Iodomethane | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Isopropylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Methylene chloride | U | ND | 2.00 | 5.00 | ug/L | 1 | | | | |
| Styrene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Tetrachloroethylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Toluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Trichloroethylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Trichlorofluoromethane | U | ND | 0.310 | 1.00 | ug/L | 1 | | | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | U | ND | 1.00 | 5.00 | ug/L | 1 | | | | |
| Vinyl chloride | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| cis-1,2-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| cis-1,3-Dichloropropylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| m,p-Xylenes | U | ND | 0.250 | 2.00 | ug/L | 1 | | | | |
| n-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| n-Propylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| o-Xylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| sec-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| tert-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| trans-1,2-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| trans-1,3-Dichloropropylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |

**The following Analytical Methods were performed**

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 8260B | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | GEL 8260B Method List Liquid F | 54.2 | 60.0 | 90 | (70%-120%) |
| Bromofluorobenzene | GEL 8260B Method List Liquid F | 55.3 | 60.0 | 92 | (80%-120%) |
| Dibromofluoromethane | GEL 8260B Method List Liquid F | 58.5 | 60.0 | 97 | (76%-123%) |
| Toluene-d8 | GEL 8260B Method List Liquid F | 57.5 | 60.0 | 96 | (85%-120%) |

Notes:
The Qualifiers in this report are defined as follows :

* A quality control analyte recovery is outside of specified acceptance criteria

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# Certificate of Analysis

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Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL ER Project**

Report Date: October 30, 2006



Client Sample ID: GW16-07-71311 Project: LANL00600
Sample ID: 174658001 Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|

< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
E Organics--Concentration of the target analyte exceeds the instrument calibration range
H Analytical holding time was exceeded
J Value is estimated
N Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by

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— Trip Blank —

## Certificate of Analysis

Company : Los Alamos National Laboratories
Address : PO Box 1663
TA-03, SM271, Drop Pt. 02U, Rm111
Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL GW Project**

Report Date: November 9, 2006



Client Sample ID: GW27-07-74314
Sample ID: 174621001
Matrix: Water
Collect Date: 18-OCT-06 12:00
Receive Date: 20-OCT-06
Collector: Client

Project: LANL00601
Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | Analyst | Date | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics Federal** | | | | | | | | | | | |
| *GEL 8260B Method List unpreserved* | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | YS1 | 10/21/06 | 1811 | 581660 | 1 |
| 1,1,1-Trichloroethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 1,1,2,2-Tetrachloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,1,2-Trichloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,1-Dichloroethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 1,1-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 1,1-Dichloropropene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2,3-Trichloropropane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 1,2,4-Trimethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dibromo-3-chloropropane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dibromoethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dichloroethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,2-Dichloropropane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,3,5-Trimethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,3-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,3-Dichloropropane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 1,4-Dichlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 2,2-Dichloropropane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| 2-Butanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| 2-Chlorotoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 2-Hexanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| 4-Chlorotoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 4-Isopropyltoluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| 4-Methyl-2-pentanone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| Acetone | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| Benzene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| Bromobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Bromochloromethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | | |
| Bromodichloromethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Bromoform | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Bromomethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | | |
| Carbon disulfide | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | | |
| Carbon tetrachloride | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Chlorobenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Chloroethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | | |
| Chloroform | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | | |
| Chloromethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | | |

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# Certificate of Analysis

Company : Los Alamos National Laboratories
Address : PO Box 1663
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Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL GW Project**

Report Date: November 9, 2006



Client Sample ID: GW27-07-74314
Sample ID: 174621001

Project: LANL00601
Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|
| **Volatile Organics Federal** | | | | | | | | | | |
| *GEL 8260B Method List unpreserved* | | | | | | | | | | |
| Dibromochloromethane | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Dibromomethane | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| Dichlorodifluoromethane | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| Ethylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Iodomethane | U | ND | 1.25 | 5.00 | ug/L | 1 | | | | |
| Isopropylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Methylene chloride | U | ND | 2.00 | 5.00 | ug/L | 1 | | | | |
| Styrene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Tetrachloroethylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Toluene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Trichloroethylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| Trichlorofluoromethane | U | ND | 0.310 | 1.00 | ug/L | 1 | | | | |
| 1,1,2-Trichloro-1,2,2-Trifluoroethane | U | ND | 1.00 | 5.00 | ug/L | 1 | | | | |
| Vinyl chloride | U | ND | 0.500 | 1.00 | ug/L | 1 | | | | |
| cis-1,2-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| cis-1,3-Dichloropropylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| m,p-Xylenes | U | ND | 0.250 | 2.00 | ug/L | 1 | | | | |
| n-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| n-Propylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| o-Xylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| sec-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| tert-Butylbenzene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |
| trans-1,2-Dichloroethylene | U | ND | 0.300 | 1.00 | ug/L | 1 | | | | |
| trans-1,3-Dichloropropylene | U | ND | 0.250 | 1.00 | ug/L | 1 | | | | |

**The following Analytical Methods were performed**

| Method | Description | Analyst Comments |
|---|---|---|
| 1 | SW846 8260B DOE-AL | |

| Surrogate/Tracer recovery | Test | Result | Nominal | Recovery% | Acceptable Limits |
|---|---|---|---|---|---|
| 1,2-Dichloroethane-d4 | GEL 8260B Method List unpreserved | 48.9 | 50.0 | 98 | (70%-120%) |
| Bromofluorobenzene | GEL 8260B Method List unpreserved | 45.5 | 50.0 | 91 | (80%-120%) |
| Dibromofluoromethane | GEL 8260B Method List unpreserved | 53.0 | 50.0 | 106 | (76%-123%) |
| Toluene-d8 | GEL 8260B Method List unpreserved | 44.8 | 50.0 | 90 | (85%-120%) |

Notes:
The Qualifiers in this report are defined as follows :

* A quality control analyte recovery is outside of specified acceptance criteria

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# Certificate of Analysis

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Los Alamos, New Mexico 87545
Contact: Ms. Joylene Valdez
Project: **LANL GW Project**

Report Date: November 9, 2006



Client Sample ID: GW27-07-74314 Project: LANL00601
Sample ID: 174621001 Client ID: LANL006

| Parameter | Qualifier | Result | DL | RL | Units | DF | AnalystDate | Time | Batch | Method |
|---|---|---|---|---|---|---|---|---|---|---|

< Result is less than value reported
> Result is greater than value reported
A The TIC is a suspected aldol-condensation product
B Target analyte was detected in the associated blank
C Analyte has been confirmed by GC/MS analysis
D Results are reported from a diluted aliquot of the sample
E Organics--Concentration of the target analyte exceeds the instrument calibration range
H Analytical holding time was exceeded
J Value is estimated
N Organics--Presumptive evidence based on mass spectral library search to make a tentative identification of the analyte (TIC). Quantitation is based on nearest internal standard response factor
N/A Spike recovery limits do not apply. Sample concentration exceeds spike concentration by 4X or more
P Organics--The concentrations between the primary and confirmation columns/detectors is >40% different. For HPLC, difference is also <70%
R Sample results are rejected
U Analyte was analyzed for, but not detected above the MDL, MDA, or LOD.
X Consult Case Narrative, Data Summary package, or Project Manager concerning this qualifier
Y QC Samples were not spiked with this compound
^ RPD of sample and duplicate evaluated using +/-RL. Concentrations are <5X the RL
h Preparation or preservation holding time was exceeded

The above sample is reported on an "as received" basis.

Where the analytical method has been performed under NELAP certification, the analysis has met all of the requirements of the NELAC standard unless qualified on the Certificate of Analysis.

This data report has been prepared and reviewed in accordance with General Engineering Laboratories, LLC standard operating procedures. Please direct any questions to your Project Manager, Valerie Davis.

Reviewed by