

# **Permanent Closure of MFC Biodiesel Underground Storage Tank 99ANL00013**

October 2012



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operated by Battelle Energy Alliance

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# **Permanent Closure of MFC Biodiesel Underground Storage Tank 99ANL00013**

**October 2012**

**Idaho National Laboratory  
Idaho Falls, Idaho 83415**

**<http://www.inl.gov>**

**Prepared for the  
U.S. Department of Energy  
Office of Nuclear Energy  
Under DOE Idaho Operations Office  
Contract DE-AC07-05ID14517**

# CONTENTS

1.	PURPOSE .....	2
2.	INTRODUCTION .....	2
3.	PERMANENT CLOSURE .....	2
4.	SITE ASSESSMENT AND CONCLUSION.....	4
5.	APPENDIXES.....	7
	Appendix A, Notification of Closure (CCN 227777).....	8
	Appendix B, Sampling and Analysis Plan Correspondence (CCN 228161).....	16
	Appendix C, Notification of Underground Storage Tank Removal Correspondence (CCN 228291) .....	27
	Appendix D, Sample Analytical Report #1 .....	28
	Appendix E, DEQ Notification of Sample Results for MFC UST Closure (CCN 228521).....	99
	Appendix F, Sample Analytical Report #2.....	100
	Appendix G, Notification of Underground Storage Tank Soil Samples #2 (CCN 228585).....	149
	Appendix H, Discussion and Verbal Approval Regarding the Use of EPA Region 9 Industrial Screening Levels (CCN 228607).....	150
	Appendix I, Spreadsheet Comparison of EPA Region 9 Industrial Screening Levels vs. IDAPA Residential Screening Levels.....	151
	Appendix J, E-mail to DEQ with Soil Analytical Analysis #1 and #2 and Spreadsheet Comparison of EPA Region 9 Industrial Screening Levels vs. IDAPA Residential Screening Levels .....	160

# FIGURES

Figure 1.	MFC Biodiesel Underground Storage Tank Removal.....	5
Figure 2 .	Tank Rendered Unusable (holes punched in both sides).....	6
Figure 3.	Tank Rendered Unusable (ports cut off) .....	6
Figure 4.	MFC Biodiesel Underground Storage Tank after Cleaning .....	7

# TABLES

1.	Key personnel .....	2
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# Permanent Closure of MFC Biodiesel Underground Storage Tank

## 1. PURPOSE

This closure package documents the site assessment and permanent closure of the Materials and Fuels Complex biodiesel underground storage tank 99ANL00013 in accordance with the regulatory requirements established in 40 CFR 280.71, “Technical Standards and Corrective Action Requirements for Owners and Operators of Underground Storage Tanks: Out-of-Service UST Systems and Closure.”

## 2. INTRODUCTION

The MFC biodiesel underground storage tank 99ANL00013 is a 4,000-gallon, single-wall, asphalt coated steel tank with cathodic protection and safe suction above ground steel piping, and is located at the Idaho National Laboratory (INL) Materials and Fuels Complex (MFC) facility. The tank is owned by the Department of Energy and operated by Battelle Energy Alliance (BEA). The tank was installed in 1980. The tank originally held gasoline for motor vehicle use and was later converted to diesel, then biodiesel for bus use via a fuel dispenser. This tank is identified under Facility ID 6-120614 as tank number 99ANL00013 in the Idaho Department of Environmental Quality (DEQ) underground storage tank database. The tank leak detection system was a Veeder-Root TLS-350 tank monitoring system with automatic tank gauging.

An Idaho Department of Environmental Quality (DEQ) Underground Storage Tank (UST) inspection in September 2011 identified two violations to this tank. Violation #1: failure to install a properly designed cathodic protection system for a metal tank (informal warning) and violation #2: failure to ensure proper operation of a cathodic protection within six (6) months of installation and every three (3) years thereafter (formal warning). As a result of these violations, BEA decided to remove this tank and replace it with an aboveground storage tank (AST) with aboveground piping. Key personnel that were involved in this closure/demolition activity are listed in Table 1.

Table 1. Key personnel.

Title/Organization	Name	Responsibilities
Project Manager	Mark Cole	Project execution and completion
Facility Manager	Scott Lyman	Manage/approve facility activities
Environmental Compliance	Kerry Nisson	Coordinate UST closure activity
Project Supervisor	Lucien Frederick	Project implementation

In preparation for demolition and permanent tank closure, the remaining fuel in the line and tank was pumped out on September 3, 2012, and the tank was removed on September 11, 2012 and permanently closed in accordance with 40 CFR 280.71.

## 3. PERMANENT CLOSURE

In accordance with 40 CFR 280.71(a), a 30-day closure notification was mailed on July 9, 2012, (Appendix A, CCN 227777) notifying Idaho DEQ of BEA’s intent to permanently close MFC tank 99ANL00013 biodiesel underground storage tank. A sampling and analysis plan was developed for sampling the soils around and under the underground storage tank system. The Idaho DEQ Regional Office in Idaho Falls (i.e., Steve Heaton) requested a copy of the sampling and analysis plan in preparation for the closure.

On August 8, 2012, the sampling and analysis plan was e-mailed to the Idaho DEQ Regional Office (Appendix B, CCN 288161).

On August 9, 2012, an e-mail response from Idaho DEQ was received from Steve Heaton stating the sampling and analysis plan for pending UST work at MFC had been reviewed and the e-mail would serve as the Department's endorsement to execute the plan.

On August 27, 2012 a call was placed to Steve Heaton at the Idaho DEQ Regional Office informing him of BEA's intent to begin removal of the UST and to identify if DEQ wanted be present during any part of the removal process. Steve stated that DEQ did not plan to visit the INL during the UST removal and to keep him informed as the project progressed. It was stated that DEQ would be notified if there were any evidence of tank leakage during the removal (Appendix C - CCN 228291).

On September 10, 2012, INL's Environmental Monitoring personnel collected soil samples around and under the underground storage tank and supply line in accordance with the sampling and analysis plan. Soil samples were sent to ALS Environmental Fort Collins, Colorado for analysis. Laboratory analysis was requested for chemicals of interest for gasoline and diesel found in Tables 1 and 2 of IDAPA 58.01.24.800.

On September 19, 2012, the ALS Environmental sent the soil sample analytical report (Appendix D) to INL's Environmental Monitoring personnel. The analytical report identified semi-volatile levels of Benzo(A)Anthracene (Ground water Protection via petroleum contaminants in soil leaching to ground water), Benzo(B)Fluoranthene (direct contact), and Benzo(A)Pyrene (direct contact) above the residential screening levels for chemicals of interest identified in table 2, of IDAPA 58.01.24.800.

On September 20, 2012, a call was placed to notify the DEQ Regional Office (24 hour notification) of the sampling analysis results that the chemicals Benzo(A)Anthracene, Benzo(B)Fluoranthene, and Benzo(A)Pyrene exceeded the IDAPA residential screening levels (Appendix E - CCN 228521). As an option, DEQ suggested removing more soil and resampling, as this may bring the levels into the desired screening level range. DEQ agreed that this phone call would serve as the 24-hour notification.

On September 20, 2012, INL's Environmental Monitoring personnel collected a second set of soil samples including samples from the soil pile staged from the tank removal. Soil samples were sent to ALS Environmental Fort Collins, Colorado for analysis. The same analysis was requested.

On September 25, 2012, ALS Environmental sent the soil sample analytical report, to INL's Environmental Monitoring personnel (Appendix F). The analytical report only identified levels of Benzo(A)Pyrene above the screening levels identified in table 2 of IDAPA 58.01.24.800.

On September 26, the Idaho DEQ Regional Office was notified (Appendix G - CCN 228585) that sampling analytical analysis results still showed that Benzo(A)Pyrene exceeded the IDAPA residential screening levels. DEQ suggested that the Idaho National Laboratory (INL) use commercial screening levels, as the INL was not, nor ever would be residential. Commercial screening levels could not be found in the Idaho Risk Evaluation Manual for Petroleum Releases. A search for commercial screening levels revealed Region 9, Regional Screening Levels for Industrial Soil Supporting screening levels on the Environmental Protection Agency website. Both sets of analytical analysis results were compared to the Region 9 Industrial Soil Supporting table using ingestion for the target risk, as this was the most conservative value. The Benzo(A)Anthracene, Benzo(B)Fluoranthene, and Benzo(A)Pyrene were below the industrial screening levels. The INL developed a spreadsheet showing the comparison of EPA Region 9 Industrial Screening Levels vs. IDAPA Residential Screening Levels (Appendix H).

On September 27 (note – the e-mail attachment states September 26, which is a typographical error), a call was placed to the DEQ Regional Office explaining the actions taken above (Appendix H - CCN 228607). DEQ responded that if there was no guidance found for commercial screening levels in the Idaho Risk Evaluation Manual for Petroleum Releases, then it would be acceptable to use the EPA Region 9 guidance and gave verbal authorization to continue. DEQ requested that the EPA Region 9 information be included in this tank closure plan. An e-mail was sent to DEQ with the sampling analysis and the INL developed spreadsheet (Appendix I) for review. A request was made to contact the INL if any issues were encountered when reviewing the spreadsheet.

Construction personnel accessed the inside of the tank through hole in both sides of the tank and removed all remaining liquids (i.e., a small amount at the slightly sloped end). The inside of the tank was mopped out with absorbent pads. Waste that was generated during this process was disposed of through INL's Waste Generator Services personnel. All liquids and accumulated sludges were removed, meeting the requirement in 40 CFR 280.71(b), "Permanent Closure and Changes-In-Service" (Figure 4).

#### **4. SITE ASSESSMENT AND CONCLUSION**

This site assessment was performed in accordance with IDAPA 58.01.24.200, "Risk Evaluation Process." A screening evaluation was performed according to the previously submitted sampling and analysis plan of the MFC biodiesel fuel tank (Appendix B). This included collection of media-specific (soil) samples and analysis for the chemicals of interest (benzene, toluene, xylenes, MTBE, and naphthalene) for gasoline, diesel, and biodiesel (IDAPA 58.01.24.200.a and b. and IDAPA 58.01.24.800.01, Table 1.)

Per 40 CFR 280.71 "Permanent Closure and Changes-In-Service" All liquids and accumulated sludges were removed from the UST.

Sample results (Appendix E and G) were received on September 19 and September 25, 2012, respectively, and were compared to the maximum media-specific (soil) petroleum contaminant concentrations identified in IDAPA 58.01.24.800.02, Table 2. Both sample results showed semi-volatile detection for the chemicals of interest above the levels identified in Table 2.

The Idaho DEQ Regional Office advised the INL to look at commercial screening levels in the Idaho Risk Evaluation Manual for Petroleum Releases, as the site at MFC was not a residential site. The MFC biodiesel tank removal site is not near ground or surface water.

A search for commercial screening levels revealed Region 9, Regional Screening Levels for Industrial Soil Supporting screening levels on the Environmental Protection Agency website (<http://www.epa.gov/region9/superfund/prg/>).

Both sets of analytical sample results were compared to the Region 9 Industrial Soil Supporting table using the most conservative target risk value - ingestion. All chemicals of concern were below than the industrial screening levels for ingestion, found on the Region 9 Industrial Soil Supporting table.

A spreadsheet (Appendix I) was developed showing the sample analysis results with comparison between IDAPA 58.01.24.800.02, Table 2 Residential Use Screening levels and the Region 9, Regional Screening Level, Industrial Soil Supporting table, Screening Levels for Chemical Contaminants. The comparison shows the semi-volatiles (Benzo(A)Anthracene, Benzo(B)Fluoranthene, and Benzo(A)Pyrene) that were above the IDAPA Residential Use Screening levels were below the Region 9, Industrial Soil Supporting table, Screening Levels for Chemical Contaminants.

The Idaho DEQ Regional Office was called on September 26, 2012 explaining the actions taken, as mentioned above. DEQ responded that if there was no guidance found for commercial screening levels in the Idaho Risk Evaluation Manual for Petroleum Releases, then it would be acceptable to use the EPA Region 9 guidance and gave verbal authorization to continue. DEQ requested that the EPA Region 9

information be included in this tank closure plan. An e-mail was sent to DEQ with the sample analysis and the spreadsheet utilized for review. A request was made to DEQ to contact the INL if any issues were encountered when reviewing the spreadsheet.

Based on the methods used above and with the Idaho DEQ Regional Office verbal acceptance with using Region 9, industrial soil screening levels, the INL is petitioning for approval of site closure of the Materials and Fuels Complex biodiesel underground storage tank 99ANL00013. A final updated copy of the 30-day closure notification has been included.



Figure 1. MFC Biodiesel Underground Storage Tank Removal.





Figure 2 . Tank Rendered Unusable (holes punched in both sides)



Figure 3. Tank Rendered Unusable (ports cut off)



Figure 4. MFC Biodiesel Underground Storage Tank after Cleaning

## **5. APPENDIXES**

Appendix A, Notification of Closure (CCN 227777)

Appendix B, Sampling and Analysis Plan Correspondence (CCN 228161)

Appendix C, Notification of Underground Storage Tank Removal Correspondence (CCN 228291)

Appendix D, Sample Analytical Report #1

Appendix E, DEQ Notification of Sample Results for MFC UST Closure (CCN 228521)

Appendix F, Sample Analytical Report #2

Appendix G, Notification of Underground Storage Tank Soil Samples #2 (CCN 228585)

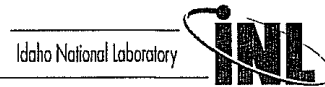
Appendix H, Discussion and Verbal Approval Regarding the Use of EPA Region 9 Industrial Screening Levels (CCN 228607)

Appendix I, Spreadsheet Comparison of EPA Region 9 Industrial Screening Levels vs. IDAPA Residential Screening Levels

Appendix J, E-mail to DEQ with Soil Analytical Analysis #1/#2 and Spreadsheet Comparison of EPA Region 9 Industrial Screening Levels vs. IDAPA Residential Screening Levels

# Appendix A

## Notification of Closure (CCN 227777)



July 9, 2012

CCN 227777

Kristi Lowder  
UST Coordinator  
Idaho Department of Environmental Quality  
1410 North Hilton  
Boise, ID 83706

**SUBJECT:** Notification for Underground Storage Tank Closure at Idaho National Laboratory,  
Materials and Fuel Complex

Dear Ms. Lowder:

This letter provides 30-day notification of intent to close an underground storage tank located at the Idaho National Laboratory, Materials and Fuels Complex (Site ID Number 7230/Facility ID Number 6-120614/Tank ID Number 99ANL00013). This notice is submitted for Battelle Energy Alliance, LLC (BEA) as the operating contractor for this project.

The enclosed provides the necessary information and notification required by Title 40 CFR 280, Subpart G. Please note that a follow up notification will be submitted with the required site assessment and the information required in Section XI. BEA has communicated with the Idaho DEQ Regional Office in Idaho Falls (S. Heaton and S. Short) regarding this closure and will provide them with a sample plan and a 48-hour notification prior to closure.

If you have any questions, please contact Kerry Nisson (208) 533-7102.

Sincerely,

A handwritten signature in black ink, appearing to read "Jo Anna Stenzel", is written over a horizontal line.

Jo Anna Stenzel, Director  
Environmental Support & Services

KLN:AT

Enclosure

cc: J. Alvarez, INL, MS 3695  
P. K. Bowers, DOE-ID, MS 1226  
R. R. Chase, INL, MS 3695  
S. D. Dossett, INL, MS 3405  
R. A. Gallegos, DOE-ID, MS 1216  
J. J. Grossenbacher, INL, MS 3695  
S. Heaton, DEQ, Idaho Falls

R. M. Kauffman, DOE-ID, MS 1216  
C. D. Melbihess, INL, MS 3406  
S. M. Olson, DOE-ID, MS 1240  
T. L. Perkins, DOE-ID, MS 1216  
S. Short, DEQ, Idaho Falls  
D. M. Storms, INL, MS 3898  
J. R. Sturm, DOE-ID, MS 1216

Ms. Kristi Lowder  
July 9, 2012  
CCN 227777  
Page 2

bcc: P. J. Breidenbach, MS 6146  
A. E. Carvo, MS 6134 *AC*  
T. L. Carlson, MS 3405 *TLC per teleca*  
L. M. Coe-Leavitt, MS 6134  
J. F. Graham, MS 3428 *JFG per teleca*  
B. K. Griffith, MS 7113 *BKG per teleca*  
S. D. Lee, MS 3405  
S. L. Lyman, MS 6172  
C. D. Melbiness, MS 3406  
T. A. Miller, MS 3428  
R. V. Nelson, MS 3406  
R. A. Nickelson, MS 3406  
K. L. Nisson, MS 6134 *KL*  
Environmental Correspondence, MS 3405, email: [ENVAFF@inl.gov](mailto:ENVAFF@inl.gov)  
INL Correspondence Control, MS 3640, email: [BEACC@inl.gov](mailto:BEACC@inl.gov)  
J. A. Stenzel Letter Log (JAS-62-12)

Uniform File Code: 61043

Disposition Authority: ENV3-d-1

Retention Schedule: Cut off after certificate of closure is received. Destroy 10 years after cut off.

NOTE: Original disposition authority, retention schedule, and Uniform Filing Code applied by the sender may not be appropriate for all recipients. Make adjustments as needed.

<b>NOTIFICATION FOR UNDERGROUND STORAGE TANK SYSTEMS</b>	Facility ID <u>6-120614</u>
Idaho Department of Environmental Quality, 1410 N Hilton, Boise ID 83706	

**TYPE OF NOTIFICATION**

Notice     New Facility (site diagram & install testing docs required)     Updates     Closure

**INSTRUCTIONS – See additional instructions on page 7**  
 Please type or use ink. This form must be completed for each location containing underground storage tanks. If more than five (5) tanks are owned at this location, photocopy the following sheets, and staple continuation sheets to the form (pages 3, 4, 5, & 6)

**GENERAL INFORMATION**

Notification is required by law for all underground tanks that have been used to store regulated substances since January 1, 1974, that are in the ground as of May 8, 1986, or that are brought into use after May 8, 1986. The information requested is required by Section 9002 of the Resource Conservation and Recovery Act, (RCRA), as amended.

The primary purpose of this notification program is to locate and evaluate underground tanks that will store, do store, or have stored petroleum or hazardous substances. It is expected that the information you provide will be based on reasonably available records, or in the absence of such records, your knowledge, belief, or recollection.

**Who must notify?** Unless exempted, owners of underground tank systems that store or will store regulated substances must notify DEQ.

1. Owner means -

- In the case of an underground storage tank in use on November 8, 1984, or brought into use after that date, any person who owns an underground storage tank used for the storage, use, or dispensing of regulated substances, and
- in the case of any underground storage tank in use before November 8, 1984, but no longer in use on that date, any person who owned such tank immediately before the discontinuation of its use
- In the case of a new installation on or after April 2, 2008, any person who will install an underground storage tank system
- In the case of an underground storage tank closure, any person who will remove or close in place such tank
- any facility that has undergone any changes to facility information or tank system status (only amended tank information needs to be included).

**What tanks are included?** Underground storage tank is defined as any one or combination of tanks that (1) is used to contain an accumulation of "regulated substances," and (2) whose volume (including connected underground piping) is 10% or more beneath the ground. Some examples are underground tanks storing gasoline, used oil, diesel fuel, industrial solvents, pesticides, herbicides, or fumigants.

**What tanks are excluded?** Tanks with a capacity of 110 gallons or less are not subject to notification. Other tanks excluded from notification are:

- farm or residential tanks of 1,100 gallons or less capacity used for storing motor fuel for noncommercial purposes;
- tanks used for storing heating oil for consumptive use on the premises where stored;
- septic tanks;
- pipeline facilities (including gathering lines) regulated under the Natural Gas Pipeline Safety Act of 1968, or the Hazardous Liquid Pipeline Safety Act of 1979, or which is an intrastate pipeline facility regulated under State laws;
- surface impoundments, pits, ponds, or lagoons;
- storm water or waste water collection systems;
- flow-through process tanks;
- liquid traps or associated gathering lines directly related to oil or gas production and gathering operations;
- storage tanks situated in an underground area (such as a basement, cellar, mine working drift, shaft, or tunnel) if the storage tank is situated upon or above the surface of the floor.

**What substances are covered?** The notification requirements apply to underground storage tanks that contain regulated substances. This includes any substance defined as hazardous in section 101 (14) of the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA), with the exception of those substances regulated as hazardous waste under Subtitle C of RCRA. It also includes petroleum, e.g., crude oil or any fraction thereof which is liquid at standard conditions of temperature and pressure (60 degrees Fahrenheit and 14.7 pounds per square inch absolute).

**Where to notify?** Send completed forms to:

**UST Coordinator**  
**Idaho Department of Environmental Quality**  
**1410 N. Hilton**  
**Boise, ID 83706 Telephone: (208) 373-0502**

**When to notify?** Owners of underground storage tank systems that are still in the ground must notify immediately. Owners who bring underground storage tanks into use after May 8, 1986, must notify within 30 days of bringing the tanks into use. Owners who will install an underground storage tank system must notify 30 days prior to the installation. Owners who will replace 100% of piping connected to a single underground storage tank must notify 24 hours prior to the replacement. Owners who will close an underground storage tank must notify 30 days prior to the closure. Owners who have closed an underground storage tank must notify and indicate the date of closure.

**Penalties:** Any owner who knowingly fails to notify or submits false information shall be subject to a civil penalty.

EPA estimates public reporting burden for this form to average 30 minutes per response including time for reviewing instructions, gathering and maintaining the data needed and completing and reviewing the form. Send comments regarding this burden estimate to Chief, Information Policy Branch PM-223, US Environmental Protection Agency, 401 M Street, Washington D.C. 20460, marked "Attention Desk Officer for EPA." This form amends the previous notification form as printed in 40 CFR Part 280, Appendix I.

<p style="text-align: center;"><b>I. OWNERSHIP OF TANK(S)</b></p> <p>Name <u>U.S. Department of Energy, Idaho Operations Office (DOE-ID)</u>                  Mailing Address <u>1955 Fremont Avenue</u>                  City <u>Idaho Falls</u>                  State <u>Idaho</u>                  ZIP Code <u>83401</u>                  County <u>Bonneville</u>                  Phone Number (With Area Code) <u>(208) 526-2493</u>                  Email <u>sturmjir@id.doe.gov</u></p>	<p style="text-align: center;"><b>II. LOCATION OF TANK(S)</b></p> <p>(If same as Section I, mark box here <input type="checkbox"/>)                  Name <u>Materials and Fuels Complex - Idaho National Laboratory</u>                  Street Address (no PO Box) _____                  City <u>Scoville</u>                  State <u>Idaho</u>                  ZIP Code <u>83415</u>                  County <u>Bingham</u></p>
-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**III. TYPE OF OWNER**

Commercial                       Private                       State Government  
 Federal Government                       Local Government

**IV. TYPE OF FACILITY**

Select the Appropriate Facility Description

<input type="checkbox"/> Gas Station	<input type="checkbox"/> Local Government	<input type="checkbox"/> Contractor
<input type="checkbox"/> Petroleum Distributor	<input type="checkbox"/> State Government	<input type="checkbox"/> Trucking/Transport
<input type="checkbox"/> Air Taxi (Airline)	<input checked="" type="checkbox"/> Federal - Non-Military	<input type="checkbox"/> Utilities
<input type="checkbox"/> Aircraft Owner	<input type="checkbox"/> Federal - Military	<input type="checkbox"/> Farm
<input type="checkbox"/> Auto Dealership	<input type="checkbox"/> Commercial	<input type="checkbox"/> Residential
<input type="checkbox"/> Railroad	<input type="checkbox"/> Industrial	<input type="checkbox"/> Marina
	<input type="checkbox"/> Hospital	<input type="checkbox"/> (Other)

**V. CONTACT PERSON IN CHARGE OF TANKS**

Name <u>Scott Lyman</u>	City <u>Idaho Falls</u>
Title <u>Manager, Facility Support Services</u>	State <u>Idaho</u>
Address <u>PO Box 1625</u>	ZIP Code <u>83415</u>
	Phone <u>(208) 533-7438</u>
	Email <u>Scott.Lyman@inl.gov</u>

**VI. CERTIFICATION (Read and sign after completing all sections)**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete.

---

Name and official title of owner or owner's authorized representative (Print)	Signature
Name <u>Jo Anna Stenzel</u>	
Title <u>Director, Environmental Support and Services</u>	Date Signed

**VII. FINANCIAL RESPONSIBILITY**

I have met the financial responsibility requirements in accordance with 40 CFR 280 Subpart H.

Check All That Apply

<input type="checkbox"/> State Insurance Fund (PSTF)	<input type="checkbox"/> Surety Bond
<input type="checkbox"/> Commercial Insurance	<input type="checkbox"/> Letter of Credit
<input type="checkbox"/> Risk Retention Group	<input type="checkbox"/> Self Insurance
<input type="checkbox"/> Guarantee	<input type="checkbox"/> Trust Fund

Other Method Allowed, Specify \_\_\_\_\_

**VIII. Notices**

IDENTIFICATION NUMBER	Tank No. 99ANL00013	Tank No.	Tank No.	Tank No.	Tank No.
<b>A. 30-day Tank and Piping Installation/24-hr Piping Replacement Notifications (see Page 8)</b>					
When will tank be installed or replaced? (mo./day/year)	N/A				
When will piping be installed or replaced? (mo./day/year)	N/A				
<b>B. 30-day Notice of Closures (see Page 8)</b>					
When will tank be closed? (mo./day/year)	~8/15/12				
Date tank was last used? (mo./day/year)	~8/6/12				
Closure to be performed by:					
Company Battelle Energy Alliance Site Supervisor: Lucien Frederick Phone: (208) 533-7805					

**IX. Ground Water Protection Measures**

(Check the applicable box)

The underground storage tank system IS within 1000' of a drinking water source or system.

The underground storage tank system IS NOT within 1000' of a drinking water source or system.

If the owner and installer certify that the underground storage tank system is not within 1000' of an existing public water system or potable drinking water well, the owner or operator must provide and maintain documentation showing that a reasonable investigation of water systems and drinking water wells was undertaken.

**X. DESCRIPTION OF UNDERGROUND STORAGE TANKS (Complete for each tank at this location)**

IDENTIFICATION NUMBER	Tank No. 99ANL00013	Tank No.	Tank No.	Tank No.	Tank No.
Compartmentalized/Manifolded Tanks?	Select	Select	Select	Select	Select
Emergency Generator Tank?	No	Select	Select	Select	Select
<b>A. Status of Tank</b>					
Currently In Use	Yes	Select	Select	Select	Select
Temporarily Out of Use (Complete Section XI, Estimated Date Last Used)					
Permanently Out of Use (Complete Section XI, tanks removed or closed in place)	Select	Select	Select	Select	Select
Date of Installation (mo./day/year)	1980				
Total Capacity (gallons)	4000				
<b>B. Material of Tank Construction (Mark all that apply)</b>					
Fiberglass Reinforced Plastic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cathodically Protected Steel (STIP-3)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cathodically Protected Steel (Impressed Current)	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Epoxy Coated Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Composite (Steel with Fiberglass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Asphalt Coated or Bare Steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Double Walled	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Lined Interior	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Polyethylene Tank Jacket	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Excavation Liner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Unknown	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Other, Please Specify	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has tank been repaired? (circle one)	Select	Select	Select	Select	Select
<b>C. Piping Material (Mark all that apply)</b>					
Plastic/Flexible	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Fiberglass Reinforced Plastic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Galvanized Steel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bare Steel	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cathodically Protected (Impressed Current)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cathodically Protected (Galvanic)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Corrosion Protection (Soil Isolation)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Double Walled	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Excavation Liner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other, Please Specify	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<b>D. Piping Type (Mark all that Apply)</b>					
Pressure	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
U.S. Suction: check valve at tank	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Safe Suction: check valve at dispenser	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Gravity Feed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Has piping been repaired or replaced? (circle one)	Select	Select	Select	Select	Select
Date of the repair or replacement					
<b>E. Under-Dispenser Spill Containment (required for new installations)</b>					
Is there under-dispenser spill containment for each new dispenser island?	No				
<b>F. Substance Currently or Last Stored</b>					
Gasoline	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Diesel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Biodiesel	B20	Select	Select	Select	Select
Ethanol (circle one)	Select	Select	Select	Select	Select
Kerosene	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Heating Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Used Oil	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other Petroleum Product (please specify)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
If not a petroleum product:					
Hazardous Substance (circle one)	Select	Select	Select	Select	Select
CERCLA name and/or, CAS Number (Chemical Abstract Service Registry #)					
If not listed above:					
Mixture of Substances (please specify)	Select	Select	Select	Select	Select



**XI. TANKS OUT OF USE OR CHANGE IN SERVICE**

TANK IDENTIFICATION NUMBER	Tank No. 99ANL00013	Tank No.	Tank No.	Tank No.	Tank No.
<b>Closing of Tank</b>					
Tank was removed from ground	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tanks was closed In ground	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Estimated date last used (mo./day/year)					
Date tank closed (mo./day/year)					
Tank Filled with inert material (indicate material)					
Change in Service (no longer holds a regulated substance)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Site Assessment Completed and submitted to DEQ (circle one)	Select	Select	Select	Select	Select
Evidence of a leak detected (circle one)	Select	Select	Select	Select	Select
Release reported to DEQ	Select	Select	Select	Select	Select
Date release reported to DEQ					

**XII. CERTIFICATION OF COMPLIANCE**

(Complete for installation of all new tanks or for upgrading existing tanks at this location)

TANK IDENTIFICATION NUMBER	Tank No.	Tank No.	Tank No.	Tank No.	Tank No.					
<b>A. Installation (Mark all that apply)</b>										
Installer certified by tank and piping manufacturers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
Installer certified or licensed by a State	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
Installation is inspected by a registered engineer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
Installation inspected by DEQ	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
Manufacturer's installation checklists have been completed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>					
<b>B. Release Detection (Mark one)</b>										
	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping	Tank	Piping
Automatic Tank Gauging	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interstitial Monitoring Double Walled Tank/Piping	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Inventory Control/Manual Tank Gauging with Tank Tightness Testing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SIR	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Manual Tank Gauging (1,000 gal or less)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Vapor Monitoring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Groundwater Monitoring	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Mechanical Line Leak Detectors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electronic Line Leak Detectors	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Annual Line Tightness Testing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3-year Line Tightness Testing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other Method Allowed by Implementing agency:	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**C. Spill and Overfill Protection**

Overfill device installed	Select	Select	Select	Select	Select
Spill bucket installed	Select	Select	Select	Select	Select

Note: The installer must complete this section only if work on your underground storage tank system has taken place since December 22, 1988.

**OATH: I certify the information concerning installation is true to the best of my belief and knowledge.**

Installation Company \_\_\_\_\_

Address: \_\_\_\_\_

Installer Name \_\_\_\_\_

Phone \_\_\_\_\_

Signature \_\_\_\_\_

Date \_\_\_\_\_

# Appendix B

## Sampling and Analysis Plan Correspondence (CCN 228161)



<Steven.Heaton@deq.idaho.gov>  
08/09/2012 12:54 PM

To <kerry.nisson@inl.gov>, <Stacy.Short@deq.idaho.gov>  
cc  
bcc

Subject Re: CCN: 228161 PLN-4244-Sampling and Analysis Plan for Post Removal Soil Sampling at MFC Biodiesel Underground Storage Tank

History: This message has been replied to.

Thanks Kerry.

I have reviewed your attached Sampling and Analysis Plan for pending UST work at MFC. Please let this email serve as the Department's endorsement to execute the plan at your convenience.

Steve

Sent from my Verizon Wireless Device  
Kerry L Nisson wrote:

I inadvertently listed the CCN 288161 in the subject line, which is incorrect. The correct CCN is 228161.

Kerry L. Nisson  
Nuclear Operations Environmental Support - UST TPOC  
Office (208) 533-7102  
Cell (208) 569-4721  
email: kerry.nisson@inl.gov  
Mail Stop 6134

Kerry L Nisson/NISSK L/CC01/INEE L/US To Steve Heaton, Stacy Short, BEACC@inl.gov, ENVIRONMENTAL CORRESPONDENCE/ENVAFF/CC01/INEEL/US@INEL  
cc Timothy L Carlson/TCL/CC01/INEEL/US, James F Graham/JQG/CC01/INEEL/US, "Jason R Sturm" <STURMJR@ID.DOE.GOV>, Bradley K Griffith/GRI/FBK/CC01/INEEL/US, Mark R Cole/COLEMR/CC01/INEEL/US@INEL, Scott L Lyman/LYMASL/CC01/INEEL/US, Lucien E Frederick Jr/FREDLE/CC01/INEEL/US, Timothy A Miller/MILLTA/CC01/INEEL/US@INEL, Scott D McBride/MCBRS/CC01/INEEL/US@INEL, Carlo D Melbithess/MELBCD/CC01/INEEL/US@INEL, Alan E Carvo/CARVAE/CC01/INEEL/US, Tim A Solle/TSOLLE/CC01/INEEL/US, Lynne M Coe-Leavitt/COELEALM/CC01/INEEL/US  
08/08/2012 01:36 PM S CCN: 228161 PLN-4244-Sampling and Analysis Plan for Post Removal Soil Sampling at MFC Biodiesel Underground Storage Tank  
je ct

Steve/Stacy

Attached is a copy of PLN-4244-Sampling and Analysis Plan for Post Removal Soil Sampling at MFC Biodiesel Underground Storage Tank. This is the sampling plan that will be used during the removal of the Materials and Fuels Complex biodiesel tank.

Please review and respond back with any comments you may have. If you do not have any comments, please let me know.

If you have any questions, please contact me for resolution. My phone numbers are listed below.

Thanks

Kerry L. Nisson  
Nuclear Operations Environmental Support - UST TPOC  
Office (208) 533-7102  
Cell (208) 569-4721  
email: [kerry.nisson@inl.gov](mailto:kerry.nisson@inl.gov)  
Mail Stop 6134

## Plan

# Sampling and Analysis Plan for Post-Removal Soil Sampling at MFC Biodiesel Underground Storage Tank



The INL is a U.S. Department of Energy National Laboratory  
operated by Battelle Energy Alliance.

Idaho National Laboratory

<b>SAMPLING AND ANALYSIS PLAN FOR POST-REMOVAL SOIL SAMPLING AT MFC BIODIESEL UNDERGROUND STORAGE TANK</b>	Identifier: PLN-4244	Page: iii of iv
	Revision: 0	
	Effective Date: DRAFT	

MFC Biodiesel Tank Removal	Plan	eCR Number: 605284
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## CONTENTS

CONTENTS .....	iii
ACRONYMS .....	iv
1. INTRODUCTION .....	1
2. PROJECT DESCRIPTION .....	1
2.1 Background .....	1
2.2 Data Usage .....	2
2.2.1 Data Quality Objectives (DQOs) .....	2
2.2.2 Measurement Quality Objectives .....	2
2.3 Sample Collection and Documentation .....	3
2.4 Sampling Design and Procedures .....	4
2.5 Waste Handling .....	5
3. DATA QUALITY REQUIREMENTS AND ASSESSMENTS .....	5
3.1 Data Completeness and Representativeness .....	5
3.2 Quality Control Requirements .....	5
4. DOCUMENTATION .....	5
4.1 Sample Custody .....	5
4.2 Data Reporting .....	5
5. WASTE DISPOSAL .....	5
6. TRAINING .....	5
Appendix A .....	6

## FIGURES

Figure 1. Plan map of MFC parking lot and UST area .....	6
----------------------------------------------------------	---

## TABLES

Table 1. Residential use screening levels (IDAPA 58.01.24) .....	1
Table 2. Soil sample locations, bottle requirements, analysis, and preservation .....	4

Idaho National Laboratory

<b>SAMPLING AND ANALYSIS PLAN FOR POST-REMOVAL SOIL SAMPLING AT MFC BIODIESEL UNDERGROUND STORAGE TANK</b>	Identifier: PLN-4244	
	Revision: 0	
	Effective Date: DRAFT	Page: iv of iv

## ACRONYMS

AA	Alternative Actions
BEA	Battelle Energy Alliance
CFR	Code of Federal Regulations
COC	chain of custody
DQO	data quality objectives
GDE	Guide
IDAPA	Idaho Administrative Procedures Act
IH	industrial hygienist
INL	Idaho National Laboratory
LI	Laboratory Instructions
MCP	management control procedure
MFC	Materials and Fuels Complex
MQO	Measurement Quality Objective
MS/MSD	matrix spike/matrix spike duplicate
QA	quality assurance
QC	quality control
RCRA	Resource Conservation Recovery Act
RCT	radiological control technician
SAP	Sampling and Analysis Plan
TCLP	Toxicity Characteristic Leaching Procedure
UTS	underground storage tank
UTS	Universal Treatment Standards (from RCRA land disposal regulations)
WGS	Waste Generator Services

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<b>SAMPLING AND ANALYSIS PLAN FOR POST-REMOVAL SOIL SAMPLING AT MFC BIODIESEL UNDERGROUND STORAGE TANK</b>	Identifier: PLN-4244	Page: 1 of 6
	Revision: 0	
	Effective Date: DRAFT	

## 1. INTRODUCTION

This plan was prepared in response to a request from Kerry Nisson for confirmatory soil sampling and analysis after permanent removal of MFC biodiesel underground storage tank (UTS) 99ANL00013. After the tank and any visibly-contaminated soil is removed, soil sampling will be performed to confirm that the soil meets the Table 2 Residential Use Screening Levels in IDAPA 58.01.24, Application of Risk Based Corrective Action at Petroleum Release Sites.

Tank 99ANL00013 is a 4000-gal underground storage tank containing biodiesel (the location is shown in Figure 1 in Appendix A). The tank probably held leaded gas in the 1980s and is known to have held unleaded gasoline in the 1980s and 1990s. The tank was converted from gasoline to diesel in 1992 and to biodiesel in November 2009. The tank is used by site personnel to fill government vehicles.

Samples will be collected using hand tools such as augers, scoops, and spoons.

The residential use screening levels for the soil after removal of Tank #99ANL00013 are listed in Table 1.

Table 1. Residential use screening levels (IDAPA 58.01.24).

Compound	Screening Level (mg/kg)
Benzene	0.025
Toluene	6.6
Ethylbenzene	0.25
Total Xylenes	27
Naphthalene	0.12
Methyl tert-butyl ether (MTBE)	0.08
Ethylene Dibromide (EDB)	0.0001
1,2-Dichloroethane	0.013
Acenaphthene	200
Anthracene	3200
Benz(a)anthracene	0.09
Benzo(a)pyrene	0.02
Benzo(b)fluoranthene	0.2
Benzo(k)fluoranthene	1.9
Chrysene	9.5
Fluoranthene	1400
Fluorene	240
Pyrene	1000

## 2. PROJECT DESCRIPTION

### 2.1 Background

This sampling effort must be able to show the remaining soil is in compliance with 40 CFR Sec. 280.72 "Assessing the Site at Closure or Change-In-Service," and Table 1&2 of IDAPA 58.01.24.800.02, "Residential Use Screening Levels." Namely, sampling and analysis must measure for the presence of a release where contamination is most likely to be present at the UST site.



Idaho National Laboratory

<b>SAMPLING AND ANALYSIS PLAN FOR POST-REMOVAL SOIL SAMPLING AT MFC BIODIESEL UNDERGROUND STORAGE TANK</b>	Identifier: PLN-4244	Page: 2 of 6
	Revision: 0	
	Effective Date: DRAFT	

## 2.2 Data Usage

The analytical results from the samples will be used to verify the remaining soils are within screening levels for residential use as defined in IDAPA 58.01.24.800.02.

### 2.2.1 Data Quality Objectives (DQOs)

The objective of this sampling activity is to obtain representative samples of soil from locations where contamination is most likely to be present at the UST site after its removal. The data quality objectives (DQO) process specifies objectives for collecting the data. Each of the following subsections corresponds to a step in the DQO process, and the output for each step is provided as appropriate.

#### 2.2.1.1 Decision Statement

The objective of this soil characterization activity is to answer the following principal study question: Are the concentrations of the constituents of concern in the soil within the screening levels in Table 2 of IDAPA 58.01.24.800.02?

The alternative actions to be taken based on resolution of the principal study question are:

1. If the concentrations do not exceed the residential use screening levels, a petition for site closure will be submitted.
2. If concentrations exceed residential use screening levels then other options will be needed for corrective action.

Combining the principal study question and alternative actions results in the following decision statement: Determine whether the soil in question meets the screening levels for residential use and petition for site closure; or it needs corrective action. If free product is observed in the excavation, it will be removed prior to confirmation sampling.

#### 2.2.1.2 Decision Inputs

The decision inputs come from the laboratory results from the collected samples.

#### 2.2.1.3 Study Boundaries

The study boundary for this Sampling and Analysis Plan (SAP) is the soil in the excavation after removal of the UST.

#### 2.2.1.4 Decision Rule

If concentrations in the soil do not exceed residential use screening levels in IDAPA 58.01.24.800.02 Table 2, then a petition for site closure will be submitted. If outside the ranges in IDAPA 58.01.24.800.02 Table 2, then corrective action will be required.

### 2.2.2 Measurement Quality Objectives

Measurement Quality Objectives (MQOs) are specifications for precision, accuracy, and completeness that measurements must meet to produce acceptable data.

The laboratory evaluates the accuracy of the analyses with an internal laboratory QA/QC program utilizing matrix spikes. The accuracy goals established by the laboratory will be considered acceptable for this project. The completeness goal for this project is 100% which means all samples will be collected and all analysis will be acceptable and contain no rejected data.

The required sample bottles, preservation, and holding times are listed in Table 2, "Soil sample locations, bottle requirements, analysis, and preservation."

Idaho National Laboratory

<b>SAMPLING AND ANALYSIS PLAN FOR POST-REMOVAL SOIL SAMPLING AT MFC BIODIESEL UNDERGROUND STORAGE TANK</b>	Identifier: PLN-4244	Page: 3 of 6
	Revision: 0	
	Effective Date: DRAFT	

### 2.3 Sample Collection and Documentation

Collection of the samples will be conducted using the work control process. Specifically, LI-328, "Idaho National Laboratory Miscellaneous Media Umbrella Sampling," will be used to identify the hazards and mitigations, training, and PPE. In the case of finding something unexpected while sampling (e.g., free product), personnel will institute "a stop work." LI-328 identifies key personnel who assess the hazards (e.g., IH). Collection of the samples, decontamination, shipment, labeling, and chain of custody, will follow MCP, LI, and/or guides (GDEs) as identified below.

- LWP-9101, "INL Procedure Usage"
- GDE-9103, "Conduct of Operations Guidance for Communications"
- MCP-8523, "Managing Hazardous and Nonhazardous Samples"
- LI-359, "Cleaning of Environmental Monitoring Services Sampling Equipment"
- LI-355, "Working in Environmental Monitoring Services Sample Preparation Areas (SPA)"
- LI-328, "Idaho National Laboratory Miscellaneous Media Umbrella Sampling."

Samples will be numbered using the prefix "BEA" followed by a unique six digit number. The sample numbers, labels and Chain of Custody (COC) forms will be generated in the SAP Application program by Environmental Site Services personnel. Field activities for this sampling event will be documented in the non-routine logbook INL-NR-007.

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**SAMPLING AND ANALYSIS PLAN FOR  
POST-REMOVAL SOIL SAMPLING AT  
MFC BIODIESEL UNDERGROUND  
STORAGE TANK**

Identifier: PLN-4244  
Revision: 0  
Effective Date: DRAFT

Page: 4 of 6

**2.4 Sampling Design and Procedures**

Table 2. Soil sample locations, bottle requirements, analysis, and preservation.

Sample location	Number	Analytes	Method	Bottle Volume/type	Preservative
Bottom: within two (2) feet below both ends of the UST	Two	Per IDAPA 58.01.24.800.02 1. BTEX, EDB, EDC, MTBE 2. PAH	1. SW-846 8021B 2. SW-846 8310	100 mL amber glass 100 mL/amber glass 100 mL/amber glass	4 C 4 C 4 C
Sidewall: samples taken at a point half the distance from the surface to the bottom of the UST excavation at opposite sides and ends	Four	Same	Same	Same	Same
Piping: for every 20 linear feet of pipe run	One	Same	Same	Same	Same
Piping: under every piping elbow or connector	One (line only has one elbow)	Same	Same	Same	Same

**NOTE:** The number of samples/intervals was determined based on guidance from the requestor who suggested using Soil Sampling from Indiana.gov Website (<http://www.in.gov/iden/5080.htm>). These grab samples should always be collected from the area most likely to be contaminated.

Idaho National Laboratory

<b>SAMPLING AND ANALYSIS PLAN FOR POST-REMOVAL SOIL SAMPLING AT MFC BIODIESEL UNDERGROUND STORAGE TANK</b>	Identifier: PLN-4244	Page: 5 of 6
	Revision: 0	
	Effective Date: DRAFT	

## 2.5 Waste Handling

All sampling derived waste will be handled according to instructions from Kerry Nisson.

## 3. DATA QUALITY REQUIREMENTS AND ASSESSMENTS

### 3.1 Data Completeness and Representativeness

All samples collected during this activity will be prepared and analyzed according to guidelines set forth in the laboratory contract. It is imperative that the designated laboratory performs the analysis using these techniques to ensure data quality, precision, accuracy, and completeness. All sample collecting, handling, and analytical protocols have been chosen so the results will be as representative as possible of the media and conditions being measured.

### 3.2 Quality Control Requirements

QC has been discussed in Section 2.

## 4. DOCUMENTATION

### 4.1 Sample Custody

Full chain of custody will be maintained at all times, as specified in MCP-8523, "Managing Hazardous and Nonhazardous Samples."

### 4.2 Data Reporting

All analytical results, COC, and QC measurements for each sample will be required from the laboratory with a turnaround time as contracted with the offsite laboratory. All data will be submitted to BEA with notification made to the Analytical Laboratory Contracting Lead: Peggy Scherbinske, BEA, via E-mail.

## 5. WASTE DISPOSAL

Any waste generated during sampling will be disposed of at the direction of Waste Generator Services (WGS). It is anticipated that discarded sampling equipment (decon towels, PPE) will be treated as industrial waste based upon previous similar sampling results.

## 6. TRAINING

Personal protective equipment (PPE) is called out in the project specific work order.

Minimum PPE to perform work activities involving handling of wastes includes; sturdy leather shoes above the ankle, safety glasses, and nitrile gloves. Any PPE different than or in addition to the minimum listed can be documented in the sample log notes.

Idaho National Laboratory

**SAMPLING AND ANALYSIS PLAN FOR  
POST-REMOVAL SOIL SAMPLING AT  
MFC BIODIESEL UNDERGROUND  
STORAGE TANK**

Identifier: PLN-4244

Revision: 0

Effective Date: DRAFT

Page: 6 of 6

### Appendix A

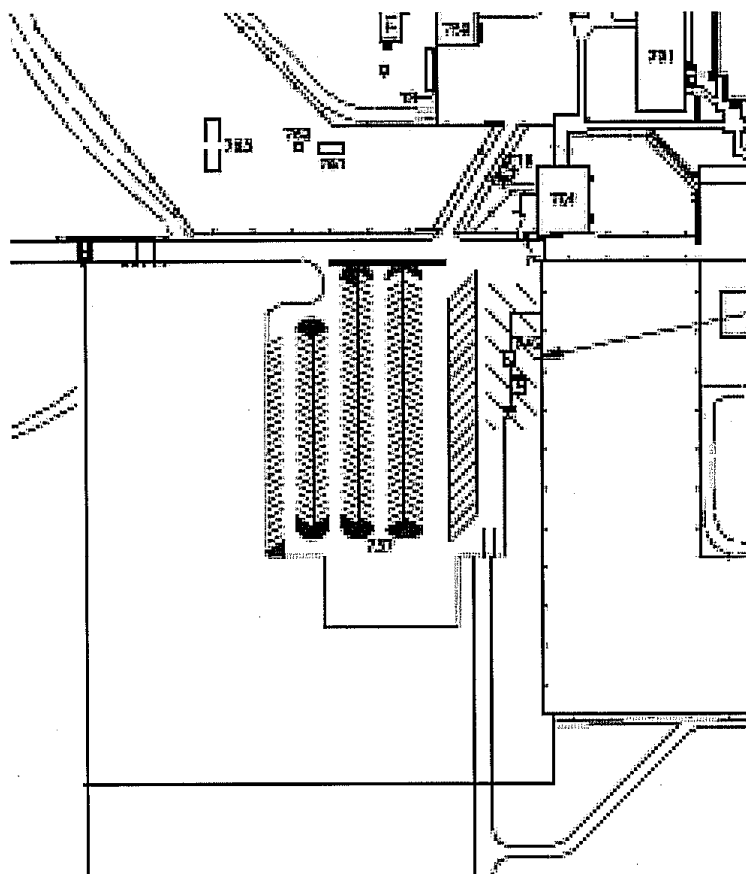


Figure 1. Plan map of MFC parking lot and UST area.

# Appendix C

## Notification of Underground Storage Tank Removal Correspondence (CCN 228291)

Idaho National Laboratory Mail - CCN: 228291 Notification for underground storage tank removal at the... Page 1 of 1



Nisson, Kerry L <kerry.nisson@inl.gov>

---

### CCN: 228291 Notification for underground storage tank removal at the INL MFC

1 message

---

Nisson, Kerry L <kerry.nisson@inl.gov>

Mon, Aug 27, 2012 at 9:58 AM

To: ENVIRONMENTAL CORRESPONDENCE ServiceID <envaff@inl.gov>, Timothy L Carlson <timothy.carlson@inl.gov>, James F Graham <James.Graham@inl.gov>, Timothy A Miller <Timothy.Miller@inl.gov>, Scott L Lyman <Scott.Lyman@inl.gov>, Lucien E Frederick Jr <Lucien.Frederick@inl.gov>

Cc: Bradley K Griffith <Bradley.Griffith@inl.gov>, Jason Sturm <STURMJR@id.doe.gov>, Jo A Stenzel <jo.stenzel@inl.gov>, Alan E Carvo <Alan.Carvo@inl.gov>, Lynne M Coe-Leavitt <Lynne.Coe-Leavitt@inl.gov>, Tim A Solle <Tim.Solle@inl.gov>, Tom Haney <tom.haney@inl.gov>, Carlo D Melbihess <carlo.melbihess@inl.gov>, Reva A Nickelson <reva.nickelson@inl.gov>

On August 27, 2012 at 09:13, a conference call was placed to Steve Heaton (DEQ), by Jason Sturm (DOE-ID) and myself. The purpose of the call was to notify DEQ that the UST tank removal at MFC would begin this week, and to identify if DEQ wanted to perform any inspection. This call is a follow-up to the required 30-day notification of intent to close an underground storage tank (ref. CCN 227777) that was sent to DEQ on July 9, 2012.

Steve stated that DEQ did not plan to visit the INL during the UST removal and to keep him informed as the project progressed. I stated that DEQ would be notified if there were any evidence of tank leakage during the removal.

Jason also questioned if DEQ wanted to inspect the completed line replacements. Steve stated that DEQ wasn't planning to inspect and would just want to review the paperwork for the replaced lines.

--  
Kerry L. Nisson  
Nuclear Operations Environmental Support - UST TPOC  
Office (208) 533-7102  
Cell (208) 569-4721  
email: kerry.nisson@inl.gov  
Mail Stop 6134

# Appendix D

## Sample Analytical Report #1



September 19, 2012

Ms. Peggy Scherbinske  
Battelle Energy Alliance  
2526 N. Fremont Ave.  
Idaho Falls, ID 83415-6194

Re: ALS Workorder: 12-09-154  
Project Name: MFC Biodiesel Tank Removal, TOS-A1175  
Project Number: BEA030488

Dear Ms. Scherbinske:

Twelve soil samples were received from Battelle Energy Alliance on September 12, 2012. The samples were scheduled for the following analysis:

GC/MS Volatiles Pages 1-36  
GC/MS Semivolatiles Pages 1-33

The results for this analysis are contained in the enclosed report.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

ALS Environmental  
Jeff Kujawa  
Project Manager

JRK/jmh  
Enclosure (s): Report

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 | PHONE +1 970 490 1511 | FAX +1 970 490 1522

ALS GROUP USA, CORP. Part of the ALS Laboratory Group A Campbell Brothers Limited Company



[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

Accreditation Body	License or Certification Number
Washington	C1280
Utah	CO00078
Arizona	AZ0742
Alaska	UST-086
Alaska	CO00078
Florida	E87914
Missouri	175
North Dakota	R-057
New Jersey	CO003
Nevada	CO000782008A
California	06251CA
Kansas	E-10381
Maryland	285
Pennsylvania	68-03116
Texas	T104704241-09-1
Colorado	CO00078
Connecticut	PH-0232
Idaho	CO00078
Tennessee	2978
Kentucky	90137
L-A-B (DoD ELAP/ISO 17025)	L2257





## GC/MS Semivolatiles SIMPAH Case Narrative

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### **Battelle Energy Alliance**

MFC Biodiesel Tank Removal, TOS-A1175 -- BEA030488

Work Order Number: 1209154

1. This report consists of 6 soil samples. The samples were received cool and intact by ALS on 09/12/12.
2. These samples were prepared and analyzed according to SW-846, 3rd Edition procedures. Specifically, the soil samples were extracted using soxhlet procedures according to SW-846 Method 3540C utilizing the current revision of SOP 625.
3. The extracts were analyzed using GC/MS with a DB-5MS capillary column according to the current revision of SOP 506 based on SW-846 Method 8270D. The samples were analyzed using selective ion monitoring (SIM), in order to achieve lower reporting limits. All positive results were quantitated against the initial calibration standards using the internal standard technique. The identification of positive results was achieved by a comparison of the retention time and a limited number of major ions from the mass spectrum of the sample versus the daily calibration standard.
4. All initial calibration criteria were met. If average response factors were used in the initial calibration, %RSD was  $\leq 20\%$ . If linear or higher order regression calibrations were used in the initial calibration, the coefficient of determination ( $r^2$ )  $\geq 0.99$ .
5. All initial calibration standards are verified by comparing a second source standard initial calibration verification (ICV) against the calibration curve. All target compounds in the second source verification had a %D  $\leq 30\%$ .
6. All method blank criteria were met.
7. All laboratory control sample and laboratory control sample duplicate recoveries and RPDs were within the acceptance criteria.

1 of 33



8. Sample 1209154-8 was designated as the quality control sample for this analysis. Similarity of matrix and therefore relevance of the QC results should not be automatically inferred for any sample other than the native sample selected for QC.

All matrix spike and matrix spike duplicate recoveries and RPDs were within acceptance criteria with the following exceptions:

Spiked Compound	QC Sample	Direction
Pyrene	MS/MSD	RPD
Benzo(b)fluoranthene	MS/MSD	RPD

The recoveries of these compounds in the laboratory control sample and laboratory control sample duplicate were within control limits, which suggest the outliers in the matrix spikes may have been due to matrix effects, so no further action was taken.

9. The samples were extracted and analyzed within the established holding times.
10. All surrogate recoveries were within acceptance criteria.
11. All internal standard recoveries were within acceptance criteria.
12. Sample 1209154-6 was analyzed at dilution to bring target analytes in to calibration range. The reporting limits have been adjusted accordingly.
13. Manual integrations are performed when needed to provide consistent and defensible data following the guidelines in the current revision of SOP 939.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

  
Emily Lyons  
Organics Primary Data Reviewer

9-19-12  
Date

  
Joe Kottel  
Organics Final Data Reviewer

September 19, 2012  
Date



*ALS  
Data Qualifier Flags  
Chromatography and Mass Spectrometry*

- U or ND:** This flag indicates that the compound was analyzed for but not detected.
- J:** This flag indicates an estimated value. This flag is used as follows: (1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; (2) when the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the result is less than the reporting limit (RL) but greater than the method detection limit (MDL); (3) when the retention time data indicate the presence of a compound that meets the GC identification criteria, and the result is less than the RL but greater than the MDL; and (4) the reported value is estimated.
- B:** This flag is used when the analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user. This flag shall be used for a tentatively identified compound (TIC) as well as for a positively identified target compound.
- E:** This flag identifies compounds whose concentration exceeds the upper level of the calibration range.
- A:** This flag indicates that a tentatively identified compound is a suspected aldol-condensation product.
- X:** This flag indicates that the analyte was diluted below an accurate quantitation level.
- \*:** This flag indicates that a spike recovery is equal to or outside the control criteria used.
- +:** This flag indicates that the relative percent difference (RPD) equals or exceeds the control criteria.



## Chain of Custody

# ALS Environmental -- FC

## Sample Number(s) Cross-Reference Table

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OrderNum: 1209154  
Client Name: Battelle Energy Alliance  
Client Project Name: MFC Biodiesel Tank Removal ,TOS-A1175  
Client Project Number: BEA030488  
Client PO Number: SOW-8500

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Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
BEA030488_MFC	1209154-1		SOIL	10-Sep-12	14:36
BEA030489_MFC	1209154-2		SOIL	10-Sep-12	14:36
BEA030490_MFC	1209154-3		SOIL	10-Sep-12	14:22
BEA030491_MFC	1209154-4		SOIL	10-Sep-12	14:22
BEA030492_MFC	1209154-5		SOIL	10-Sep-12	13:41
BEA030493_MFC	1209154-6		SOIL	10-Sep-12	13:41
BEA030494_MFC	1209154-7		SOIL	10-Sep-12	13:55
BEA030495_MFC	1209154-8		SOIL	10-Sep-12	13:55
BEA030496_MFC	1209154-9		SOIL	10-Sep-12	14:44
BEA030497_MFC	1209154-10		SOIL	10-Sep-12	14:44
BEA030498_MFC	1209154-11		SOIL	10-Sep-12	14:28
BEA030499_MFC	1209154-12		SOIL	10-Sep-12	14:28



Chain of Custody Number : 5300 9533 5010

1209154

Laboratory: ALS Laboratory Group  
Facility:  
Contact: Jeff Kujawa  
Phone: 970-490-1511

Address:  
225 Commerce Drive  
Fort Collins CO 80524

INL Contact: Peggy Scherbinske Phone: 533-7144

Sample Number	Sample Details
BEA030488_MFC 1	Location: MFC (MFC) Analysis: BTEX, EDB, EDC, MTBE \ IVOA-A-018 \ Sample Date: 9/10/2012 2:36:00 PM Contract: TOS-A1175 Hold Time: Matrix: SOIL Container Qty - Type: 1 - 4 oz amber glass Filtered?: N Preservative: cool, no headspace
BEA030489_MFC 2	Location: MFC (MFC) Analysis: PAH \ ISVO-A-014 \ Sample Date: 9/10/2012 2:36:00 PM Contract: TOS-A1175 Hold Time: Matrix: SOIL Container Qty - Type: 1 - 4 oz amber glass Filtered?: N Preservative: cool, no head space
BEA030490_MFC 3	Location: MFC (MFC) Analysis: PAH \ ISVO-A-014 \ Sample Date: 9/10/2012 2:22:00 PM Contract: TOS-A1175 Hold Time: Matrix: SOIL Container Qty - Type: 1 - 4 oz amber glass Filtered?: N Preservative: cool, no head space
BEA030491_MFC 4	Location: MFC (MFC) Analysis: BTEX, EDB, EDC, MTBE \ IVOA-A-018 \ Sample Date: 9/10/2012 2:22:00 PM Contract: TOS-A1175 Hold Time: Matrix: SOIL Container Qty - Type: 1 - 4 oz amber glass Filtered?: N Preservative: cool, no headspace
BEA030492_MFC 5	Location: MFC (MFC) Analysis: BTEX, EDB, EDC, MTBE \ IVOA-A-018 \ Sample Date: 9/10/2012 1:41:00 PM Contract: TOS-A1175 Hold Time: Matrix: SOIL Container Qty - Type: 1 - 4 oz amber glass Filtered?: N Preservative: cool, no headspace
BEA030493_MFC 6	Location: MFC (MFC) Analysis: PAH \ ISVO-A-014 \ Sample Date: 9/10/2012 1:41:00 PM Contract: TOS-A1175 Hold Time: Matrix: SOIL Container Qty - Type: 1 - 4 oz amber glass Filtered?: N Preservative: cool, no head space

BEA030494_MFC 7	<b>Location:</b> MFC (MFC) <b>Analysis:</b> PAH \ ISVO-A-014 \ <b>Sample Date:</b> 9/10/2012 1:55:00 PM <b>Contract:</b> TOS-A1175 <b>Hold Time:</b> <b>Matrix:</b> SOIL	<b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no head space
BEA030495_MFC 8	<b>Location:</b> MFC (MFC) <b>Analysis:</b> BTEX, EDB, EDC, MTBE \ IVOA-A-018 \ <b>Sample Date:</b> 9/10/2012 1:55:00 PM <b>Contract:</b> TOS-A1175 <b>Hold Time:</b> <b>Matrix:</b> SOIL	<b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no headspace
BEA030496_MFC 9	<b>Location:</b> MFC (MFC) <b>Analysis:</b> BTEX, EDB, EDC, MTBE \ IVOA-A-018 \ <b>Sample Date:</b> 9/10/2012 2:44:00 PM <b>Contract:</b> TOS-A1175 <b>Hold Time:</b> <b>Matrix:</b> SOIL	<b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no headspace
BEA030497_MFC 10	<b>Location:</b> MFC (MFC) <b>Analysis:</b> PAH \ ISVO-A-014 \ <b>Sample Date:</b> 9/10/2012 2:44:00 PM <b>Contract:</b> TOS-A1175 <b>Hold Time:</b> <b>Matrix:</b> SOIL	<b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no head space
BEA030498_MFC 11	<b>Location:</b> MFC (MFC) <b>Analysis:</b> PAH \ ISVO-A-014 \ <b>Sample Date:</b> 9/10/2012 2:28:00 PM <b>Contract:</b> TOS-A1175 <b>Hold Time:</b> <b>Matrix:</b> SOIL	<b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no head space
BEA030499_MFC 12	<b>Location:</b> MFC (MFC) <b>Analysis:</b> BTEX, EDB, EDC, MTBE \ IVOA-A-018 \ <b>Sample Date:</b> 9/10/2012 2:28:00 PM <b>Contract:</b> TOS-A1175 <b>Hold Time:</b> <b>Matrix:</b> SOIL	<b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no headspace

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
<i>Croft</i>	<i>9/11/12</i>	<i>1444</i>	<i>Quirk</i>	<i>9/12/12</i>	<i>1005</i>

Comments:





ALS Environmental - Fort Collins  
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: BEA Workorder No: 1209154

Project Manager: JK Initials: DKR Date: 9-12-12

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	NONE	<input checked="" type="radio"/> YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ___ < green pea ___ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ___ dusting ___ moderate ___ heavy	<input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		<input checked="" type="radio"/> YES	NO
17. Were cooler temperatures measured at 0, 1-6, 0°C? IR gun used* <input checked="" type="radio"/> #2 #4 RAD ONLY <input checked="" type="radio"/> YES		<input checked="" type="radio"/> YES	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>2.0</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>12</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO  NA Contact: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Project Manager Signature / Date: JK 9/13/12

Form 201r24.xls (06/04/2012)

\*IR Gun #2: Oakton, SN 29922500201-0066  
\*IR Gun #4: Oakton, SN 2372220101-0002

(208) 533-7482  
BATTELLE ENERGY ALLIANCE ON BEHALF  
OF THE U.S. DEPARTMENT OF ENERGY  
MATERIALS & FUELS COMPLEX-BLDG 781  
SCOVILLE, ID 83415  
UNITED STATES US

SHIP DATE 29AUG12  
ACTWGT: 45.6 LB MAN  
CAD: 0947638/CAFE2511  
DIMS: 20x17x15 IN  
BILL SENDER

TO JEFF KUJAWA  
ALS LABORATORY GROUP  
225 COMMERCE DRIVE  
FORT COLLINS CO 80524  
(970) 490-7511  
DEPT: R08

REF: 560120341 H530 22990

12  
2-  
20



FedEx  
TRK# 5300 9533 5010  
0201

WED - 12 SEP A2  
PRIORITY OVERNIGHT

XH FTCA

80524  
CO-US DEN



4637247 09/11 51561/0126/0044



## Analytical Results

# GC/MS Semi-volatiles

Method SW8270SIMP/PAHD

Method Blank

Lab Name: ALS Environmental – FC  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 Client/Project ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

Lab ID: EX120917-8MB	Sample Matrix: SOIL % Moisture: N/A Date Collected: N/A Date Extracted: 17-Sep-12 Date Analyzed: 18-Sep-12 Prep Method: SW3540 Rev C	Prep Batch: EX120917-8 QCBatchID: EX120917-8-1 Run ID: SV120918-4 Cleanup: NONE Basis: N/A File Name: S00437	Sample Aliquot: 30 g Final Volume: 1 ml Result Units: UG/KG Clean DF: 1
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CASNO	Target Analyte	DF	Result	Reporting Limit	Result Qualifier	EPA Qualifier
91-20-3	NAPHTHALENE	1	3.3	3.3	U	
208-98-8	ACENAPHTHYLENE	1	3.3	3.3	U	
83-32-9	ACENAPHTHENE	1	3.3	3.3	U	
86-73-7	FLUORENE	1	3.3	3.3	U	
85-01-8	PHENANTHRENE	1	3.3	3.3	U	
120-12-7	ANTHRACENE	1	3.3	3.3	U	
206-44-0	FLUORANTHENE	1	3.3	3.3	U	
129-00-0	PYRENE	1	3.3	3.3	U	
56-55-3	BENZO(A)ANTHRACENE	1	3.3	3.3	U	
218-01-9	CHRYSENE	1	3.3	3.3	U	
205-99-2	BENZO(B)FLUORANTHENE	1	3.3	3.3	U	
207-08-9	BENZO(K)FLUORANTHENE	1	3.3	3.3	U	
50-32-8	BENZO(A)PYRENE	1	3.3	3.3	U	
193-39-5	INDENO(1,2,3-CD)PYRENE	1	3.3	3.3	U	
53-70-3	DIBENZO(A,H)ANTHRACENE	1	3.3	3.3	U	
191-24-2	BENZO(G,H,I)PERYLENE	1	3.3	3.3	U	

## Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	55.1		66.7	83	41 - 106
4165-60-0	NITROBENZENE-D5	56.2		66.7	84	28 - 113
1718-51-0	TERPHENYL-D14	63.5		66.7	95	25 - 147

Data Package ID: SV1209154-1

Date Printed: Wednesday, September 19, 2012

ALS Environmental -- FC

Page 1 of 1

LIMS Version: 6.511

# GC/MS Semi-volatiles

Method SW8270SIMPAAH Revision D

## Sample Results

Lab Name: ALS Environmental – FC  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

Field ID: BEA030489\_MFC  
 Lab ID: 1209154-2

Sample Matrix: SOIL  
 % Moisture: 11.6  
 Date Collected: 10-Sep-12  
 Date Extracted: 17-Sep-12  
 Date Analyzed: 18-Sep-12  
 Prep Method: SW3540 Rev C

Prep Batch: EX120917-8  
 QCBatchID: EX120917-8-1  
 Run ID: SV120918-4  
 Cleanup: NONE  
 Basis: Dry Weight  
 File Name: S00441

Analyst: Joe Kostelnik  
 Sample Aliquot: 30.52 G  
 Final Volume: 1 ML  
 Result Units: UG/KG  
 Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
91-20-3	NAPHTHALENE	1	2	3.7	J	
208-96-8	ACENAPHTHYLENE	1	2.3	3.7	J	
83-32-9	ACENAPHTHENE	1	3.7	3.7	U	
86-73-7	FLUORENE	1	3.7	3.7	U	
85-01-8	PHENANTHRENE	1	1.6	3.7	J	
120-12-7	ANTHRACENE	1	1.7	3.7	J	
206-44-0	FLUORANTHENE	1	1.4	3.7	J	
129-00-0	PYRENE	1	2.2	3.7	J	
56-55-3	BENZO(A)ANTHRACENE	1	1.3	3.7	J	
218-01-9	CHRYSENE	1	3.7	3.7	U	
205-99-2	BENZO(B)FLUORANTHENE	1	2.7	3.7	J	
207-08-9	BENZO(K)FLUORANTHENE	1	3.7	3.7	U	
50-32-8	BENZO(A)PYRENE	1	2.3	3.7	J	
193-39-5	INDENO(1,2,3-CD)PYRENE	1	2.5	3.7	J	
53-70-3	DIBENZO(A,H)ANTHRACENE	1	3.7	3.7	U	
191-24-2	BENZO(G,H,I)PERYLENE	1	4.4	3.7		

### Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	54.6		74.2	74	41 - 106
4165-60-0	NITROBENZENE-D5	61.9		74.2	84	28 - 113
1718-51-0	TERPHENYL-D14	69.8		74.2	94	25 - 147

Data Package ID: SV1209154-1

# GC/MS Semi-volatiles

Method SW8270SIMPAH Revision D

## Sample Results

Lab Name: ALS Environmental – FC  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

Field ID: BEA030490\_MFC  
 Lab ID: 1209154-3

Sample Matrix: SOIL  
 % Moisture: 15.9  
 Date Collected: 10-Sep-12  
 Date Extracted: 17-Sep-12  
 Date Analyzed: 18-Sep-12  
 Prep Method: SW3540 Rev C

Prep Batch: EX120917-8  
 QCBatchID: EX120917-8-1  
 Run ID: SV120918-4  
 Cleanup: NONE  
 Basis: Dry Weight  
 File Name: S00440

Analyst: Joe Kostelnik  
 Sample Aliquot: 30.63 G  
 Final Volume: 1 ML  
 Result Units: UG/KG  
 Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
91-20-3	NAPHTHALENE	1	3.9	3.9	U	
208-96-8	ACENAPHTHYLENE	1	3.9	3.9	U	
83-32-9	ACENAPHTHENE	1	3.9	3.9	U	
86-73-7	FLUORENE	1	3.9	3.9	U	
85-01-8	PHENANTHRENE	1	3.9	3.9	U	
120-12-7	ANTHRACENE	1	3.9	3.9	U	
206-44-0	FLUORANTHENE	1	3.9	3.9	U	
129-00-0	PYRENE	1	3.9	3.9	U	
56-55-3	BENZO(A)ANTHRACENE	1	3.9	3.9	U	
218-01-9	CHRYSENE	1	3.9	3.9	U	
205-99-2	BENZO(B)FLUORANTHENE	1	3.9	3.9	U	
207-08-9	BENZO(K)FLUORANTHENE	1	3.9	3.9	U	
50-32-8	BENZO(A)PYRENE	1	3.9	3.9	U	
193-39-5	INDENO(1,2,3-CD)PYRENE	1	3.9	3.9	U	
53-70-3	DIBENZO(A,H)ANTHRACENE	1	3.9	3.9	U	
191-24-2	BENZO(G,H,I)PERYLENE	1	3.9	3.9	U	

### Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	60.8		77.7	78	41 - 106
4165-60-0	NITROBENZENE-D5	70.1		77.7	90	28 - 113
1718-51-0	TERPHENYL-D14	67.8		77.7	87	25 - 147

Data Package ID: SV1209154-1

# GC/MS Semi-volatiles

Method SW8270SIMPAAH Revision D

## Sample Results

Lab Name: ALS Environmental -- FC  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

Field ID: BEA030493_MFC
Lab ID: 1209154-6

Sample Matrix: SOIL	Prep Batch: EX120917-8	Analyst: Joe Kostelnik
% Moisture: 8.4	QCBatchID: EX120917-8-1	Sample Aliquot: 30.12 G
Date Collected: 10-Sep-12	Run ID: SV120918-4	Final Volume: 1 ML
Date Extracted: 17-Sep-12	Cleanup: NONE	Result Units: UG/KG
Date Analyzed: 18-Sep-12	Basis: Dry Weight	Clean DF: 1
Prep Method: SW3540 Rev C	File Name: S00446	

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
91-20-3	NAPHTHALENE	1	3.6	3.6	U	
208-96-8	ACENAPHTHYLENE	1	3.6	3.6	U	
83-32-9	ACENAPHTHENE	1	3.6	3.6	U	
86-73-7	FLUORENE	1	1.3	3.6	J	
85-01-8	PHENANTHRENE	1	31	3.6		
120-12-7	ANTHRACENE	1	10	3.6		
206-44-0	FLUORANTHENE	1	280	3.6	E	
129-00-0	PYRENE	1	170	3.6		
56-55-3	BENZO(A)ANTHRACENE	1	180	3.6	E	
218-01-9	CHRYSENE	1	190	3.6	E	
205-99-2	BENZO(B)FLUORANTHENE	1	330	3.6	E	
207-08-9	BENZO(K)FLUORANTHENE	1	130	3.6		
50-32-8	BENZO(A)PYRENE	1	240	3.6	E	
193-39-5	INDENO(1,2,3-CD)PYRENE	1	120	3.6		
53-70-3	DIBENZO(A,H)ANTHRACENE	1	35	3.6		
191-24-2	BENZO(G,H,I)PERYLENE	1	110	3.6		

### Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	55		72.5	76	41 - 106
4165-80-0	NITROBENZENE-D5	69.4		72.5	96	28 - 113
1718-51-0	TERPHENYL-D14	47.3		72.5	65	25 - 147

Data Package ID: SV1209154-1

Date Printed: Wednesday, September 19, 2012

ALS Environmental -- FC  
LMS Version: 6.611

Page 3 of 7

# GC/MS Semi-volatiles

Method SW8270SIMPAH Revision D

## Sample Results

Lab Name: ALS Environmental – FC  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

Field ID: BEA030494_MFC	Sample Matrix: SOIL	Prep Batch: EX120917-8	Analyst: Joe Kostelnik
Lab ID: 1209154-7	% Moisture: 12.2	QCBatchID: EX120917-8-1	Sample Aliquot: 30.86 G
	Date Collected: 10-Sep-12	Run ID: SV120918-4	Final Volume: 1 ML
	Date Extracted: 17-Sep-12	Cleanup: NONE	Result Units: UG/KG
	Date Analyzed: 18-Sep-12	Basis: Dry Weight	Clean DF: 1
	Prep Method: SW3540 Rev C	File Name: S00444	

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
91-20-3	NAPHTHALENE	1	3.7	3.7	U	
208-96-8	ACENAPHTHYLENE	1	3.7	3.7	U	
83-32-9	ACENAPHTHENE	1	3.7	3.7	U	
86-73-7	FLUORENE	1	3.7	3.7	U	
85-01-8	PHENANTHRENE	1	3.7	3.7	J	
120-12-7	ANTHRACENE	1	3.7	3.7	U	
206-44-0	FLUORANTHENE	1	21	3.7		
129-00-0	PYRENE	1	16	3.7		
56-55-3	BENZO(A)ANTHRACENE	1	15	3.7		
218-01-9	CHRYSENE	1	18	3.7		
205-99-2	BENZO(B)FLUORANTHENE	1	24	3.7		
207-08-9	BENZO(K)FLUORANTHENE	1	12	3.7		
50-32-8	BENZO(A)PYRENE	1	19	3.7		
193-39-5	INDENO(1,2,3-CD)PYRENE	1	14	3.7		
53-70-3	DIBENZO(A,H)ANTHRACENE	1	4.1	3.7		
191-24-2	BENZO(G,H,I)PERYLENE	1	14	3.7		

### Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	55.9		73.8	76	41 - 106
4165-60-0	NITROBENZENE-D5	64		73.8	87	28 - 113
1718-51-0	TERPHENYL-D14	56.5		73.8	76	25 - 147

Data Package ID: SV1209154-1



**Method SW8270SIMPAH Revision D  
Sample Results**

Lab Name: ALS Environmental -- FC  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 Client/Project ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

Field ID: BEA030497_MFC	Sample Matrix: SOIL	Prep Batch: EX120917-8	Analyst: Joe Kostelnik
Lab ID: 1209154-10	% Moisture: 11.4	QCBatchID: EX120917-8-1	Sample Aliquot: 30.63 G
	Date Collected: 10-Sep-12	Run ID: SV120918-4	Final Volume: 1 ML
	Date Extracted: 17-Sep-12	Cleanup: NONE	Result Units: UG/KG
	Date Analyzed: 18-Sep-12	Basis: Dry Weight	Clean DF: 1
	Prep Method: SW3540 Rev C	File Name: S00447	

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
91-20-3	NAPHTHALENE	1	3.7	3.7	U	
208-96-8	ACENAPHTHYLENE	1	3.7	3.7	U	
83-32-9	ACENAPHTHENE	1	3.7	3.7	U	
86-73-7	FLUORENE	1	1.7	3.7	J	
85-01-8	PHENANTHRENE	1	10	3.7		
120-12-7	ANTHRACENE	1	3.1	3.7	J	
206-44-0	FLUORANTHENE	1	40	3.7		
129-00-0	PYRENE	1	30	3.7		
56-55-3	BENZO(A)ANTHRACENE	1	30	3.7		
218-01-9	CHRYSENE	1	35	3.7		
205-99-2	BENZO(B)FLUORANTHENE	1	56	3.7		
207-08-9	BENZO(K)FLUORANTHENE	1	22	3.7		
50-32-8	BENZO(A)PYRENE	1	40	3.7		
193-39-5	INDENO(1,2,3-CD)PYRENE	1	22	3.7		
53-70-3	DIBENZO(A,H)ANTHRACENE	1	6.4	3.7		
191-24-2	BENZO(G,H,I)PERYLENE	1	21	3.7		

**Surrogate Recovery**

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	60.8		73.7	82	41 - 106
4165-80-0	NITROBENZENE-D5	77.1		73.7	105	28 - 113
1718-51-0	TERPHENYL-D14	55.1		73.7	75	25 - 147

Data Package ID: SV1209154-1

# GC/MS Semi-volatiles

Method SW8270SIMPAH Revision D

## Sample Results

Lab Name: ALS Environmental -- FC  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

Field ID: BEA030498\_MFC  
 Lab ID: 1209154-11

Sample Matrix: SOIL  
 % Moisture: 10.3  
 Date Collected: 10-Sep-12  
 Date Extracted: 17-Sep-12  
 Date Analyzed: 18-Sep-12  
 Prep Method: SW3540 Rev C

Prep Batch: EX120917-8  
 QCBatchID: EX120917-8-1  
 Run ID: SV120918-4  
 Cleanup: NONE  
 Basis: Dry Weight  
 File Name: S00445

Analyst: Joe Kostelnik  
 Sample Aliquot: 30.42 G  
 Final Volume: 1 ML  
 Result Units: UG/KG  
 Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
91-20-3	NAPHTHALENE	1	3.7	3.7	U	
208-96-8	ACENAPHTHYLENE	1	3.7	3.7	U	
83-32-9	ACENAPHTHENE	1	3.7	3.7	U	
86-73-7	FLUORENE	1	3.7	3.7	U	
85-01-8	PHENANTHRENE	1	17	3.7		
120-12-7	ANTHRACENE	1	6.1	3.7		
206-44-0	FLUORANTHENE	1	140	3.7		
129-00-0	PYRENE	1	85	3.7		
56-55-3	BENZO(A)ANTHRACENE	1	94	3.7		
218-01-9	CHRYSENE	1	96	3.7		
205-99-2	BENZO(B)FLUORANTHENE	1	150	3.7		
207-08-9	BENZO(K)FLUORANTHENE	1	57	3.7		
50-32-8	BENZO(A)PYRENE	1	110	3.7		
193-39-5	INDENO(1,2,3-CD)PYRENE	1	66	3.7		
53-70-3	DIBENZO(A,H)ANTHRACENE	1	19	3.7		
191-24-2	BENZO(G,H,I)PERYLENE	1	63	3.7		

### Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	53.6		73.3	73	41 - 106
4165-80-0	NITROBENZENE-D5	61.2		73.3	83	28 - 113
1718-51-0	TERPHENYL-D14	46.3		73.3	63	25 - 147

Data Package ID: SV1209154-1

Date Printed: Wednesday, September 19, 2012

ALS Environmental -- FC  
 LIMS Version: 6.611

Page 6 of 7

Lab Name: ALS Environmental -- FC  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

Field ID: BEA030493_MFC	Sample Matrix: SOIL	Prep Batch: EX120917-8	Analyst: Joe Kostelnik
Lab ID: 1209154-6RR1	% Moisture: 8.4	QCBatchID: EX120917-8-1	Sample Aliquot: 30.12 G
	Date Collected: 10-Sep-12	Run ID: SV120918-4	Final Volume: 1 ML
	Date Extracted: 17-Sep-12	Cleanup: NONE	Result Units: UG/KG
	Date Analyzed: 18-Sep-12	Basis: Dry Weight	Clean DF: 1
	Prep Method: SW3540 Rev C	File Name: S00448	

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
91-20-3	NAPHTHALENE	3	11	11	U	
208-96-8	ACENAPHTHYLENE	3	11	11	U	
83-32-9	ACENAPHTHENE	3	11	11	U	
86-73-7	FLUORENE	3	11	11	U	
85-01-8	PHENANTHRENE	3	29	11		
120-12-7	ANTHRACENE	3	9.2	11	J	
206-44-0	FLUORANTHENE	3	220	11		
129-00-0	PYRENE	3	120	11		
56-55-3	BENZO(A)ANTHRACENE	3	130	11		
218-01-9	CHRYSENE	3	130	11		
205-99-2	BENZO(B)FLUORANTHENE	3	210	11		
207-08-9	BENZO(K)FLUORANTHENE	3	74	11		
50-32-8	BENZO(A)PYRENE	3	150	11		
193-39-5	INDENO(1,2,3-CD)PYRENE	3	94	11		
53-70-3	DIBENZO(A,H)ANTHRACENE	3	26	11		
191-24-2	BENZO(G,H,I)PERYLENE	3	89	11		

**Surrogate Recovery**

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	52.1		72.5	72	41 - 106
4165-80-0	NITROBENZENE-D5	65.5		72.5	90	28 - 113
1718-51-0	TERPHENYL-D14	35		72.5	48	25 - 147

Data Package ID: SV1209154-1



## Supporting QA/QC Data

## Surrogate Summary for GC/MS Semi-volatiles

Method SW8270SIMPAMD

Lab Name: ALS Environmental – FC  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

PrepBatchID: EX120917-8  
 QC Batch ID: EX120917-8-1  
 Date Extracted: 9/17/2012

Surrogate Compound	Control Limits	
	Lower	Upper
2,4,6-Tribromophenol		
2-Fluorobiphenyl	41	106
2-Fluorophenol		
Nitrobenzene-d5	28	113
Phenol-d5		
Terphenyl-d14	25	147

Lab ID	Client Sample ID	Date Collected	Date Received	246TB % Recovery	2FBP % Recovery	2FP % Recovery	ND5 % Recovery	PD5 % Recovery	TD14 % Recovery
EX120917-8MB	XXXXXXXX	NA	XXXXXXXX		83		84		95
EX120917-8LCS	XXXXXXXX	NA	XXXXXXXX		78		87		85
EX120917-8LCSD	XXXXXXXX	NA	XXXXXXXX		81		88		87
1209154-3	BEA030490_MFC	9/10/2012	9/12/2012		78		90		87
1209154-2	BEA030489_MFC	9/10/2012	9/12/2012		74		84		94
1209154-2MS	BEA030489_MFC	9/10/2012	9/12/2012		75		87		87
1209154-2MSD	BEA030489_MFC	9/10/2012	9/12/2012		70		85		74
1209154-7	BEA030494_MFC	9/10/2012	9/12/2012		76		87		76
1209154-11	BEA030498_MFC	9/10/2012	9/12/2012		73		83		63
1209154-6	BEA030493_MFC	9/10/2012	9/12/2012		76		96		65
1209154-10	BEA030497_MFC	9/10/2012	9/12/2012		82		105		75
1209154-6RR1	BEA030493_MFC	9/10/2012	9/12/2012		72		90		48

Data Package ID: SV1209154-1

Date Printed: Wednesday, September 19, 2012  
 Shaded values exceed established control limits.

ALS Environmental – FC  
 LIMS Version: 6.611

Page 1 of 1

21 of 33

# GC/MS Semi-volatiles

Method SW8270SIMPAD

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS Environmental – FC

Work Order Number: 1209154

Client Name: Battelle Energy Alliance

ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

Lab ID: EX120917-8LCS	Sample Matrix: SOIL % Moisture: N/A Date Collected: N/A Date Extracted: 09/17/2012 Date Analyzed: 09/18/2012 Prep Method: SW3540C	Prep Batch: EX120917-8 QCBatchID: EX120917-8-1 Run ID: SV120918-4 Cleanup: NONE Basis: N/A File Name: S00438	Sample Aliquot: 30 g Final Volume: 1 ml Result Units: UG/KG Clean DF: 1
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CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
91-20-3	NAPHTHALENE	66.7	55.6	3.33		83	40 - 107%
208-98-8	ACENAPHTHYLENE	66.7	54.6	3.33		82	44 - 107%
83-32-9	ACENAPHTHENE	66.7	54.4	3.33		82	46 - 108%
86-73-7	FLUORENE	66.7	54.5	3.33		82	49 - 108%
85-01-8	PHENANTHRENE	66.7	54.2	3.33		81	50 - 110%
120-12-7	ANTHRACENE	66.7	54.1	3.33		81	53 - 107%
206-44-0	FLUORANTHENE	66.7	53.1	3.33		80	54 - 114%
129-00-0	PYRENE	66.7	51.9	3.33		78	46 - 123%
56-55-3	BENZO(A)ANTHRACENE	66.7	52.7	3.33		79	52 - 111%
218-01-9	CHRYSENE	66.7	54.5	3.33		82	53 - 112%
205-99-2	BENZO(B)FLUORANTHENE	66.7	55.5	3.33		83	45 - 114%
207-08-9	BENZO(K)FLUORANTHENE	66.7	60.7	3.33		91	45 - 123%
50-32-8	BENZO(A)PYRENE	66.7	56.8	3.33		85	50 - 111%
193-39-5	INDENO(1,2,3-CD)PYRENE	66.7	59	3.33		89	38 - 121%
53-70-3	DIBENZO(A,H)ANTHRACENE	66.7	59.2	3.33		89	41 - 125%
191-24-2	BENZO(G,H,I)PERYLENE	66.7	57.7	3.33		87	38 - 126%

Data Package ID: SV1209154-1

Date Printed: Wednesday, September 19, 2012

ALS Environmental -- FC

Page 1 of 2

LIMS Version: 6.611

# GC/MS Semi-volatiles

## Method SW8270SIMPAMD

### Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS Environmental – FC  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

Lab ID: EX120917-8LCSD	Sample Matrix: SOIL % Moisture: N/A Date Collected: N/A Date Extracted: 09/17/2012 Date Analyzed: 09/18/2012 Prep Method: SW3540C	Prep Batch: EX120917-8 QCBatchID: EX120917-8-1 Run ID: SV120918-4 Cleanup: NONE Basis: N/A File Name: S00439	Sample Aliquot: 30 g Final Volume: 1 ml Result Units: UG/KG Clean DF: 1
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CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
91-20-3	NAPHTHALENE	66.7	55.1	3.33		83	30	1
208-96-8	ACENAPHTHYLENE	66.7	54.4	3.33		82	30	0
83-32-9	ACENAPHTHENE	66.7	55	3.33		83	30	1
86-73-7	FLUORENE	66.7	55.5	3.33		83	30	2
85-01-8	PHENANTHRENE	66.7	54	3.33		81	30	0
120-12-7	ANTHRACENE	66.7	54.9	3.33		82	30	1
208-44-0	FLUORANTHENE	66.7	53.6	3.33		80	30	1
129-00-0	PYRENE	66.7	52.5	3.33		79	30	1
56-55-3	BENZO(A)ANTHRACENE	66.7	52.8	3.33		79	30	0
218-01-9	CHRYSENE	66.7	55.2	3.33		83	30	1
205-99-2	BENZO(B)FLUORANTHENE	66.7	58.4	3.33		88	30	5
207-08-9	BENZO(K)FLUORANTHENE	66.7	59.5	3.33		89	30	2
50-32-8	BENZO(A)PYRENE	66.7	57.2	3.33		86	30	1
193-39-5	INDENO(1,2,3-CD)PYRENE	66.7	58.7	3.33		88	30	0
53-70-3	DIBENZO(A,H)ANTHRACENE	66.7	59.2	3.33		89	30	0
191-24-2	BENZO(G,H,I)PERYLENE	66.7	56.9	3.33		85	30	1

### Surrogate Recovery LCS/LCSD

CASNO	Target Analyte	Spike Added	LCS % Rec.	LCS Flag	LCSD % Rec.	LCSD Flag	Control Limits
321-60-8	2-FLUOROBIPHENYL	66.7	78		81		41 - 106
4165-60-0	NITROBENZENE-D5	66.7	87		88		28 - 113
1718-51-0	TERPHENYL-D14	66.7	85		87		25 - 147

Data Package ID: SV1209154-1

Date Printed: Wednesday, September 19, 2012

ALS Environmental -- FC

Page 2 of 2

LIMS Version: 6.611

### Matrix Spike And Matrix Spike Duplicate

**Lab Name:** ALS Environmental -- FC  
**Work Order Number:** 1209154  
**Client Name:** Battelle Energy Alliance  
**ClientProject ID:** MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

Field ID: BEA030489_MFC LabID: 1209154-2MS	<b>Sample Matrix:</b> SOIL % Moisture: 11.6 Date Collected: 10-Sep-12 Date Extracted: 17-Sep-12 Date Analyzed: 18-Sep-12 Prep Method: SW3540 Rev C	<b>Prep Batch:</b> EX120917-8 QCBatchID: EX120917-8-1 Run ID: SV120918-4 Cleanup: NONE Basis: DryWeight	<b>Sample Aliquot:</b> 30.48 g Final Volume: 1 ml Result Units: UG/KG File Name: S00442
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CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
91-20-3	NAPHTHALENE	2	J	58.8		3.71	74.3	76	40 - 107%
208-96-8	ACENAPHTHYLENE	2.3	J	64.3		3.71	74.3	83	44 - 107%
83-32-9	ACENAPHTHENE	3.7	U	55.9		3.71	74.3	75	46 - 108%
86-73-7	FLUORENE	3.7	U	66.8		3.71	74.3	90	49 - 108%
85-01-8	PHENANTHRENE	1.8	J	65.6		3.71	74.3	86	50 - 110%
120-12-7	ANTHRACENE	1.7	J	63.2		3.71	74.3	83	53 - 107%
206-44-0	FLUORANTHENE	1.4	J	75.7		3.71	74.3	100	54 - 114%
129-00-0	PYRENE	2.2	J	75.3		3.71	74.3	99	46 - 123%
56-55-3	BENZO(A)ANTHRACENE	1.3	J	73.4		3.71	74.3	97	52 - 111%
218-01-9	CHRYSENE	3.7	U	75.2		3.71	74.3	101	53 - 112%
205-99-2	BENZO(B)FLUORANTHENE	2.7	J	83.4		3.71	74.3	109	45 - 114%
207-08-9	BENZO(K)FLUORANTHENE	3.7	U	72.6		3.71	74.3	98	45 - 123%
50-32-8	BENZO(A)PYRENE	2.3	J	80.6		3.71	74.3	106	50 - 111%
193-39-5	INDENO(1,2,3-CD)PYRENE	2.5	J	79.9		3.71	74.3	104	38 - 121%
53-70-3	DIBENZO(A,H)ANTHRACENE	3.7	U	76.4		3.71	74.3	103	41 - 125%
191-24-2	BENZO(G,H,I)PERYLENE	4.4		74.3		3.71	74.3	94	38 - 126%

Data Package ID: SV1209154-1

Date Printed: Wednesday, September 19, 2012

ALS Environmental -- FC

Page 1 of 2

LIMS Version: 6.511



**GC/MS Semi-volatiles**  
**Method SW8270SIMPAMD**  
**Matrix Spike And Matrix Spike Duplicate**

Lab Name: ALS Environmental -- FC  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

Field ID: BEA030489_MFC	Sample Matrix: SOIL	Prep Batch: EX120917-8	Sample Aliquot: 30.11 g
LabID: 1209154-2MSD	% Moisture: 11.6	QCBatchID: EX120917-8-1	Final Volume: 1 ml
	Date Collected: 10-Sep-12	Run ID: SV120918-4	Result Units: UG/KG
	Date Extracted: 17-Sep-12	Cleanup: NONE	File Name: S00443
	Date Analyzed: 18-Sep-12	Basis: Dry Weight	
	Prep Method: SW3540 Rev C		

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
91-20-3	NAPHTHALENE	56.7		75.2	73	3.76	30	3
208-96-8	ACENAPHTHYLENE	57.6		75.2	74	3.76	30	11
83-32-9	ACENAPHTHENE	51.6		75.2	69	3.76	30	8
86-73-7	FLUORENE	60.9		75.2	81	3.76	30	9
85-01-8	PHENANTHRENE	60.7		75.2	79	3.76	30	8
120-12-7	ANTHRACENE	61.2		75.2	79	3.76	30	3
208-44-0	FLUORANTHENE	62.4		75.2	81	3.76	30	19
129-00-0	PYRENE	55.1	+	75.2	70	3.76	30	31
56-55-3	BENZO(A)ANTHRACENE	60.1		75.2	78	3.76	30	20
218-01-9	CHRYSENE	60.3		75.2	80	3.76	30	22
205-99-2	BENZO(B)FLUORANTHENE	61	+	75.2	78	3.76	30	31
207-08-9	BENZO(K)FLUORANTHENE	61.7		75.2	82	3.76	30	16
50-32-8	BENZO(A)PYRENE	64.5		75.2	83	3.76	30	22
193-39-5	INDENO(1,2,3-CD)PYRENE	66.3		75.2	85	3.76	30	19
53-70-3	DIBENZO(A,H)ANTHRACENE	70		75.2	93	3.76	30	9
191-24-2	BENZO(G,H,I)PERYLENE	57.7		75.2	71	3.76	30	25

**Surrogate Recovery MS/MSD**

CASNO	Target Analyte	Spike Added	MS % Rec.	MS Flag	MSD % Rec.	MSD Flag	Control Limits
321-80-8	2-FLUOROBIPHENYL	74.3	75		70		41 - 106
4165-80-0	NITROBENZENE-D5	74.3	87		85		28 - 113
1718-51-0	TERPHENYL-D14	74.3	87		74		25 - 147

Data Package ID: SV1209154-1



# 5B

## Semi-Volatile Organic GC/MS Tuning And Mass Calibration--Decafluorotriphenylphosphine (DFTPP)

Lab Name: ALS Environmental – FC  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 Client/Project ID: BEA030488MFC Biodiesel Tank Removal ,TOS-A1175

DFTPP Injection Date: 9/18/2012  
 DFTPP Injection Time: 11:43  
 Instrument ID: HPSV4  
 Reported on: Wednesday, September 19, 2012

FileID: S00428

m/e	Ion Abundance Criteria SW8270SIMPAMD	% Relative Abundance
51	30.0 - 60.0 percent of mass 198	45.1
68	Less than 2.0 percent of mass 69	0
69	Mass 69 relative abundance of mass 198	46.9
70	Less than 2.0 percent of mass 69	0.5
127	40.0 - 60.0 percent of mass 198	51.5
197	Less than 1.0 percent of mass 198	0
198	Base peak, 100 percent of relative abundance	100
199	5.0 - 9.0 percent of mass 198	6.7
275	10.0 - 30.0 percent of mass 198	25.8
365	Greater than 1.00 percent of mass 198	2.8
441	Present, but less than mass 443 (percent of 443)	82.4
442	Greater than 40.0 percent of mass 198	82.6
443	17.0 - 23.0 percent of mass 442	19.3

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS, AND STANDARDS:

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	QC BatchID
XXXXXXXX	ICALSVSTD0500CSTD	S00429	9/18/2012	11:54	SV120918-4
XXXXXXXX	ICALSVSTD0050CSTD	S00430	9/18/2012	12:13	SV120918-4
XXXXXXXX	ICALSVSTD0100CSTD	S00431	9/18/2012	12:32	SV120918-4
XXXXXXXX	ICALSVSTD0200CSTD	S00432	9/18/2012	12:52	SV120918-4
XXXXXXXX	ICALSVSTD1000CSTD	S00433	9/18/2012	13:11	SV120918-4
XXXXXXXX	ICALSVSTD2000CSTD	S00434	9/18/2012	13:30	SV120918-4
XXXXXXXX	ICALSVSTD5000CSTD	S00435	9/18/2012	13:49	SV120918-4
XXXXXXXX	ICVSVSTD2000ICV	S00436	9/18/2012	14:08	SV120918-4
XXXXXXXX	EX120917-8MB	S00437	9/18/2012	14:38	EX120917-8-1
XXXXXXXX	EX120917-8LCS	S00438	9/18/2012	14:57	EX120917-8-1
XXXXXXXX	EX120917-8LCSD	S00439	9/18/2012	15:17	EX120917-8-1
BEA030490_MFC	1209154-3	S00440	9/18/2012	15:41	EX120917-8-1
BEA030489_MFC	1209154-2	S00441	9/18/2012	16:01	EX120917-8-1

Data Package ID: SV1209154-1

# 5B

## Semi-Volatile Organic GC/MS Tuning And Mass Calibration--Decafluorotriphenylphosphine (DFTPP)

Lab Name: **ALS Environmental – FC**  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: BEA030488MFC Biodiesel Tank Removal ,TOS-A1175

DFTPP Injection Date: 9/18/2012  
 DFTPP Injection Time: 11:43  
 Instrument ID: HPSV4  
 Reported on: Wednesday, September 19, 2012

FileID: S00428

m/e	Ion Abundance Criteria SW8270SIMPAMD	% Relative Abundance
51	30.0 - 80.0 percent of mass 198	45.1
68	Less than 2.0 percent of mass 69	0
69	Mass 69 relative abundance of mass 198	46.9
70	Less than 2.0 percent of mass 69	0.5
127	40.0 - 80.0 percent of mass 198	51.5
197	Less than 1.0 percent of mass 198	0
198	Base peak, 100 percent of relative abundance	100
199	5.0 - 9.0 percent of mass 198	6.7
275	10.0 - 30.0 percent of mass 198	25.8
365	Greater than 1.00 percent of mass 198	2.8
441	Present, but less than mass 443 (percent of 443)	82.4
442	Greater than 40.0 percent of mass 198	82.6
443	17.0 - 23.0 percent of mass 442	19.3

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS, AND STANDARDS:

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	QC BatchID
BEA030489_MFC	1209154-2MS	S00442	9/18/2012	16:20	EX120917-8-1
BEA030489_MFC	1209154-2MSD	S00443	9/18/2012	16:39	EX120917-8-1
BEA030494_MFC	1209154-7	S00444	9/18/2012	16:58	EX120917-8-1
BEA030498_MFC	1209154-11	S00445	9/18/2012	17:17	EX120917-8-1
BEA030493_MFC	1209154-6	S00446	9/18/2012	17:36	EX120917-8-1
BEA030497_MFC	1209154-10	S00447	9/18/2012	17:56	EX120917-8-1
BEA030493_MFC	1209154-6RR1	S00448	9/18/2012	18:15	EX120917-8-1

Data Package ID: SV1209154-1

	800425.D	800434.D	800433.D	800428.D	800432.D	800431.D	800436.D							
	500	200	100	10	20	10	10	Average	10000					
				RE						Cave type	Corr (C)	quad letter	linear form	const form
Naphthalene-d8	0.208	0.128	0.110	0.108	0.116	0.107	0.117	0.115	4.517	Arg RP	na			
Naphthalene-d8	1.042	1.488	1.844	1.008	1.026	1.057	1.072	1.056	2.152	Arg RP	na			
2-Methyl-naphthalene	0.628	0.643	0.594	0.633	0.642	0.632	0.653	0.642	1.366	Arg RP	na			
1-Methyl-naphthalene	0.628	0.619	0.630	0.614	0.626	0.607	0.635	0.625	1.917	Arg RP	na			
Acenaphthene-d10														
2-Fluorenylmethyl	1.456	1.464	1.430	1.395	1.415	1.405	1.444	1.423	2.228	Arg RP	na			
Acenaphthylene	1.811	1.737	1.757	1.700	1.738	1.765	1.768	1.757	1.279	Arg RP	na			
Acenaphthene	1.056	1.628	1.854	1.043	1.029	1.080	1.118	1.060	3.089	Arg RP	na			
Fluorene	1.194	1.145	1.178	1.151	1.177	1.170	1.260	1.188	4.799	Arg RP	na			
Fluoranthene-d10														
Fluoranthene	0.172	0.160	0.173	0.177	0.179	0.194	0.222	0.183	10.171	Arg RP	na			
Fluorenone	1.040	0.585	1.022	0.992	1.027	1.094	1.160	1.049	5.551	Arg RP	na			
Anthracene	1.034	0.580	1.002	0.992	1.028	1.055	1.080	1.022	4.932	Arg RP	na			
Fluoranthene	1.035	0.583	1.072	1.022	1.028	1.175	1.280	1.059	8.993	Arg RP	na			
Chrysene-d12														
Pyrene	1.316	1.360	1.334	1.357	1.369	1.448	1.584	1.453	3.328	Arg RP	na			
p-Terphenyl-d14	0.980	0.960	0.966	0.936	1.044	1.035	1.044	0.979	0.224	Arg RP	na			
Benzo[a]anthracene	1.829	1.005	1.024	1.020	1.055	1.179	1.200	1.087	9.770	Arg RP	na			
Chryseno	0.963	0.507	0.561	0.536	0.579	1.037	1.067	0.862	5.164	Arg RP	na			
Benzo[e]pyrene-d12														
Benzo[b]fluoranthene	1.327	1.216	1.279	1.232	1.289	1.347	1.496	1.309	3.360	Arg RP	na			
Benzo[k]fluoranthene	1.152	1.164	1.122	1.112	1.238	1.210	1.408	1.163	4.468	Arg RP	na			
Benzo[a]pyrene	1.542	1.200	1.018	1.012	1.027	1.079	1.192	1.047	4.514	Arg RP	na			
Indeno[1,2,3-cd]perylene	0.383	0.912	0.875	0.811	0.913	0.932	0.937	0.890	2.662	Arg RP	na			
Dibenz[a,h]anthracene	0.222	0.734	0.697	0.708	0.719	0.728	0.742	0.717	2.016	Arg RP	na			
Benzo[ghi]perylene	0.773	0.779	0.777	0.826	0.823	0.828	0.882	0.812	4.027	Arg RP	na			
								AVERAGE=	4.067					

OK  
9-19-11

FORM 7  
Continuing Calibration Verification Report

METHOD: FORM7 ICV

METHOD: 091812S04.M

RUN DATE: 01/18/2012 14:08

		Compound	AVG RF	CCRF	Exact Conc	Found Conc	% Dev or % Diff	Area % Difference	R.T. Dev (min)	Curve Fit Type
1)	ISTD	Naphthalene-d8	1.000	1.000					0.00	Ave RF
3)		Naphthalene	1.038	0.990			-7.8	460	0.00	Ave RF
4)		2-Methylnaphthalene	0.642	0.591			-8.0	453	0.00	Ave RF
5)		1-Methylnaphthalene	0.625	0.545			-12.7	431	0.00	Ave RF
6)	ISTD	Acenaphthene-d10	1.000	1.000					0.00	Ave RF
8)		Acenaphthylene	1.757	1.572			-10.5	451	0.00	Ave RF
9)		Acenaphthene	1.580	0.990			-10.3	445	0.00	Ave RF
10)		Fluorene	1.188	1.070			-9.9	465	0.00	Ave RF
11)	ISTD	Phenanthrene-d10	1.000	1.000					-0.01	Ave RF
12)		Hexachlorobenzene	0.193	0.190			-13.1	420	0.00	Ave RF
13)		Phenanthrene	1.040	0.919			-12.4	441	0.00	Ave RF
14)		Anthracene	1.022	0.901			-8.9	439	-0.01	Ave RF
15)		Fluoranthene	1.106	0.914			-17.4	398	0.00	Ave RF
16)	ISTD	Chrysene-d12	1.000	1.000					0.00	Ave RF
17)		Pyrene	1.455	1.254			-13.0	399	-0.01	Ave RF
19)		Benzo[a]anthracene	1.057	0.914			-15.0	387	0.00	Ave RF
20)		Chrysene	0.932	0.829			-15.0	392	0.00	Ave RF
21)	ISTD	Perylene-d12	1.000	1.000					0.00	Ave RF
22)		Benzo[b]fluoranthene	1.309	1.130			-13.7	381	0.00	Ave RF
23)		Benzo[k]fluoranthene	1.168	1.036			-11.2	371	0.00	Ave RF
24)		Benzo[e]pyrene	1.047	0.939			-11.3	381	0.00	Ave RF
25)		Indeno[1,2,3-cd]pyrene	0.910	0.878			-3.6	420	0.00	Ave RF
26)		Dibenz[a,h]anthracene	0.717	0.707			-1.4	418	0.00	Ave RF
27)		Benzo[g,h,i]perylene	0.812	0.781			-3.8	388	-0.01	Ave RF

Average of absolute value: 10.2

*Je*  
*9-18-12*

# 8B

## Semi-Volatile Internal Standard Area Summary

Lab Name: ALS Environmental – FC  
 Work Order Number: 1209154

Date Analyzed: 9/18/2012  
 Time Analyzed: 11:54

Client Name: Battelle Energy Alliance

ClientProject ID: BEA030488 MFC Biodiesel Tank Removal ,TOS-A1175

Reported on: Wednesday, September 19, 2012

Instrument ID: HPSV4  
 Lab File ID: S00429

	IS1		IS2		IS3		IS4		IS5		IS6	
	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT
12 Hour STD			663711	5.46	320471	7	455222	8.29	366097	10.61	238070	12.26
Upper Limit			1327422	5.96	640942	7.5	910444	8.79	732194	11.1	476140	12.8
Lower Limit			331856	4.96	180236	6.5	227611	7.79	183049	10.1	119035	11.8
Lab Sample ID												
EX120917-8MB			761285	5.46	360553	7.00	502621	8.29	374888	10.61	215323	12.25
EX120917-8LCS			844780	5.46	409464	7.00	580766	8.29	451967	10.61	267731	12.26
EX120917-8LCSD			875228	5.46	415221	7.00	602796	8.29	467762	10.61	270761	12.26
1209154-3			868120	5.46	421043	7.01	573427	8.30	408426	10.62	256486	12.28
1209154-2			945851	5.46	452767	7.01	561273	8.30	352897	10.61	215943	12.26
1209154-2MS			961130	5.47	505164	7.01	662984	8.30	502318	10.61	320076	12.26
1209154-2MSD			976219	5.46	504037	7.01	696484	8.30	595857	10.61	417970	12.26
1209154-7			930252	5.46	436394	7.00	624193	8.29	504627	10.61	367635	12.26
1209154-11			1017470	5.46	471365	7.00	620072	8.30	638213	10.61	449256	12.26
1209154-8			941908	5.46	440761	7.00	577514	8.29	597092	10.61	363068	12.26
1209154-10			929303	5.46	434067	7.00	550419	8.29	491494	10.61	323056	12.26
1209154-6RR1			959889	5.46	455237	7.00	591849	8.30	698989	10.61	452921	12.26

Shaded values exceed established area count limits.

LIMS Version: 6.511

Upper Limit = + 100 percent of internal standard area.

Lower Limit = - 50 percent of internal standard area.

31 of 33



## Supporting Raw Data



GCMS Semivolatle Instrument Run Log  
ALS Laboratory Group

Sequence Name: C:\msdchem\1\sequence\091812.s  
 Comment: GC/MS Semivolatiles SOP no. 506 rev:16  
 Data Path: C:\MSDCHEM\1\DATA\091812\  
 Operator:JK HPSV4 sp #: CV11451177  
 IS Amount and ID 40%Me ST120507-1  
 Logbook Number: 411

Analysis Date: September 18, 2012 9k

Line Type	Vial	Datafile Method	Sample Name	Dil.	RA?	Comment
1	DFTPP	DFTPP	DFTPP			ST120507-1
2	Sample	091812SIM4	ICALSVSTD0500			ST120507-1
3	Sample	091812SIM4	ICALSVSTD0050			ST120507-5
4	Sample	091812SIM4	ICALSVSTD0100			ST120507-6
5	Sample	091812SIM4	ICALSVSTD0200			ST120507-7
6	Sample	091812SIM4	ICALSVSTD1000			ST120507-8
7	Sample	091812SIM4	ICALSVSTD2000			ST120507-9
8	Sample	091812SIM4	ICALSVSTD5000			ST120507-10
9	Sample	091812SIM4	ICVSVSTD2000			ST120507-11
10	Sample	091812SIM4	EX120917-8MB			
11	Sample	091812SIM4	EX120917-8LCS			
12	Sample	091812SIM4	EX120917-8LCS			
13	Sample	091812SIM4	EX120917-8LCS			
14	Sample	091812SIM4	EX120917-8LCS			
15	Sample	091812SIM4	EX120917-8LCS			
16	Sample	091812SIM4	EX120917-8LCS			
17	Sample	091812SIM4	EX120917-8LCS			
18	Sample	091812SIM4	EX120917-8LCS			
19	Sample	091812SIM4	EX120917-8LCS			
20	Sample	091812SIM4	EX120917-8LCS			
21	Sample	091812SIM4	EX120917-8LCS			
22	Sample	091812SIM4	EX120917-8LCS			
						500448
						500446
						OK



## GC/MS Volatiles Case Narrative

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### **Battelle Energy Alliance**

MFC Biodiesel Tank Removal , TOS-A1175 -- BEA030488

Work Order Number: 1209154

1. This report consists of 6 soil samples. The samples were received cool and intact by ALS on 09/12/12.
2. These samples were prepared according to SW-846, 3rd Edition procedures. Specifically, the soil samples were prepared using a heated purge based on Method 5035A.
3. The samples were analyzed using GC/MS with an RTX-624, RTX-VMS, or equivalent capillary column according to the current revision of SOP 525 based on SW-846 Method 8260. All positive results were quantitated against the initial calibration standards using the internal standard technique. The identification of positive results was achieved by a comparison of the retention time and mass spectrum of the sample versus the daily calibration standard.
4. All initial calibration criteria were met.
5. All initial calibrations are verified by comparing a second source standard calibration verification (ICV) against the calibration curve. All criteria for initial calibration verification were met.
6. All criteria were met in daily (continuing) calibration verifications (CCV).
7. Methylene chloride, acetone and 2-butanone are common laboratory contaminants. In order to minimize the levels of these compounds detected in the gc/ms analysis, ALS has designated its volatile laboratory as a restricted access area. In addition, the laboratory has been equipped with a dedicated, air intake and exhaust system that operates under positive pressure in order to minimize cross contamination of these compounds. Due to fluctuations in ambient laboratory conditions, reported sample values for common laboratory contaminants may be due to lab contamination even if the compound in question is not detected in the associated method blank.

All method blank criteria were met.



8. All laboratory control sample and laboratory control sample duplicate recoveries and RPDs were within the acceptance criteria.
9. Sample 1209154-1 was designated as the quality control sample for this analysis. Similarity of matrix and therefore relevance of the QC results should not be automatically inferred for any sample other than the native sample selected for QC.

All matrix spike and matrix spike duplicate recoveries and RPDs were within acceptance criteria with the following exceptions:

Spiked Compound	QC Sample	Direction
Ethylbenzene	MS	Low
M+P-Xylene	MS	Low
O-Xylene	MS	Low

The recoveries of these compounds in the laboratory control sample and laboratory control sample duplicate were within control limits, which suggest the outliers in the matrix spikes may have been due to matrix effects. No further action was taken.

10. The samples were analyzed within the established holding time.
11. All surrogate recoveries were within acceptance criteria.
12. All internal standard recoveries were within acceptance criteria.
13. Manual integrations are performed when needed to provide consistent and defensible data following the guidelines in the current revision of SOP 939.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

  
\_\_\_\_\_  
Emily Lyons  
Organics Primary Data Reviewer

9-19-12  
Date

  
\_\_\_\_\_  
Tyne Wankel  
Organics Final Data Reviewer

9-19-12  
Date



ALS  
Data Qualifier Flags  
Chromatography and Mass Spectrometry

- U or ND:** This flag indicates that the compound was analyzed for but not detected.
- J:** This flag indicates an estimated value. This flag is used as follows : (1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; (2) when the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the result is less than the reporting limit (RL) but greater than the method detection limit (MDL); (3) when the retention time data indicate the presence of a compound that meets the GC identification criteria, and the result is less than the RL but greater than the MDL; and (4) the reported value is estimated.
- B:** This flag is used when the analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user. This flag shall be used for a tentatively identified compound (TIC) as well as for a positively identified target compound.
- E:** This flag identifies compounds whose concentration exceeds the upper level of the calibration range.
- A:** This flag indicates that a tentatively identified compound is a suspected aldol-condensation product.
- X:** This flag indicates that the analyte was diluted below an accurate quantitation level.
- \*:** This flag indicates that a spike recovery is equal to or outside the control criteria used.
- +:** This flag indicates that the relative percent difference (RPD) equals or exceeds the control criteria.



## Chain of Custody

# ALS Environmental -- FC

## Sample Number(s) Cross-Reference Table

---

OrderNum: 1209154  
Client Name: Battelle Energy Alliance  
Client Project Name: MFC Biodiesel Tank Removal ,TOS-A1175  
Client Project Number: BEA030488  
Client PO Number: SOW-8500

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Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
BEA030488_MFC	1209154-1		SOIL	10-Sep-12	14:36
BEA030489_MFC	1209154-2		SOIL	10-Sep-12	14:36
BEA030490_MFC	1209154-3		SOIL	10-Sep-12	14:22
BEA030491_MFC	1209154-4		SOIL	10-Sep-12	14:22
BEA030492_MFC	1209154-5		SOIL	10-Sep-12	13:41
BEA030493_MFC	1209154-6		SOIL	10-Sep-12	13:41
BEA030494_MFC	1209154-7		SOIL	10-Sep-12	13:55
BEA030495_MFC	1209154-8		SOIL	10-Sep-12	13:55
BEA030496_MFC	1209154-9		SOIL	10-Sep-12	14:44
BEA030497_MFC	1209154-10		SOIL	10-Sep-12	14:44
BEA030498_MFC	1209154-11		SOIL	10-Sep-12	14:28
BEA030499_MFC	1209154-12		SOIL	10-Sep-12	14:28



Chain of Custody Number : 5300 9533 5010

1209154

Laboratory: ALS Laboratory Group

Address:

Facility:

225 Commerce Drive

Contact: Jeff Kujawa

Fort Collins CO 80524

Phone: 970-490-1511

INL Contact: Peggy Scherbinske

Phone: 533-7144

Sample Number	Sample Details
BEA030488_MFC 1	<b>Location:</b> MFC (MFC) <b>Analysis:</b> BTEX, EDB, EDC, MTBE \ IVOA-A-018 \ <b>Sample Date:</b> 9/10/2012 2:36:00 PM <b>Contract:</b> TOS-A1175 <b>Hold Time:</b> <b>Matrix:</b> SOIL <b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no headspace
BEA030489_MFC 2	<b>Location:</b> MFC (MFC) <b>Analysis:</b> PAH \ ISVO-A-014 \ <b>Sample Date:</b> 9/10/2012 2:36:00 PM <b>Contract:</b> TOS-A1175 <b>Hold Time:</b> <b>Matrix:</b> SOIL <b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no head space
BEA030490_MFC 3	<b>Location:</b> MFC (MFC) <b>Analysis:</b> PAH \ ISVO-A-014 \ <b>Sample Date:</b> 9/10/2012 2:22:00 PM <b>Contract:</b> TOS-A1175 <b>Hold Time:</b> <b>Matrix:</b> SOIL <b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no head space
BEA030491_MFC 4	<b>Location:</b> MFC (MFC) <b>Analysis:</b> BTEX, EDB, EDC, MTBE \ IVOA-A-018 \ <b>Sample Date:</b> 9/10/2012 2:22:00 PM <b>Contract:</b> TOS-A1175 <b>Hold Time:</b> <b>Matrix:</b> SOIL <b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no headspace
BEA030492_MFC 5	<b>Location:</b> MFC (MFC) <b>Analysis:</b> BTEX, EDB, EDC, MTBE \ IVOA-A-018 \ <b>Sample Date:</b> 9/10/2012 1:41:00 PM <b>Contract:</b> TOS-A1175 <b>Hold Time:</b> <b>Matrix:</b> SOIL <b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no headspace
BEA030493_MFC 6	<b>Location:</b> MFC (MFC) <b>Analysis:</b> PAH \ ISVO-A-014 \ <b>Sample Date:</b> 9/10/2012 1:41:00 PM <b>Contract:</b> TOS-A1175 <b>Hold Time:</b> <b>Matrix:</b> SOIL <b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no head space

BEA030494_MFC 7	<b>Location:</b> MFC (MFC) <b>Analysis:</b> PAH \ ISVO-A-014 \ <b>Sample Date:</b> 9/10/2012 1:55:00 PM <b>Contract:</b> TOS-A1175 <b>Hold Time:</b> <b>Matrix:</b> SOIL	<b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no head space
BEA030495_MFC 8	<b>Location:</b> MFC (MFC) <b>Analysis:</b> BTEX, EDB, EDC, MTBE \ IVOA-A-018 \ <b>Sample Date:</b> 9/10/2012 1:55:00 PM <b>Contract:</b> TOS-A1175 <b>Hold Time:</b> <b>Matrix:</b> SOIL	<b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no headspace
BEA030496_MFC 9	<b>Location:</b> MFC (MFC) <b>Analysis:</b> BTEX, EDB, EDC, MTBE \ IVOA-A-018 \ <b>Sample Date:</b> 9/10/2012 2:44:00 PM <b>Contract:</b> TOS-A1175 <b>Hold Time:</b> <b>Matrix:</b> SOIL	<b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no headspace
BEA030497_MFC 10	<b>Location:</b> MFC (MFC) <b>Analysis:</b> PAH \ ISVO-A-014 \ <b>Sample Date:</b> 9/10/2012 2:44:00 PM <b>Contract:</b> TOS-A1175 <b>Hold Time:</b> <b>Matrix:</b> SOIL	<b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no head space
BEA030498_MFC 11	<b>Location:</b> MFC (MFC) <b>Analysis:</b> PAH \ ISVO-A-014 \ <b>Sample Date:</b> 9/10/2012 2:28:00 PM <b>Contract:</b> TOS-A1175 <b>Hold Time:</b> <b>Matrix:</b> SOIL	<b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no head space
BEA030499_MFC 12	<b>Location:</b> MFC (MFC) <b>Analysis:</b> BTEX, EDB, EDC, MTBE \ IVOA-A-018 \ <b>Sample Date:</b> 9/10/2012 2:28:00 PM <b>Contract:</b> TOS-A1175 <b>Hold Time:</b> <b>Matrix:</b> SOIL	<b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no headspace



Relinquished By:	Date:	Time:	Received By:	Date:	Time:
<i>Croft</i>	<i>9/11/12</i>	<i>1444</i>	<i>Quirk</i>	<i>9/12/12</i>	<i>1005</i>

Comments:



ALS Environmental - Fort Collins  
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: BEA Workorder No: 1209154  
Project Manager: JK Initials: JK Date: 9-12-12

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	NONE	<input checked="" type="radio"/> YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ___ < green pea ___ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ___ dusting ___ moderate ___ heavy	<input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		<input checked="" type="radio"/> YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used* <input checked="" type="radio"/> #2 #4 RAD ONLY <input checked="" type="radio"/>		<input checked="" type="radio"/> YES	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>2.0</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>12</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? YES / NO / NA (If no, see Form 008.)			

Additional Information: PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

If applicable, was the client contacted? YES / NO /  NA Contact: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Project Manager Signature / Date: JK 9/13/12

1-800-438-3637 (208) 533-7482  
BATELLE ENERGY ALLIANCE ON BEHALF  
OF THE U.S. DEPARTMENT OF ENERGY  
MATERIALS & FUELS COMPLEX-BLDG 781  
SCOVILLE, ID 83415  
UNITED STATES US

SHIP DATE 29AUG12  
ACTWGT: 45.0 LB MAN  
CAD: 0947638/CAFE2511  
DIMS: 20x17x15 IN  
BILL SENDER

TO JEFF KUJAWA  
ALS LABORATORY GROUP  
225 COMMERCE DRIVE

FORT COLLINS CO 80524  
(970) 490-1511  
DEPT: RO8

REF: 560120341 H530 22990

12  
2-  
20



FedEx  
TRK# 5300 9533 5010  
0201

WED - 12 SEP A2  
PRIORITY OVERNIGHT

XH FTCA

80524  
CO-US DEN



9637247 09/11 5156L/0236/0044

580C1/0279/18NC



## Analytical Results

# GC/MS Volatiles

Method SW8260C

Method Blank

Lab Name: ALS Environmental – FC  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

Lab ID: VL120917-2MB	Sample Matrix: SOIL	Prep Batch: VL120917-2	Sample Aliquot: 5 g
	% Moisture: N/A	QCBatchID: VL120917-2-2	Final Volume: 5 ml
	Date Collected: N/A	Run ID: VL120917-2A	Result Units: UG/KG
	Date Extracted: 17-Sep-12	Cleanup: NONE	Clean DF: 1
	Date Analyzed: 17-Sep-12	Basis: N/A	
	Prep Method: SW5035 Rev A	File Name: B79255	

CASNO	Target Analyte	DF	Result	Reporting Limit	Result Qualifier	EPA Qualifier
1634-04-4	METHYL TERTIARY BUTYL ETHER	1	5	5	U	
107-08-2	1,2-DICHLOROETHANE	1	5	5	U	
71-43-2	BENZENE	1	5	5	U	
108-88-3	TOLUENE	1	5	5	U	
106-93-4	1,2-DIBROMOETHANE	1	5	5	U	
100-41-4	ETHYLBENZENE	1	5	5	U	
136777-61-2	M+P-XYLENE	1	5	5	U	
95-47-6	O-XYLENE	1	5	5	U	

## Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	50.2		50	100	52 - 151
1888-53-7	DIBROMOFLUOROMETHANE	49.9		50	100	61 - 134
2037-26-5	TOLUENE-D8	49.4		50	99	57 - 135

Data Package ID: VL1209154-1

Date Printed: Wednesday, September 19, 2012

ALS Environmental -- FC

Page 1 of 1

LIMS Version: 6.611

# GC/MS Volatiles

## Method SW8260 Revision C

### Sample Results

Lab Name: ALS Environmental -- FC  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

Field ID: BEA030488_MFC
Lab ID: 1209154-1

Sample Matrix: SOIL	Prep Batch: VL120917-2	Analyst: Tyler Knaebel
% Moisture: 12.3	QCBatchID: VL120917-2-2	Sample Aliquot: 5 G
Date Collected: 10-Sep-12	Run ID: VL120917-2A	Final Volume: 5 ML
Date Extracted: 17-Sep-12	Cleanup: NONE	Result Units: UG/KG
Date Analyzed: 17-Sep-12	Basis: Dry Weight	Clean DF: 1
Prep Method: SW5035 Rev A	File Name: B79256	

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
1634-04-4	METHYL TERTIARY BUTYL ETHER	1	5.7	5.7	U	
107-06-2	1,2-DICHLOROETHANE	1	5.7	5.7	U	
71-43-2	BENZENE	1	5.7	5.7	U	
108-88-3	TOLUENE	1	5.7	5.7	U	
106-93-4	1,2-DIBROMOETHANE	1	5.7	5.7	U	
100-41-4	ETHYLBENZENE	1	5.7	5.7	U	
136777-61-2	MHP-XYLENE	1	5.7	5.7	U	
95-47-6	O-XYLENE	1	5.7	5.7	U	

### Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
480-00-4	4-BROMOFLUOROBENZENE	55.9		57	98	52 - 151
1868-53-7	DIBROMOFLUOROMETHANE	55.8		57	97	61 - 134
2037-26-5	TOLUENE-D8	57		57	100	57 - 135

Data Package ID: VL1209154-1

Date Printed: Wednesday, September 19, 2012

ALS Environmental -- FC  
 LIMS Version: 6.611

Page 1 of 6

# GC/MS Volatiles

## Method SW8260 Revision C

### Sample Results

Lab Name: ALS Environmental -- FC  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

Field ID: BEA030491_MFC	Sample Matrix: SOIL	Prep Batch: VL120917-2	Analyst: Tyler Knaebel
Lab ID: 1209154-4	% Moisture: 15.6	QCBatchID: VL120917-2-2	Sample Aliquot: 5 G
	Date Collected: 10-Sep-12	Run ID: VL120917-2A	Final Volume: 5 ML
	Date Extracted: 17-Sep-12	Cleanup: NONE	Result Units: UG/KG
	Date Analyzed: 17-Sep-12	Basis: Dry Weight	Clean DF: 1
	Prep Method: SW5035 Rev A	File Name: B79257	

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
1634-04-4	METHYL TERTIARY BUTYL ETHER	1	5.0	5.0	U	
107-06-2	1,2-DICHLOROETHANE	1	5.0	5.0	U	
71-43-2	BENZENE	1	5.0	5.0	U	
108-88-3	TOLUENE	1	5.0	5.0	U	
106-93-4	1,2-DIBROMOETHANE	1	5.0	5.0	U	
100-41-4	ETHYLBENZENE	1	5.0	5.0	U	
136777-61-2	M+P-XYLENE	1	5.0	5.0	U	
95-47-6	O-XYLENE	1	5.0	5.0	U	

### Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	57.5		59.2	97	52 - 151
1868-53-7	DIBROMOFLUOROMETHANE	57.2		59.2	97	61 - 134
2037-26-5	TOLUENE-D8	58.8		59.2	99	57 - 135

Data Package ID: VL1209154-1

Date Printed: Wednesday, September 19, 2012

ALS Environmental -- FC  
 LIMS Version: 6.611

Page 2 of 8

14 of 36

# GC/MS Volatiles

## Method SW8260 Revision C

### Sample Results

Lab Name: ALS Environmental -- FC  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

Field ID: BEA030492_MFC	Sample Matrix: SOIL	Prep Batch: VL120917-2	Analyst: Tyler Knaebel
Lab ID: 1209154-5	% Moisture: 8.7	QCBatchID: VL120917-2-2	Sample Aliquot: 5 G
	Date Collected: 10-Sep-12	Run ID: VL120917-2A	Final Volume: 5 ML
	Date Extracted: 17-Sep-12	Cleanup: NONE	Result Units: UG/KG
	Date Analyzed: 17-Sep-12	Basis: Dry Weight	Clean DF: 1
	Prep Method: SW5035 Rev A	File Name: B79258	

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
1634-04-4	METHYL TERTIARY BUTYL ETHER	1	5.5	5.5	U	
107-06-2	1,2-DICHLOROETHANE	1	5.5	5.5	U	
71-43-2	BENZENE	1	5.5	5.5	U	
108-88-3	TOLUENE	1	5.5	5.5	U	
108-93-4	1,2-DIBROMOETHANE	1	5.5	5.5	U	
100-41-4	ETHYLBENZENE	1	5.5	5.5	U	
136777-61-2	M+P-XYLENE	1	5.5	5.5	U	
95-47-6	O-XYLENE	1	5.5	5.5	U	

### Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	53.5		54.8	98	52 - 151
1868-53-7	DIBROMOFLUOROMETHANE	53.6		54.8	98	61 - 134
2037-26-5	TOLUENE-D8	54.8		54.8	100	57 - 135

Data Package ID: VL1209154-1

Date Printed: Wednesday, September 19, 2012

ALS Environmental -- FC

Page 3 of 6

LIMS Version: 6.611

15 of 36



# GC/MS Volatiles

## Method SW8260 Revision C

### Sample Results

Lab Name: ALS Environmental -- FC  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

Field ID: BEA030495_MFC	Sample Matrix: SOIL	Prep Batch: VL120917-2	Analyst: Tyler Knaebel
Lab ID: 1209154-8	% Moisture: 12.1	QCBatchID: VL120917-2-2	Sample Aliquot: 5 G
	Date Collected: 10-Sep-12	Run ID: VL120917-2A	Final Volume: 5 ML
	Date Extracted: 17-Sep-12	Cleanup: NONE	Result Units: UG/KG
	Date Analyzed: 17-Sep-12	Basis: Dry Weight	Clean DF: 1
	Prep Method: SW5035 Rev A	File Name: B79259	

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
1634-04-4	METHYL TERTIARY BUTYL ETHER	1	5.7	5.7	U	
107-06-2	1,2-DICHLOROETHANE	1	5.7	5.7	U	
71-43-2	BENZENE	1	5.7	5.7	U	
108-88-3	TOLUENE	1	5.7	5.7	U	
106-93-4	1,2-DIBROMOETHANE	1	5.7	5.7	U	
100-41-4	ETHYLBENZENE	1	5.7	5.7	U	
136777-61-2	M+P-XYLENE	1	5.7	5.7	U	
95-47-6	O-XYLENE	1	5.7	5.7	U	

### Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	55.5		56.9	98	52 - 151
1868-53-7	DIBROMOFLUOROMETHANE	55.1		56.9	97	61 - 134
2037-26-5	TOLUENE-D8	54.9		56.9	97	57 - 135

Data Package ID: VL1209154-1

Date Printed: Wednesday, September 19, 2012

ALS Environmental -- FC  
LIMS Version: 6.611

Page 4 of 6

16 of 36

**GC/MS VOLATILES**  
**Method SW8260 Revision C**  
**Sample Results**

Lab Name: ALS Environmental – FC  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

Field ID: BEA030496_MFC
Lab ID: 1209154-9

Sample Matrix: SOIL	Prep Batch: VL120917-2	Analyst: Tyler Knaebel
% Moisture: 11.7	QCBatchID: VL120917-2-2	Sample Aliquot: 5 G
Date Collected: 10-Sep-12	Run ID: VL120917-2A	Final Volume: 5 ML
Date Extracted: 17-Sep-12	Cleanup: NONE	Result Units: UG/KG
Date Analyzed: 17-Sep-12	Basis: Dry Weight	Clean DF: 1
Prep Method: SW5035 Rev A	File Name: B79260	

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
1634-04-4	METHYL TERTIARY BUTYL ETHER	1	5.7	5.7	U	
107-06-2	1,2-DICHLOROETHANE	1	5.7	5.7	U	
71-43-2	BENZENE	1	5.7	5.7	U	
108-88-3	TOLUENE	1	5.7	5.7	U	
106-93-4	1,2-DIBROMOETHANE	1	5.7	5.7	U	
100-41-4	ETHYLBENZENE	1	5.7	5.7	U	
136777-61-2	MHP-XYLENE	1	5.7	5.7	U	
95-47-6	O-XYLENE	1	5.7	5.7	U	

**Surrogate Recovery**

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	54.3		56.6	96	52 - 151
1868-53-7	DBROMOFLUOROMETHANE	54.1		56.6	96	61 - 134
2037-26-5	TOLUENE-D8	55.6		56.6	98	57 - 135

Data Package ID: VL1209154-1

# GC/MS Volatiles

## Method SW8260 Revision C

### Sample Results

Lab Name: ALS Environmental – FC  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

Field ID: BEA030499_MFC Lab ID: 1209154-12	Sample Matrix: SOIL % Moisture: 9.9 Date Collected: 10-Sep-12 Date Extracted: 17-Sep-12 Date Analyzed: 17-Sep-12 Prep Method: SW5035 Rev A	Prep Batch: VL120917-2 QCBatchID: VL120917-2-2 Run ID: VL120917-2A Cleanup: NONE Basis: Dry Weight File Name: B79281	Analyst: Tyler Knaebel Sample Aliquot: 5 G Final Volume: 5 ML Result Units: UG/KG Clean DF: 1
-----------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------	-------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
1634-04-4	METHYL TERTIARY BUTYL ETHER	1	5.5	5.5	U	
107-06-2	1,2-DICHLOROETHANE	1	5.5	5.5	U	
71-43-2	BENZENE	1	5.5	5.5	U	
108-88-3	TOLUENE	1	5.5	5.5	U	
108-93-4	1,2-DIBROMOETHANE	1	5.5	5.5	U	
100-41-4	ETHYLBENZENE	1	5.5	5.5	U	
136777-61-2	M+P-XYLENE	1	5.5	5.5	U	
95-47-6	O-XYLENE	1	5.5	5.5	U	

### Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	53.8		55.5	97	52 - 151
1868-53-7	DBROMOFLUOROMETHANE	53.6		55.5	97	61 - 134
2037-26-5	TOLUENE-D8	54.7		55.5	99	57 - 135

Data Package ID: VL1209154-1



## Supporting QA/QC Data

# Surrogate Summary for GC/MS Volatiles

Method SW8260C

Lab Name: ALS Environmental -- FC  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

PrepBatchID: VL120917-2  
 QC Batch ID: VL120917-2-2  
 Date Extracted: 9/17/2012

Surrogate Compound	Control Limits	
	Lower	Upper
Dibromofluoromethane	61	134
Toluene-d8	57	135
4-Bromofluorobenzene	52	151
1,2-dichloroethane-d4		

Lab ID	Client Sample ID	Date Collected	Date Received	DBFM % Recovery	BZMED8 % Recovery	BR4FBZ % Recovery	12DCED4 % Recovery
VL120917-2LCS	XXXXXXXX	NA	XXXXXXXX	102	97	100	
VL120917-2LCS-D	XXXXXXXX	NA	XXXXXXXX	100	98	101	
VL120917-2MB	XXXXXXXX	NA	XXXXXXXX	100	99	100	
1209154-9	BEA030496_MFC	9/10/2012	9/12/2012	98	98	98	
1209154-8	BEA030495_MFC	9/10/2012	9/12/2012	97	97	98	
1209154-5	BEA030492_MFC	9/10/2012	9/12/2012	98	100	98	
1209154-4	BEA030491_MFC	9/10/2012	9/12/2012	97	99	97	
1209154-12	BEA030499_MFC	9/10/2012	9/12/2012	97	99	97	
1209154-1MS	BEA030488_MFC	9/10/2012	9/12/2012	97	99	99	
1209154-1MS-D	BEA030488_MFC	9/10/2012	9/12/2012	99	99	98	
1209154-1	BEA030488_MFC	9/10/2012	9/12/2012	97	100	98	

Data Package ID: VL1209154-1

Date Printed: Wednesday, September 19, 2012  
 Shaded values exceed established control limits.

ALS Environmental -- FC  
 LMS Version: 6.611

Page 1 of 1

20 of 36

# GC/MS Volatiles

Method SW8260C

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS Environmental – FC

Work Order Number: 1209154

Client Name: Battelle Energy Alliance

ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

Lab ID: VL120917-2LCS	Sample Matrix: SOIL	Prep Batch: VL120917-2	Sample Aliquot: 5 g
	% Moisture: N/A	QCBatchID: VL120917-2-2	Final Volume: 5 ml
	Date Collected: N/A	Run ID: VL120917-2A	Result Units: UG/KG
	Date Extracted: 09/17/2012	Cleanup: NONE	Clean DF: 1
	Date Analyzed: 09/17/2012	Basis: N/A	
	Prep Method: SW5035A	File Name: B79253	

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
1834-04-4	METHYL TERTIARY BUTYL ETHER	80	81.2	5		102	50 - 125%
107-06-2	1,2-DICHLOROETHANE	40	37.3	5		93	72 - 137%
71-43-2	BENZENE	40	38.5	5		96	73 - 128%
108-88-3	TOLUENE	40	38	5		95	71 - 127%
106-93-4	1,2-DIBROMOETHANE	40	42.3	5		108	70 - 124%
100-41-4	ETHYLBENZENE	40	37.5	5		94	74 - 127%
136777-81-	M+P-XYLENE	80	76.1	5		95	79 - 128%
95-47-6	O-XYLENE	40	38.4	5		96	77 - 125%

Lab ID: VL120917-2LCS	Sample Matrix: SOIL	Prep Batch: VL120917-2	Sample Aliquot: 5 g
	% Moisture: N/A	QCBatchID: VL120917-2-2	Final Volume: 5 ml
	Date Collected: N/A	Run ID: VL120917-2A	Result Units: UG/KG
	Date Extracted: 09/17/2012	Cleanup: NONE	Clean DF: 1
	Date Analyzed: 09/17/2012	Basis: N/A	
	Prep Method: SW5035A	File Name: B79254	

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
1834-04-4	METHYL TERTIARY BUTYL ETHER	80	77.1	5		96	30	5
107-06-2	1,2-DICHLOROETHANE	40	36.2	5		91	30	3
71-43-2	BENZENE	40	36.3	5		91	30	6
108-88-3	TOLUENE	40	35.1	5		88	30	8
106-93-4	1,2-DIBROMOETHANE	40	40.1	5		100	30	5
100-41-4	ETHYLBENZENE	40	35.3	5		88	30	6
136777-81-	M+P-XYLENE	80	70.1	5		88	30	8
95-47-6	O-XYLENE	40	35.2	5		88	30	9

Data Package ID: VL1209154-1

Date Printed: Wednesday, September 19, 2012

ALS Environmental -- FC

Page 1 of 2

LIMS Version: 6.611

# GC/MS Volatiles

Method SW8260C

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS Environmental – FC

Work Order Number: 1209154

Client Name: Battelle Energy Alliance

ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

## Surrogate Recovery LCS/LCSD

CASNO	Target Analyte	Spike Added	LCS % Rec.	LCS Flag	LCSD % Rec.	LCSD Flag	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	50	100		101		52 - 151
1888-53-7	DIBROMOFLUOROMETHANE	50	102		100		61 - 134
2037-26-5	TOLUENE-D8	50	97		98		57 - 135

Data Package ID: VL1209154-1

Date Printed: Wednesday, September 19, 2012

ALS Environmental -- FC

LIMS Version: 6.611

Page 2 of 2

22 of 36

# GC/MS Volatiles

Method SW8260C

Matrix Spike And Matrix Spike Duplicate

Lab Name: ALS Environmental -- FC  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

<b>Field ID:</b> BEA030488_MFC	Sample Matrix: SOIL	Prep Batch: VL120917-2	Sample Aliquot: 5 g
<b>LabID:</b> 1209154-1MS	% Moisture: 12.3	QCBatchID: VL120917-2-2	Final Volume: 5 ml
	Date Collected: 10-Sep-12	Run ID: VL120917-2A	Result Units: UG/KG
	Date Extracted: 17-Sep-12	Cleanup: NONE	File Name: B79262
	Date Analyzed: 17-Sep-12	Basis: Dry Weight	
	Prep Method: SW5035 Rev A		

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
1634-04-4	METHYL TERTIARY BUTYL ETHER	5.7	U	75.7		5.7	91.2	83	50 - 125%
107-06-2	1,2-DICHLOROETHANE	5.7	U	36.3		5.7	45.6	80	72 - 137%
71-43-2	BENZENE	5.7	U	38.3		5.7	45.6	84	73 - 126%
108-88-3	TOLUENE	5.7	U	37		5.7	45.6	81	71 - 127%
106-93-4	1,2-DIBROMOETHANE	5.7	U	38.9		5.7	45.6	85	70 - 124%
100-41-4	ETHYLBENZENE	5.7	U	33.4	*	5.7	45.6	73	74 - 127%
136777-61-	MHP-XYLENE	5.7	U	66.1	*	5.7	91.2	72	79 - 126%
95-47-6	O-XYLENE	5.7	U	33.6	*	5.7	45.6	74	77 - 125%

<b>Field ID:</b> BEA030488_MFC	Sample Matrix: SOIL	Prep Batch: VL120917-2	Sample Aliquot: 5 g
<b>LabID:</b> 1209154-1MSD	% Moisture: 12.3	QCBatchID: VL120917-2-2	Final Volume: 5 ml
	Date Collected: 10-Sep-12	Run ID: VL120917-2A	Result Units: UG/KG
	Date Extracted: 17-Sep-12	Cleanup: NONE	File Name: B79263
	Date Analyzed: 17-Sep-12	Basis: Dry Weight	
	Prep Method: SW5035 Rev A		

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
1634-04-4	METHYL TERTIARY BUTYL ETHER	89.2		91.2	98	5.7	30	18
107-06-2	1,2-DICHLOROETHANE	41.7		45.6	91	5.7	30	14
71-43-2	BENZENE	43.2		45.6	95	5.7	30	12
108-88-3	TOLUENE	43.4		45.6	95	5.7	30	16
106-93-4	1,2-DIBROMOETHANE	45.6		45.6	100	5.7	30	16
100-41-4	ETHYLBENZENE	40.2		45.6	88	5.7	30	19
136777-61-	MHP-XYLENE	80.3		91.2	88	5.7	30	19
95-47-6	O-XYLENE	40.9		45.6	90	5.7	30	19

Data Package ID: VL1209154-1

Date Printed: Wednesday, September 19, 2012

ALS Environmental -- FC

Page 1 of 2

LMS Version: 6.611



**GC/MS Volatiles**  
**Method SW8260C**  
**Matrix Spike And Matrix Spike Duplicate**

Lab Name: ALS Environmental -- FC  
Work Order Number: 1209154  
Client Name: Battelle Energy Alliance  
ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 BEA030488

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**Surrogate Recovery MS/MSD**

CASNO	Target Analyte	Spike Added	MS % Rec.	MS Flag	MSD % Rec.	MSD Flag	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	57	99		98		52 - 151
1888-53-7	DIBROMOFLUOROMETHANE	57	97		99		61 - 134
2037-26-5	TOLUENE-D8	57	99		99		57 - 135

Data Package ID: VL1209154-1

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Date Printed: Wednesday, September 19, 2012

ALS Environmental -- FC

Page 2 of 2

LMS Version: 6.611

24 of 36

**Prep Batch ID: VL120917-2**

Start Date: 09/17/12      End Date: 09/17/12      Concentration Method: NONE      Batch Created By: twk  
 Start Time: 11:37      End Time: 20:50      Extract Method: SW5035A      Date Created: 09/17/12  
 Prep Analyst: Tyler Knaebel      Initial Volume Units: g      Time Created: 13:21  
 Final Volume Units: ml      Validated By: twk  
 Date Validated: 09/18/12  
 Time Validated: 9:12

**Comments:**

heated soils/solids

QC Batch ID: VL120917-2-2

Lab ID	QC Type	Field ID	Matrix	Date Collected	Initial Wt/Vol	Final Wt/Vol	Cleanup Method	Cleanup DF	Order Number
VL120917-2	MB	XXXXXX	SOIL	XXXXXX	5	5	NONE	1	1209154
VL120917-2	LCS	XXXXXX	SOIL	XXXXXX	5	5	NONE	1	1209154
VL120917-2	LCSD	XXXXXX	SOIL	XXXXXX	5	5	NONE	1	1209154
1209154-1	MS	BEA030488_MFC	SOIL	9/10/2012	5	5	NONE	1	1209154
1209154-1	MSD	BEA030488_MFC	SOIL	9/10/2012	5	5	NONE	1	1209154
1209154-1	SMP	BEA030488_MFC	SOIL	9/10/2012	5	5	NONE	1	1209154
1209154-12	SMP	BEA030499_MFC	SOIL	9/10/2012	5	5	NONE	1	1209154
1209154-4	SMP	BEA030491_MFC	SOIL	9/10/2012	5	5	NONE	1	1209154
1209154-5	SMP	BEA030492_MFC	SOIL	9/10/2012	5	5	NONE	1	1209154
1209154-8	SMP	BEA030495_MFC	SOIL	9/10/2012	5	5	NONE	1	1209154
1209154-9	SMP	BEA030496_MFC	SOIL	9/10/2012	5	5	NONE	1	1209154

**QC Types**

CAR	Carrier reference sample	DUP	Laboratory Duplicate
LCS	Laboratory Control Sample	LCSD	Laboratory Control Sample Duplicat
MB	Method Blank	MS	Laboratory Matrix Spike
MSD	Laboratory Matrix Spike Duplicate	REP	Sample replicate
RVS	Reporting Level Verification Standar	SMP	Field Sample
SYS	Sample Yield Spike		

V  
**Volatile Organic GC/MS Tuning And Mass  
 Calibration--Bromofluorobenzene (BFB)**

Lab Name: ALS Environmental – FC  
 Work Order Number: 1209154  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: BEA030488MFC Biodiesel Tank Removal ,TOS-A1175

BFB Injection Date: 7/18/2012  
 BFB Injection Time: 11:31  
 Instrument ID: HPV2  
 Reported on: Wednesday, September 19, 2012

Level: Low Column: CAP FileID: B77995

m/e	Ion Abundance Criteria SW8260C	% Relative Abundance
50	15.0 - 40.0 percent of mass 95	22.5
75	30.0 - 60.0 percent of mass 95	51.5
95	Base peak, 100 percent of relative abundance	100
96	5.0 - 9.0 percent of mass 95	6.9
173	Less than 2.0 percent of mass 174	0
174	Greater than 50.0 percent of mass 95	75.9
175	5.0 - 9.0 percent of mass 174	7.1
176	Greater than 95.0 percent < 101.0 percent of mass 174	96.9
177	5.0 - 9.0 percent of mass 176	6.5

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS, AND STANDARDS:

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	QC BatchID
XXXXXXXX	VOC_2ppb_ICALCSTD	B77998	7/18/2012	12:30	VL120716-2A
XXXXXXXX	VOC_4ppb_ICALCSTD	B77999	7/18/2012	12:52	VL120716-2A
XXXXXXXX	VOC_10ppb_ICALCSTD	B78000	7/18/2012	13:14	VL120716-2A
XXXXXXXX	VOC_20ppb_ICALCSTD	B78001	7/18/2012	13:35	VL120716-2A
XXXXXXXX	VOC_40ppb_ICALCSTD	B78002	7/18/2012	13:57	VL120716-2A
XXXXXXXX	VOC_60ppb_ICALCSTD	B78003	7/18/2012	14:19	VL120716-2A
XXXXXXXX	VOC_80ppb_ICALCSTD	B78004	7/18/2012	14:41	VL120716-2A
XXXXXXXX	VOC_120ppb_ICALCSTD	B78005	7/18/2012	15:03	VL120716-2A
XXXXXXXX	VOC_160ppb_ICALCSTD	B78006	7/18/2012	15:25	VL120716-2A
XXXXXXXX	VL120716-2ICVICV	B78008	7/18/2012	16:08	VL120716-2A
XXXXXXXX	VL120716-2LCS	B78009	7/18/2012	16:31	VL120716-2-1
XXXXXXXX	VL120716-2LCS2	B78011	7/18/2012	17:27	VL120716-2-1
XXXXXXXX	VL120716-2MB	B78012	7/18/2012	17:49	VL120716-2-1
XXXXXXXX	1207118-1	B78013	7/18/2012	18:10	VL120716-2-1
XXXXXXXX	1207118-1DUP	B78014	7/18/2012	18:32	VL120716-2-1
XXXXXXXX	1207118-1MS	B78015	7/18/2012	18:53	VL120716-2-1
XXXXXXXX	1207118-2	B78016	7/18/2012	19:15	VL120716-2-1

Data Package ID: VL1209154-1

# 5A

## Volatile Organic GC/MS Tuning And Mass Calibration--Bromofluorobenzene (BFB)

Lab Name: ALS Environmental -- FC  
 Work Order Number: 1209154

Client Name: Battelle Energy Alliance  
 Client/Project ID: BEA030488MFC Biodiesel Tank Removal ,TOS-A1175

BFB Injection Date: 9/17/2012  
 BFB Injection Time: 11:37  
 Instrument ID: HPV2

Reported on: Wednesday, September 19, 2012

Level: Low

Column: CAP

FileID: B79249

m/e	Ion Abundance Criteria SW8260C	% Relative Abundance
50	15.0 - 40.0 percent of mass 95	21.6
75	30.0 - 60.0 percent of mass 95	49.3
95	Base peak, 100 percent of relative abundance	100
96	5.0 - 9.0 percent of mass 95	6.7
173	Less than 2.0 percent of mass 174	0
174	Greater than 50.0 percent of mass 95	78.2
175	5.0 - 9.0 percent of mass 174	6.8
176	Greater than 95.0 percent < 101.0 percent of mass 174	99
177	5.0 - 9.0 percent of mass 176	6.2

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS, AND STANDARDS:

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	QC BatchID
XXXXXXXX	VL120917-2RVS	B79251	9/17/2012	12:15	VL120917-2-3
XXXXXXXX	CCV1CCV	B79252	9/17/2012	12:39	VL120917-2A
XXXXXXXX	VL120917-2LCS	B79253	9/17/2012	13:03	VL120917-2-1
XXXXXXXX	VL120917-2LCS	B79253	9/17/2012	13:03	VL120917-2-2
XXXXXXXX	VL120917-2LCSD	B79254	9/17/2012	13:27	VL120917-2-1
XXXXXXXX	VL120917-2LCSD	B79254	9/17/2012	13:27	VL120917-2-2
XXXXXXXX	VL120917-2MB	B79255	9/17/2012	13:51	VL120917-2-1
XXXXXXXX	VL120917-2MB	B79255	9/17/2012	13:51	VL120917-2-2
BEA030488_MFC	1209154-1	B79256	9/17/2012	14:15	VL120917-2-2
BEA030491_MFC	1209154-4	B79257	9/17/2012	14:39	VL120917-2-2
BEA030492_MFC	1209154-5	B79258	9/17/2012	15:01	VL120917-2-2
BEA030495_MFC	1209154-8	B79259	9/17/2012	15:22	VL120917-2-2
BEA030496_MFC	1209154-9	B79260	9/17/2012	15:44	VL120917-2-2
BEA030499_MFC	1209154-12	B79261	9/17/2012	16:08	VL120917-2-2
BEA030488_MFC	1209154-1MS	B79262	9/17/2012	16:29	VL120917-2-2
BEA030488_MFC	1209154-1MSD	B79263	9/17/2012	16:51	VL120917-2-2
XXXXXXXX	1209093-2	B79264	9/17/2012	17:13	VL120917-2-1

Data Package ID: VL1209154-1

Calibration ID: 0710123  
 Instrument ID: HPV2  
 Calibration Date: 7/16/2012

# ALS ENVIRONMENTAL -- FC

## Initial Calibration Report

Analyte	File Name: 070919.D 070919.D 070919.D 070919.D 070919.D 070919.D 070919.D 070919.D 070919.D 070919.D										AvgRF %RSD	Curve Type	Higher Order Equation				
	Cal LVL ID:	1	4	8	16	32	64	128	256	Corr			Quad Term	Cubic Term	Const Term		
fluorobenzene												ISTD					
dichlorodifluoromethane	0.7953	0.7297	0.7702	0.7159	0.8352	0.8243	0.8061	0.8988	0.8289		0.7998	5.82					AvgRF
chloroethane	0.6983	0.5764	0.5445	0.5314	0.5234	0.5230	0.5016	0.5547	0.5363		0.5591	9.20					AvgRF
vinyl chloride	0.6942	0.4682	0.4723	0.4321	0.4829	0.4855	0.4603	0.5084	0.5085		0.4895	2.46					AvgRF
bromomethane	0.5478	0.4818	0.4201	0.4152	0.4165	0.4029	0.4081	0.4223	0.4180		0.4368	10.30					AvgRF
chloroethane	0.3289	0.3044	0.2836	0.2850	0.2899	0.2846	0.2909	0.3059	0.3012		0.2982	4.77					AvgRF
tetrachloroethane	0.8379	0.8297	0.8694	0.8601	0.8557	0.8320	0.8598	0.8772	0.8284		0.8460	1.54					AvgRF
diethyl ether	0.3712	0.2513	0.2807	0.2891	0.2486	0.2787	0.2659	0.2841	0.2817		0.2733	8.12					AvgRF
ethanol	0.0039	0.0033	0.0032	0.0032	0.0032	0.0031	0.0035	0.0033			0.0033	8.72					AvgRF
acrolein	0.0522	0.0535	0.0532	0.0480	0.0522	0.0521	0.0507	0.0582	0.0517		0.0522	4.25					AvgRF
1,1,2-trichloro-1,2,2-trifluoroethane	0.4888	0.4292	0.4595	0.4879	0.4153	0.4460	0.4394	0.4347	0.4598		0.4354	5.40					AvgRF
1,1-dichloroethane	0.4744	0.4279	0.4914	0.4804	0.3843	0.3675	0.3637	0.4078	0.3858		0.4059	8.82					AvgRF
acetone	0.0234	0.0288	0.0243	0.0235	0.0287	0.0212	0.0235	0.0238	0.0210		0.0230	11.21					AvgRF
iodomethane	0.7362	0.8133	0.8008	0.7855	0.7223	0.7066	0.7411	0.8170	0.8006		0.7775	4.75					AvgRF
carbon disulfide	1.2879	1.3354	1.3303	1.3279	1.2158	1.2018	1.2319	1.2861	1.2641		1.3082	4.01					AvgRF
allyl chloride	0.1868	0.2842	0.2949	0.2254	0.1993	0.2160	0.2021	0.2214	0.2110		0.2074	5.77					AvgRF
acetonitrile	0.0243	0.0301	0.0235	0.0292	0.0285	0.0263	0.0272	0.0365	0.0296		0.0278	7.72					AvgRF
methylene chloride	0.5969	0.5087	0.4685	0.4391	0.4615	0.4392	0.4846	0.4615			0.4743	11.76					AvgRF
methyl acetate	0.3544	0.2928	0.2988	0.2908	0.2324	0.2024	0.2310	0.2583	0.2673		0.2645	10.87					AvgRF
tert-butanol	0.8426	0.8424	0.8429	0.8301	0.8360	0.8392	0.8358	0.8429	0.8384		0.8401	7.89					AvgRF
methyl tert-butyl ether	1.1379	1.1344	1.1529	1.0779	1.0548	1.0679	1.0485	1.1064	1.1435		1.1078	5.16					AvgRF
trans-1,2-dichloroethane	0.4653	0.4437	0.4498	0.4401	0.4040	0.4097	0.4242	0.4492	0.4519		0.4437	4.21					AvgRF
acrylonitrile	0.1040	0.1033	0.1015	0.0958	0.0966	0.1094	0.1082	0.1097	0.1038		0.1024	4.00					AvgRF
isopropyl ether	1.2864	1.3587	1.2854	1.2917	1.1349	1.1453	1.1784	1.3130	1.3032		1.2412	4.44					AvgRF
vinyl acetate	0.0459	0.0781	0.0824	0.0844	0.0662	0.0934	0.0746	0.0722			0.0682	14.57					AvgRF
1,1-dichloroethane	0.7160	0.7428	0.7628	0.7639	0.7160	0.7626	0.7360	0.8050	0.7750		0.7587	3.71					AvgRF
chloroprene	0.8627	0.8781	0.8972	0.8731	0.8086	0.8929	0.8316	0.8989	0.8772		0.8989	3.84					AvgRF
2-butanone	0.1027	0.1468	0.1824	0.1938	0.1320	0.1350	0.1283	0.1455	0.1314		0.1411	8.23					AvgRF
ethyl tert-butyl ether	1.2590	1.3632	1.2796	1.2849	1.1070	1.2880	1.2061	1.3085	1.3249		1.2681	4.83					AvgRF
2,2-dichloropropane	0.8020	0.7726	0.7450	0.7177	0.6547	0.7050	0.6682	0.7190	0.7029		0.7239	7.95					AvgRF
cis-1,2-dichloroethane	0.4892	0.4802	0.4867	0.4796	0.4560	0.4760	0.4567	0.4890	0.4611		0.4763	3.85					AvgRF
propionitrile	0.8990	0.8848	0.8375	0.8343	0.8344	0.8362	0.8354	0.8344	0.8348		0.8364	4.87					AvgRF
methacrylonitrile	0.2990	0.2100	0.1850	0.1813	0.1723	0.1800	0.1715	0.2097	0.1609		0.1804	10.83					AvgRF
bromochloromethane	0.2232	0.2120	0.2261	0.2152	0.2098	0.2225	0.2172	0.2295	0.2238		0.2225	4.09					AvgRF
chloroform	0.8993	0.8976	0.8360	0.8745	0.7981	0.8542	0.8191	0.8878	0.8789		0.8541	4.03					AvgRF
cyclohexane	0.6075	0.6108	0.6076	0.6133	0.6494	0.6804	0.6638	0.6803	0.6788		0.6742	7.24					AvgRF
dibromochloromethane	0.3398	0.3272	0.3360	0.3310	0.3291	0.3277	0.3354	0.3388	0.3356		0.3258	1.29 SUR					AvgRF
1,1,1-trichloroethane	0.7443	0.7359	0.7350	0.7452	0.6981	0.7516	0.7099	0.7844	0.7490		0.7359	3.14					AvgRF
carbon tetrachloride	0.8241	0.8083	0.8087	0.8087	0.8181	0.8069	0.8277	0.8370	0.8065		0.8091	4.24					AvgRF
1,1-dichloropropane	0.8291	0.8912	0.8043	0.8277	0.8548	0.8987	0.8977	0.8970	0.9010		0.8982	4.07					AvgRF
isobutyl alcohol	0.9739	0.9735	0.9191	0.9110	0.9128	0.9124	0.9116	0.9138	0.9120		0.9128	5.18					AvgRF
1,2-dichloroethane-d4	0.3539	0.3933	0.3672	0.3480	0.3543	0.3603	0.3477	0.3676	0.3400		0.3545	2.27 SUR					AvgRF
tert-amyl methyl ether	1.1945	1.1930	1.0660	1.0820	0.9852	1.0427	0.9810	1.1024	1.0930		1.0500	5.40					AvgRF
benzene	1.8006	1.8293	1.4090	1.4822	1.3314	1.4275	1.3856	1.5001	1.4939		1.4570	4.26					AvgRF
1,2-dichloroethane	0.8401	0.8795	0.8690	0.8410	0.8656	0.8424	0.8247	0.8649	0.8550		0.8495	3.72					AvgRF
trichloroethane	0.4148	0.4384	0.4503	0.4564	0.4214	0.4572	0.4307	0.4614	0.4584		0.4444	4.19					AvgRF
methyl cyclohexane	0.8836	0.8917	0.8247	0.8311	0.8328	0.8789	0.8768	0.8609	0.8693		0.8684	14.53					AvgRF
n-butanol	0.0661	0.0688	0.0630	0.0670	0.0684	0.0584	0.0578	0.0693	0.0581		0.0684	8.00					AvgRF
1,2-dichloropropane	0.8766	0.8888	0.8587	0.8818	0.8260	0.8858	0.8828	0.8770	0.8793		0.8818	4.28					AvgRF
methyl methacrylate	0.2878	0.1863	0.1974	0.1960	0.1879	0.2041	0.1950	0.2209	0.2032		0.2036	8.20					AvgRF
1,4-dioxane	0.0051	0.0053	0.0038	0.0030	0.0029	0.0030	0.0029	0.0034	0.0032		0.0031	6.35					AvgRF
dibromomethane	0.3714	0.3772	0.3828	0.3715	0.3857	0.3718	0.3810	0.3953	0.3794		0.3774	6.07					AvgRF
bromochloromethane	0.6003	0.6876	0.6210	0.6187	0.5688	0.6361	0.6142	0.6783	0.6548		0.6326	4.48					AvgRF
2-chloroethyl vinyl ether	0.2135	0.2068	0.1981	0.1984	0.1991	0.2037	0.1969	0.2190	0.2106		0.2037	4.15					AvgRF
cis-1,3-dichloropropene	0.6794	0.7000	0.6825	0.6745	0.6848	0.6881	0.6942	0.7387	0.7114		0.6958	3.57					AvgRF
4-methyl-2-pentanone	0.3250	0.2906	0.2976	0.2799	0.2787	0.2830	0.2932	0.2910			0.2891	6.51					AvgRF
chlorobenzene-d5											ISTD						
toluene-d8	0.9149	0.9103	0.8964	0.9171	0.9003	0.8152	0.9210	0.9347	0.8165		0.9110	0.88 SUR					AvgRF
toluene	2.2299	2.2774	2.2820	2.2382	2.0498	2.2051	2.1938	2.2898	2.2703		2.2585	3.99					AvgRF
ethyl methacrylate	0.8187	0.8519	0.8421	0.8321	0.8793	0.8596	0.8832	0.8843	0.8119		0.8895	5.35					AvgRF
trans-1,3-dichloropropene	0.8445	1.0017	0.8836	0.9210	0.9153	0.8938	0.9237	1.0417	0.9790		0.9808	3.49					AvgRF
1,1,2-trichloroethane	0.4185	0.4001	0.3970	0.3936	0.3971	0.4037	0.3741	0.4140	0.3985		0.3950	6.44					AvgRF
tetrachloroethane	0.4251	0.4080	0.4002	0.4084	0.4379	0.4783	0.4478	0.4483	0.4033		0.4688	4.33					AvgRF
2-hexanone	0.3043	0.3042	0.3135	0.2828	0.2928	0.2987	0.2782	0.3186	0.2820		0.2983	3.70					AvgRF
1,3-dichloropropene	0.7854	0.8279	0.8079	0.7860	0.7951	0.7970	0.7588	0.8363	0.8099		0.7975	4.34					AvgRF
chloro-1,1-difluoroethane	0.8202	0.6381	0.6459	0.6754	0.6383	0.6090	0.6541	0.7162	0.6955		0.6837	4.83					AvgRF

Operator: twk-sop525r15 Notes: 5mL heated purge

*m 7/17/12*

Calibration ID: 071612S  
 Instrument ID: HPV2  
 Calibration Date: 7/16/2012

# ALS Environmental -- FC

## Initial Calibration Report

Analyte	File Name: 077099.D 077599.D 078066.D 078381.D 078662.D 078983.D 079264.D 079505.D 079935.D										AvgRF %RSD	Curve Type	Higher Order Equation		
	Cal LVL ID:	2	4	10	20	40	60	80	120	180			Corr	Quad Term	Linear Term
1,2-dibromochloroethane	0.5221	0.5256	0.4854	0.5135	0.4843	0.5113	0.4819	0.5383	0.5207	0.5006	3.90	AvgRF			
1-chlorohexane	0.5187	0.5116	0.5478	0.5510	0.7184	0.7070	0.6413	0.6247	0.7423	0.7581	10.84	AvgRF			
chlorobenzene	1.4622	1.4687	1.4931	1.4702	1.5823	1.6010	1.5903	1.4754	1.4558	1.4838	2.90	AvgRF			
ethylbenzene	2.5083	2.6857	2.5829	2.6919	2.3584	2.6008	2.3532	2.4514	2.5615	2.6302	4.67	AvgRF			
1,1,2-trichloroethane	0.5657	0.5882	0.5793	0.5825	0.5395	0.5558	0.5427	0.5578	0.5545	0.5740	3.57	AvgRF			
m,p-xylene	0.8280	0.8030	0.9227	0.9203	0.8461	0.9220	0.9451	0.8578	0.9241	0.8950	4.09	AvgRF			
o-xylene	0.8084	0.9055	0.9226	0.9010	0.8382	0.9083	0.9351	0.8857	0.9012	0.8855	3.75	AvgRF			
styrene	1.5773	1.5510	1.5521	1.5781	1.4812	1.6110	1.4928	1.5746	1.6174	1.5594	3.01	AvgRF			
acetone	0.3084	0.3724	0.3771	0.3801	0.3223	0.4034	0.3354	0.4330	0.4123	0.3944	5.01	AvgRF			
isopropylbenzene	2.3074	2.3692	2.3434	2.3635	2.1372	2.3454	1.8937	1.8588	2.2059	2.2419	7.58	AvgRF			
4-bromofluorobenzene	0.4077	0.4671	0.4693	0.4125	0.4028	0.4003	0.4303	0.4140	0.4192	0.4099	1.21	SUR			
1,4-dichlorobenzene-d4												ISTD			
1,1,2,2-tetrachloroethane	1.6204	1.6738	1.6440	1.6099	1.5832	1.6317	0.9519	1.6660	1.6220	1.6448	3.51	AvgRF			
n-propylbenzene	5.1421	6.1947	5.7985	6.0485	5.3447	5.8502	4.7311	4.8551	5.4022	5.5205	10.22	AvgRF			
trans-1,4-dichloro-2-butene	0.4062	0.3698	0.3174	0.3205	0.3266	0.3433	0.3322	0.3387	0.3120	0.3317	9.45	AvgRF			
1,2,3-trichloropropane	0.3507	0.3202	0.3506	0.3518	0.3250	0.3930	0.3187	0.2865	0.3370	0.3481	4.89	AvgRF			
benzofuran	1.2077	1.2615	1.1687	1.2454	1.1795	1.2542	1.1530	1.2103	1.2343	1.2210	3.77	AvgRF			
1,3,5-trimethylbenzene	0.9161	0.9250	0.8850	0.9753	0.8791	0.9789	0.1773	0.1280	0.8852	0.9340	0.58	AvgRF			
2-chlorotoluene	1.0410	1.0290	1.0201	1.1212	1.0164	1.0744	0.9487	0.9395	1.0282	1.0219	5.98	AvgRF			
4-chlorotoluene	1.0995	1.1882	1.2720	1.0559	1.0472	1.1239	0.9286	0.9700	1.0493	1.0808	8.79	AvgRF			
tert-butylbenzene	0.6921	0.7917	0.7884	0.7834	0.6800	0.7355	0.6081	0.6346	0.6954	0.6879	13.21	AvgRF			
1,2,4-trimethylbenzene	1.9530	0.9709	0.8271	0.9303	0.8417	0.8285	0.1287	0.0057	0.9327	0.9533	9.70	AvgRF			
sec-butylbenzene	4.9335	4.0734	5.0173	5.1138	4.3008	4.7152	3.6342	3.2091	4.3513	4.4932	13.91	AvgRF			
p-isopropyltoluene	1.8044	0.9225	0.9111	1.1131	0.4085	0.8742	0.9952	0.7082	0.9335	0.8112	13.90	AvgRF			
1,3-dichlorobenzene	2.2397	2.2203	2.1480	2.2823	2.1349	2.2812	1.8099	1.9121	2.1114	2.1339	6.90	AvgRF			
1,4-dichlorobenzene	1.1296	2.2403	2.1259	2.1904	2.1149	2.2387	1.8011	1.8087	2.0884	2.1094	5.70	AvgRF			
n-butylbenzene	3.9174	4.0731	4.0184	4.3743	3.3342	3.8185	2.6672	2.3583	3.4388	3.5679	15.43	AvgRF			
1,2-dichlorobenzene	2.0232	1.9838	1.9581	2.1481	1.9497	2.0884	1.7052	1.8138	1.9740	1.9639	5.19	AvgRF			
hexachloroethane	0.5328	0.9077	0.6332	0.6151	0.5032	0.6178	0.4625	0.4447	0.5610	0.5571	12.30	AvgRF			
1,2-dibromo-3-chloropropane	0.1998	0.2151	0.2016	0.1845	0.2180	0.2106	0.1940	0.2221	0.2118	0.2081	6.81	AvgRF			
1,2,4-trichlorobenzene	1.2580	1.3139	1.3266	1.3167	1.2151	1.3128	1.0049	0.9435	1.1617	1.2129	11.07	AvgRF			
hexachlorobutadiene	0.4361	0.5305	0.6270	0.5815	0.4672	0.5076	0.3660	0.3682	0.5408	0.4908	17.45	AvgRF			
naphthalene	2.4387	2.5837	2.4080	2.4771	2.6093	2.6641	2.1794	2.3385	2.5129	2.4900	5.50	AvgRF			
1,2,3-trichlorobenzene	1.9922	1.9927	1.9070	1.1470	1.0843	1.1622	0.8911	0.8887	1.0470	1.0755	11.88	AvgRF			
2-ethylhexanol															

Average RSD = 6.40

Concentration Multipliers

- 2X - cyclohexane
- 2X - m,p-xylene
- 2X - methyl-t-butyl-ether
- 4X - 2-butanone
- 4X - 2-hexanone
- 4X - 4-methyl-2-pentanone
- 4X - acetone
- 10X - acetonitrile
- 10X - acrolein
- 10X - acrylonitrile
- 10X - propionitrile
- 20X - isobutyl alcohol
- 20X - 1,4-dioxane
- 20X - ethanol
- 50X - n-butanol
- 50X - tert-butanol

Operator: twk-sop525r15 Notes: 5mL heated purge

7/17/12

Date Printed: Tuesday, July 17, 2012

ALS Environmental -- FC

Page 2 of 2

LIMS Version: 6.003

# ALS Environmental -- FC

## Initial Calibration Verification

Lab Sample ID: VL120716-2ICV	Calibration ID: 071612S
Analysis Date: 7/16/2012	Instrument ID: HPV2
File Name: B78008	Calibration Date: 7/16/2012

	Analyte	AvgRF	CCRF	Expected Conc.	Found Conc.	%Dev. or % Drift	%Diff (Area)	RT Dev.	Curve Type
1)	ISTD fluorobenzene						0.5	0.003	AvgRF
2)	dichlorodifluoromethane	0.7988	0.6773			-15.3		-0.004	AvgRF
3)	chloromethane	0.5581	0.4848			-16.7		0.003	AvgRF
4)	vinyl chloride	0.4986	0.4241			-13.2		0.000	AvgRF
5)	bromomethane	0.4388	0.3667			-18.3		0.003	AvgRF
6)	chloroethane	0.2982	0.2479			-16.9		0.000	AvgRF
7)	trichlorofluoromethane	0.8499	0.8960			-18.1		0.004	AvgRF
8)	dialkyl ether	0.2733	0.2542			-7.0		-0.003	AvgRF
9)	ethanol	0.0933	0.0930			-0.0		0.000	AvgRF
10)	acrolein	0.0522	0.0450			-13.7		0.004	AvgRF
11)	1,1,2-trichloro-1,2,2-trifluoroethane	0.4364	0.3954			-9.7		0.000	AvgRF
12)	1,1-dichloroethane	0.4059	0.3513			-13.4		0.000	AvgRF
13)	acetone	0.0290	0.0210			-8.7		-0.001	AvgRF
14)	iodomethane	0.7775	0.7159			-7.9		-0.004	AvgRF
15)	carbon disulfide	1.3092	1.1792			-9.9		0.004	AvgRF
16)	allyl chloride	0.2974	0.2019			-2.7		0.000	AvgRF
17)	acetonitrile	0.0279	0.0258			-7.9		0.001	AvgRF
18)	methylene chloride	0.4743	0.4209			-11.3		-0.004	AvgRF
19)	methyl acetate	0.2845	0.2277			-13.9		0.000	AvgRF
20)	tert-butanol	0.0401	0.0392			-2.2		0.003	AvgRF
21)	methyl tertiary butyl ether	1.1078	1.0042			-9.4		-0.001	AvgRF
22)	trans-1,2-dichloroethane	0.4437	0.3971			-10.5		-0.002	AvgRF
23)	acrylonitrile	0.1024	0.0998			-12.8		0.000	AvgRF
25)	isopropyl ether	1.2412	1.1538			-7.0		-0.004	AvgRF
26)	vinyl acetate	0.0862	0.0593			-10.3		-0.003	AvgRF
27)	1,1-dichloroethane	0.7597	0.7038			-7.4		-0.003	AvgRF
28)	chloroprene	0.8589	0.5848			-11.3		-0.006	AvgRF
29)	2-butanone	0.1411	0.1255			-11.1		0.004	AvgRF
30)	ethyl tert-butyl ether	1.2661	1.1844			-6.5		-0.002	AvgRF
31)	2,2-dichloropropane	0.7239	0.6221			-14.1		0.004	AvgRF
32)	cis-1,2-dichloroethane	0.4753	0.4362			-8.4		0.004	AvgRF
33)	propionitrile	0.0364	0.0331			-6.3		0.000	AvgRF
34)	methacrylonitrile	0.1934	0.1702			-12.0		0.000	AvgRF
35)	bromochloromethane	0.2225	0.2050			-7.8		-0.001	AvgRF
36)	chloroform	0.8541	0.7711			-9.7		-0.003	AvgRF
37)	cyclohexane	0.5742	0.5161			-10.1		0.003	AvgRF
39)	1,1,1-trichloroethane	0.7359	0.6647			-11.0		0.004	AvgRF
40)	carbon tetrachloride	0.6591	0.5747			-12.8		0.001	AvgRF
41)	1,1-dichloropropane	0.6992	0.6316			-11.3		0.001	AvgRF
42)	isobutyl alcohol	0.0128	0.0130			1.4		0.000	AvgRF
44)	tert-amyl methyl ether	1.0806	0.9837			-7.3		-0.004	AvgRF
45)	benzene	1.4576	1.3249			-9.1		-0.002	AvgRF
46)	1,2-dichloroethane	0.8468	0.5839			-9.7		-0.003	AvgRF
47)	trichloroethane	0.4444	0.3975			-10.6		-0.003	AvgRF
48)	methyl cyclohexane	0.4884	0.4204			-10.2		0.004	AvgRF
49)	n-butanol	0.0084	0.0086			5.2		-0.001	AvgRF
50)	1,2-dichloropropane	0.3818	0.3280			-9.9		0.003	AvgRF
51)	methyl methacrylate	0.2036	0.1788			-12.2		0.003	AvgRF
52)	1,4-dioxane	0.0031	0.0031			-0.5		0.003	AvgRF
53)	dibromomethane	0.2774	0.2516			-9.3		0.002	AvgRF
54)	bromodichloromethane	0.6326	0.5719			-9.6		0.000	AvgRF
55)	2-chloroethyl vinyl ether	0.2037	0.1858			-8.8		-0.004	AvgRF
56)	cis-1,3-dichloropropane	0.6866	0.6146			-10.4		0.004	AvgRF
57)	4-methyl-2-pentanone	0.2891	0.2777			-4.0		0.002	AvgRF
58)	ISTD chlorobenzene-d6						0.9	0.001	AvgRF
60)	toluene	2.2385	1.9990			-10.7		-0.001	AvgRF
61)	ethyl methacrylate	0.5805	0.5541			-6.0		-0.004	AvgRF
62)	trans-1,3-dichloropropene	0.9808	0.8641			-10.1		-0.004	AvgRF
63)	1,1,2-trichloroethane	0.3859	0.3630			-6.1		0.004	AvgRF
64)	tetrachloroethane	0.4668	0.4212			-10.1		0.002	AvgRF
65)	2-hexanone	0.2803	0.2920			-2.5		0.001	AvgRF
66)	1,3-dichloropropane	0.7875	0.7313			-8.3		0.001	AvgRF
67)	dibromochloromethane	0.8637	0.8149			-7.4		-0.001	AvgRF

Operator: twk-sop525r15

Date Printed: Tuesday, July 17, 2012

ALS Environmental -- FC

LIMS Version: 6.603

Page 1 of 2  
30 of 36

# ALS Environmental -- FC

## Initial Calibration Verification

Lab Sample ID: VL120716-2ICV	Calibration ID: 071612S
Analysis Date: 7/16/2012	Instrument ID: HPV2
File Name: B78008	Calibration Date: 7/16/2012

Analyte	AvgRF	CCRF	Expected Conc.	Found Conc.	%Dev. or % Drift	%Diff (Area)	RT Dev.	Curve Type
68) 1,2-dibromoethane	0.5095	0.4705			-7.8		-0.003	AvgRF
69) 1-chlorohexane	0.7581	0.6896			-9.0		0.002	AvgRF
70) chlorobenzene	1.4636	1.3327			-8.9		0.001	AvgRF
71) ethylbenzene	2.5302	2.2948			-9.3		0.000	AvgRF
72) 1,1,1,2-tetrachloroethane	0.5740	0.5203			-9.4		0.000	AvgRF
73) m+p-xylene	0.8950	0.8142			-9.0		-0.002	AvgRF
74) o-xylene	0.8855	0.8112			-8.4		0.004	AvgRF
75) styrene	1.5564	1.4487			-7.3		0.003	AvgRF
76) bromoform	0.3944	0.3857			-2.2		0.001	AvgRF
77) isopropylbenzene	2.2419	2.0873			-6.9		-0.001	AvgRF
79) ISTD 1,4-dichlorobenzene-d4						0.7	0.003	AvgRF
80) 1,1,2,2-tetrachloroethane	1.0448	1.0192			-2.4		-0.004	AvgRF
81) n-propylbenzene	5.5205	5.1870			-5.9		0.004	AvgRF
82) trans-1,4-dichloro-2-butene	0.3317	0.3093			-6.8		-0.005	AvgRF
83) 1,2,3-trichloropropane	0.3481	0.3391			-2.6		0.005	AvgRF
84) bromobenzene	1.2219	1.1615			-4.9		-0.005	AvgRF
85) 1,3,5-trimethylbenzene	3.7340	3.6821			-1.4		0.002	AvgRF
86) 2-chlorotoluene	1.0319	0.9890			-4.2		0.003	AvgRF
87) 4-chlorotoluene	1.0608	1.0027			-5.5		0.002	AvgRF
88) tert-butylbenzene	0.8879	0.8488			-4.7		-0.002	AvgRF
89) 1,2,4-trimethylbenzene	3.8633	3.4160			-8.5		-0.002	AvgRF
90) sec-butylbenzene	4.4932	4.3462			-3.3		-0.004	AvgRF
91) p-isopropyltoluene	3.8112	3.6289			-2.3		0.004	AvgRF
92) 1,3-dichlorobenzene	2.1339	2.0201			-5.3		0.004	AvgRF
93) 1,4-dichlorobenzene	2.1084	2.0160			-4.5		0.003	AvgRF
94) n-butylbenzene	3.5679	3.4760			-2.6		-0.001	AvgRF
95) 1,2-dichlorobenzene	1.9639	1.8793			-4.3		-0.001	AvgRF
96) hexachloroethane	0.5571	0.5513			-1.1		-0.005	AvgRF
97) 1,2-dibromo-3-chloropropane	0.2061	0.2057			-0.2		0.000	AvgRF
98) 1,2,4-trichlorobenzene	1.2129	1.1859			-1.4		0.000	AvgRF
99) hexachlorobutadiene	0.4866	0.6870			14.2		-0.002	AvgRF
10 naphthalene	2.4806	2.5201			2.4		-0.004	AvgRF
10 1,2,3-trichlorobenzene	1.0755	1.0518			-2.2		0.004	AvgRF
10 2-ethylhexanol							-0.001	

Operator: twk-sop525r15

Date Printed: Tuesday, July 17, 2012

ALS Environmental -- FC

LIMS Version: 6.603

Page 2 of 2  
31 of 36

twk 7/17/12



# ALS Environmental -- FC

## Continuing Calibration Verification

Lab Sample ID: VL120917-2CCV	Calibration ID: <sup>7/16/12</sup> 080712S → 071612S
Analysis Date: 9/17/2012	Instrument ID: HPV2
File Name: B79252	Calibration Date: <sup>7/16/12</sup> 8/7/2012, 7/16/12

\* see sequence log page

Analyte	AvgRF	CCRF	Expected Conc.	Found Conc.	%Dev. or % Drift	%Diff (Area)	RT Dev.	Curve Type
1) ISTD fluorobenzene						9.4	0.003	AvgRF
4) vinyl chloride	0.4885	0.3925			-18.6		0.000	AvgRF
21) methyl tertiary butyl ether	1.1078	1.2260			10.6		-0.001	AvgRF
22) trans-1,2-dichloroethene	0.4437	0.4585			2.2		-0.001	AvgRF
32) cis-1,2-dichloroethene	0.4753	0.5227			10.0		0.004	AvgRF
45) benzene	1.4576	1.5448			6.0		-0.002	AvgRF
48) 1,2-dichloroethane	0.6466	0.8803			5.2		-0.003	AvgRF
47) trichloroethane	0.4444	0.4765			7.7		-0.003	AvgRF
58) ISTD chlorobenzene-d5						7.2	0.001	AvgRF
60) toluene	2.2365	2.3476			4.9		-0.001	AvgRF
94) tetrachloroethene	0.4888	0.4944			6.5		0.002	AvgRF
88) 1,2-dibromoethane	0.6095	0.6650			10.9		-0.003	AvgRF
71) ethylbenzene	2.5302	2.6726			6.6		0.000	AvgRF
73) m+p-xylene	0.8850	0.9475			6.9		-0.002	AvgRF
74) o-xylene	0.8855	0.9652			9.0		0.004	AvgRF
79) ISTD 1,4-dichlorobenzene-d4						7.6	0.003	AvgRF

**Nickname Filters**

8260\_IVOAA018  
8260Full\_NFS\_GW

Operator: twk-sop525r15

Date Printed: Monday, September 17, 2012

ALS Environmental -- FC

LIMS Version: 6.811

Page 1 of 1  
32 of 36

*twk/sbz*

# 8A

## Volatile Internal Standard Area Summary

Lab Name: ALS Environmental – FC

Date Analyzed: 9/17/2012

Work Order Number: 1209154

Time Analyzed: 12:39

Client Name: Battelle Energy Alliance

ClientProject ID: BEA030488 MFC Biodiesel Tank Removal ,TOS-A1175

Reported on: Wednesday, September 19, 2012

Instrument ID: HPV2

Lab File ID: B79252

	IS1		IS2		IS3		IS4		IS5		IS6	
	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT
12 Hour STD	646962	9.06	454345	11.77	232218	13.6						
Upper Limit	1293924	9.56	908690	12.3	464436	14.1						
Lower Limit	323481	8.56	227173	11.3	116109	13.1						
Lab Sample ID												
VL120917-2LCS	665838	9.06	472787	11.77	242095	13.60						
VL120917-2LCSD	661423	9.06	463822	11.77	237998	13.60						
VL120917-2MB	616263	9.06	426494	11.77	210906	13.60						
1209154-1	589843	9.06	396995	11.77	190409	13.60						
1209154-4	692481	9.06	464909	11.78	219907	13.60						
1209154-5	663964	9.06	454573	11.77	212671	13.60						
1209154-8	642933	9.06	436817	11.77	209174	13.60						
1209154-9	634793	9.06	440803	11.77	208358	13.60						
1209154-12	628638	9.06	434655	11.77	207431	13.60						
1209154-1MS	653826	9.06	445099	11.77	209013	13.60						
1209154-1MSD	670133	9.06	459853	11.77	219569	13.60						

Shaded values exceed established area count limits.

LIMS Version: 6.511

Upper Limit = + 100 percent of internal standard area.

Lower Limit = - 50 percent of internal standard area.

33 of 36



## Supporting Raw Data

GCMS Volatile Instrument Run Log - HPV2  
 ALS Laboratory Group - Fort Collins, CO

Sequence Name: C:\HPCHEM\1\SEQUENCE\071612.S  
 Comment: HPV2: 8260 - 5ml heated purge - Serial Number 3188A03493  
 Data Path: C:\HPCHEM\1\DATA\071612\  
 Operator: twk-sop523rls Analysis Date: 07/16/12  
 Istd/Surr ID's (1.0ul): ST120711-7 Standard ID's: see comments  
 Logbook Number: 3094 purge time: min. desorb time & temp.: min. @ C

Vial	DataFile	Method	Sample Name	Dil.	Samp. Amt.	RA?	pH<2?	HS?	Comment
1	B77993	0522128	Blank		5.0ml			NA	
2	B77994	0522128	Blank		1ul			NA	
100	B77995	EFB	EFB-TUNE1		5.0ml			NA	ST120713-1 injection @ 09:54
3	B77996	0716128	Blank		5.0ml				
4	B77997	0716128	Blank		5.0ml				ST120712-3 2ul to 5ml
5	B77998	0716128	VOC 2ppb_ICAL						4ul
6	B77999	0716128	VOC 4ppb_ICAL						10ul
7	B78000	0716128	VOC 10ppb_ICAL						20ul
8	B78001	0716128	VOC 20ppb_ICAL						2ul
9	B78002	0716128	VOC 40ppb_ICAL						5ul
10	B78003	0716128	VOC 60ppb_ICAL						4ul
11	B78004	0716128	VOC 80ppb_ICAL						5ul
12	B78005	0716128	VOC 120ppb_ICAL						5ul
13	B78006	0716128	VOC 160ppb_ICAL						5ul
14	B78007	0716128	Blank						4ul
15	B78008	0716128	VL120716-2ICV						5ml
16	B78009	0716128	VL120716-2LCS						ST120712-5 2ul to 5ml
17	B78010	0716128	VL120716-2LCS						ST120712-1-2 2ul to 5ml
18	B78011	0716128	VL120716-2LCS						low concentration used
19	B78012	0716128	VL120716-2MB						all samples 5.0ml
20	B78013	0716128	1207118-1						
21	B78014	0716128	1207118-1DUP						
22	B78015	0716128	1207118-1MS						
23	B78016	0716128	1207118-2						ST120712-1-2 2ul to 5ml
24	B78017	0716128	1207118-3						
25	B78018	0716128	1207118-4						
26	B78019	0716128	1207118-5						
27	B78020	0716128	1207118-6						
28	B78021	0716128	1207118-7						
29	B78022	0716128	1207118-8						
30	B78023	0716128	1207118-9						
31	B78024	0716128	1207118-10						
32	B78025	0716128	1207118-2						
33	B78026	0716128	1207118-3						
34	B78027	0716128	1207118-4						
35	B78028	0716128	1207118-5						
36	B78029	0716128	1207118-6						
37	B78030	0716128	1207118-7						
38	B78031	0716128	1207118-8						
38	B78032	0716128	1207118-9						

GCMS Volatile Instrument Run Log - HPV2  
 ALS Laboratory Group - Fort Collins, CO

Sequence Name: C:\HPCHEM\1\SEQUENCE\091712.S \* Inadvertently acquired with method 080712S (M150)  
 Comment: HPV2: 8260 - 5mL heated purge - Serial Number 3182A03493 All acquisition parameters identical to 071612S  
 Data Path: C:\HPCHEM\1\DATA\091712\ Analysis Date: 09/17/12  
 Operator: twk-sop25r15 Standard ID's: ST120910-1  
 Istd\Surf ID's (1.0uL): ST120910-1 min. desorb time & temp.: 1 min. @ 190 C  
 Logbook Number: 3094 purge time: 8 min. desorb time & temp.: 1 min. @ 190 C

Vial	DataFile Method	Sample Name	Dil.	Stamp. Amt.	RA?	PH<2?	HS?	Comment
1	B79246	080712S Blank					NA	
2	B79247	080712S Blank					NA	
3	B79248	080712S Blank					NA	
100	B79249	BFB-TUNE-1						
4	B79250	080712S Blank		5.0 ml				ST120828-6 - injection @ 11:17
5	B79251	080712S VL120917-2RVS		5.0 ml				ST120828-5 - fail to 5 ml = 5 ppb
6	B79252	080712S VL120917-2CCV		5.0 g sand				2 ml CAL STD's to 5 ml
7	B79253	080712S VL120917-2LCS		5.0 ml				
8	B79254	080712S VL120917-2LCS		5.0 g sand				
9	B79255	080712S VL120917-2MB						
10	B79256	080712S 1209154-1		5.0 g				DCM @ 2.77 min - all others = 0
11	B79257	071612S 1209154-4						
12	B79258	071612S 1209154-5						
13	B79259	071612S 1209154-8						
14	B79260	071612S 1209154-9						
15	B79261	071612S 1209154-12						
16	B79262	071612S 1209154-1MS						2 ml CAL STD's to 5 ml
17	B79263	071612S 1209154-1MSD						2 ml CAL STD's to 5 ml
18	B79264	071612S 1209093-2						
19	B79265	071612S 1209093-2MS						
20	B79266	071612S 1209093-2MSD						
21	B79267	071612S 1209093-3						
22	B79268	071612S 1209198-2						
23	B79269	071612S 1209198-3						
24	B79270	071612S 1209198-4						
25	B79271	071612S 1209198-3						
26	B79272	071612S 1209198-2						
27	B79273	071612S 1209198-3						not needed used
28	B79274	071612S 1209198-4						
29	B79275	071612S 1209089-1	100					desorb @ 2.0:5.0 screening MUDH Extracts
30	B79276	071612S 1209089-2		100 extract				
31	B79277	071612S 1209089-3						
32	B79278	071612S 1209089-4						
33	B79279	071612S 1209089-5						
34	B79280	071612S 1209089-6						
35	B79281	071612S 1209089-7						
36	B79282	071612S 1209089-8						
37	B79283	071612S 1209089-9						
38	B79284	071612S 1209089-10						
39	B79285	071612S 1209089-11						

# Appendix E

## DEQ Notification of Sample Results for MFC UST Closure (CCN 228521)

Idaho National Laboratory Mail - DEQ notification of sample results for ... <https://mail.google.com/mail/b/277/u/0/?ui=2&ik=21e29e2ec5&view=p...>



CCN 228521

ServiceID, ENVIRONMENTAL CORRESPONDENCE <envaff@inl.gov>

---

### DEQ notification of sample results for the MFC UST closure

1 message

---

Griffith, Bradley K <bradley.griffith@inl.gov>

Thu, Sep 20, 2012 at 4:29 PM

To: ENVIRONMENTAL CORRESPONDENCE ServiceID <envaff@inl.gov>, James F Graham <james.graham@inl.gov>, Timothy L Carlson <timothy.carlson@inl.gov>, Timothy A Miller <timothy.miller@inl.gov>

On Thursday, Sept. 20th at approximately 9:00 AM I called Steve Heaton (Idaho DEQ) regarding sample results that were received at approximately 3:30 PM on Sept. 19th for the MFC Biodiesel UST closure. Jason Sturm (DOE) was also on the call. I left a message on Mr. Heaton's voicemail stating some of the sample results were above the residential use screening levels and asked for him to return my call. At approximately 10:00 AM Mr. Heaton returned my call and I gave him details about the sample results, went over options such as removing more soil and sampling again, or completing a site specific risk evaluation. Mr. Heaton thought removing additional soil and sampling may bring us to the desired screening levels. I also told Mr. Heaton that the phone call should be considered the required 24-hour notification. Mr. Heaton agreed and said he would log it when he returned to his office Monday, Sept. 24th.

# Appendix F

## Sample Analytical Report #2



September 25, 2012

Ms. Peggy Scherbinske  
Battelle Energy Alliance  
2525 N. Fremont Ave.  
Idaho Falls, ID 83415-6194

Re: ALS Workorder: 12-09-339  
Project Name: MFC Biodiesel Tank Removal, TOS-A1175 Rev2  
Project Number: BEA031231

Dear Ms. Scherbinske:

Eighteen soil samples were received from Battelle Energy Alliance on September 21, 2012. The samples were scheduled for the following analyses:

GC/MS Volatiles pages 1-40  
GC/MS Semivolatiles pages 1-47

The results for these analyses are contained in the enclosed report.

Thank you for your confidence in ALS Environmental. Should you have any questions, please call.

Sincerely,

  
ALS Environmental  
Jeff Kujawa  
Project Manager

JRK/erl  
Enclosure (s): Report

ADDRESS 225 Commerce Drive, Fort Collins, Colorado, USA 80524 (PHONE +1 970 490 1511 ) FAX +1 970 490 1522

ALS GROUP USA, CORP. Part of the ALS Laboratory Group A Campbell Brothers Limited Company



ALS is accredited by the following accreditation bodies for various testing scopes in accordance with requirements of each accreditation body. All testing is performed under the laboratory management system, which is maintained to meet these requirement and regulations. Please contact the laboratory or accreditation body for the current scope testing parameters.

Accreditation Body	Accreditation Number
Washington	C1280
Utah	CO00078
Arizona	AZ0742
Alaska	UST-086
Alaska	CO00078
Florida	E87914
Missouri	175
North Dakota	R-057
New Jersey	CO003
Nevada	CO000782008A
California	06251CA
Kansas	E-10381
Maryland	285
Pennsylvania	68-03116
Texas	T104704241-09-1
Colorado	CO00078
Connecticut	PH-0232
Idaho	CO00078
Tennessee	2976
Kentucky	90137
L-A-B (DoD ELAP/ISO 17025)	L2257





## GC/MS Semivolatiles SIMPAAH Case Narrative

---

### **Battelle Energy Alliance**

MFC Biodiesel Tank Removal, TOS-A1175 Rev 2 --  
BEA031231

Work Order Number: 1209339

1. This report consists of 9 soil samples. The samples were received cool and intact by ALS on 09/21/12.
2. These samples were prepared and analyzed according to SW-846, 3rd Edition procedures. Specifically, the soil samples were extracted using soxhlet procedures according to SW-846 Method 3540C utilizing the current revision of SOP 625.
3. The extracts were analyzed using GC/MS with a DB-5MS capillary column according to the current revision of SOP 506 based on SW-846 Method 8270D. The samples were analyzed using selective ion monitoring (SIM), in order to achieve lower reporting limits. All positive results were quantitated against the initial calibration standards using the internal standard technique. The identification of positive results was achieved by a comparison of the retention time and a limited number of major ions from the mass spectrum of the sample versus the daily calibration standard.
4. All initial calibration criteria were met. If average response factors were used in the initial calibration, %RSD was  $\leq 20\%$ . If linear or higher order regression calibrations were used in the initial calibration, the coefficient of determination ( $r^2$ )  $\geq 0.99$ .
5. All initial calibration standards are verified by comparing a second source standard initial calibration verification (ICV) against the calibration curve. All target compounds in the second source verification had a %D  $\leq 30\%$ .
6. All method blank criteria were met.
7. All laboratory control sample and laboratory control sample duplicate recoveries and RPDs were within the acceptance criteria.

1 of 47



8. Sample 1209339-2 was designated as the quality control sample for this analysis. Similarity of matrix and therefore relevance of the QC results should not be automatically inferred for any sample other than the native sample selected for QC.

All matrix spike and matrix spike duplicate recoveries and RPDs were within acceptance criteria with the following exceptions:

Spiked Compound	QC Sample	Direction
Several Compounds	MS/MSD	Low

The recoveries of these compounds in the laboratory control sample and laboratory control sample duplicate were within control limits, which suggest the outliers in the matrix spikes may have been due to matrix effects, so no further action was taken.

9. The samples were extracted and analyzed within the established holding times.
10. All surrogate recoveries were within acceptance criteria.
11. All internal standard recoveries were within acceptance criteria with the following exceptions:

Internal Standard	Sample	Direction
Perylene-D <sub>12</sub>	1209339-2, -2MS, -2MSD, -6, -9, -12, -14 & -18	Low

Re-analysis of the samples duplicated the original result. This suggests that the outliers were due to matrix effects. No further action was taken.

12. Sample 1209339-16 was analyzed at dilution to bring target analytes in to calibration range. The reporting limits have been adjusted accordingly.
13. Manual integrations are performed when needed to provide consistent and defensible data following the guidelines in the current revision of SOP 939.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, ALS certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

  
Emily Lyons  
Organics Primary Data Reviewer

9-25-17  
Date

  
Tyler W. Smith  
Organics Final Data Reviewer

9-25-12  
Date



**ALS**  
*Data Qualifier Flags*  
*Chromatography and Mass Spectrometry*

- U or ND:** This flag indicates that the compound was analyzed for but not detected.
- J:** This flag indicates an estimated value. This flag is used as follows: (1) when estimating a concentration for tentatively identified compounds (TICs) where a 1:1 response is assumed; (2) when the mass spectral and retention time data indicate the presence of a compound that meets the volatile and semivolatile GC/MS identification criteria, and the result is less than the reporting limit (RL) but greater than the method detection limit (MDL); (3) when the retention time data indicate the presence of a compound that meets the GC identification criteria, and the result is less than the RL but greater than the MDL; and (4) the reported value is estimated.
- B:** This flag is used when the analyte is detected in the associated method blank as well as in the sample. It indicates probable blank contamination and warns the data user. This flag shall be used for a tentatively identified compound (TIC) as well as for a positively identified target compound.
- E:** This flag identifies compounds whose concentration exceeds the upper level of the calibration range.
- A:** This flag indicates that a tentatively identified compound is a suspected aldol-condensation product.
- X:** This flag indicates that the analyte was diluted below an accurate quantitation level.
- \*:** This flag indicates that a spike recovery is equal to or outside the control criteria used.
- +:** This flag indicates that the relative percent difference (RPD) equals or exceeds the control criteria.



## Chain of Custody

# ALS Environmental -- FC

## Sample Number(s) Cross-Reference Table

---

OrderNum: 1209339  
Client Name: Battelle Energy Alliance  
Client Project Name: MFC Biodiesel Tank Removal ,TOS-A1175 Rev2  
Client Project Number: BEA031231  
Client PO Number: SOW-8500

---

Client Sample Number	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
BEA031231_MFC	1209339-1		SOIL	20-Sep-12	14:45
BEA031232_MFC	1209339-2		SOIL	20-Sep-12	14:45
BEA031233_MFC	1209339-3		SOIL	20-Sep-12	14:50
BEA031234_MFC	1209339-4		SOIL	20-Sep-12	14:50
BEA031235_MFC	1209339-5		SOIL	20-Sep-12	14:55
BEA031236_MFC	1209339-6		SOIL	20-Sep-12	14:55
BEA031237_MFC	1209339-7		SOIL	20-Sep-12	15:00
BEA031238_MFC	1209339-8		SOIL	20-Sep-12	15:00
BEA031239_MFC	1209339-9		SOIL	20-Sep-12	15:05
BEA031240_MFC	1209339-10		SOIL	20-Sep-12	15:05
BEA031247_MFC	1209339-11		SOIL	20-Sep-12	15:10
BEA031248_MFC	1209339-12		SOIL	20-Sep-12	15:10
BEA031249_MFC	1209339-13		SOIL	20-Sep-12	14:20
BEA031250_MFC	1209339-14		SOIL	20-Sep-12	14:20
BEA031251_MFC	1209339-15		SOIL	20-Sep-12	14:25
BEA031252_MFC	1209339-16		SOIL	20-Sep-12	14:25
BEA031253_MFC	1209339-17		SOIL	20-Sep-12	14:30
BEA031254_MFC	1209339-18		SOIL	20-Sep-12	14:30



Chain of Custody Number : 5300 9533 5466

530095339

Laboratory: ALS Laboratory Group  
Facility:  
Contact: Jeff Kujawa  
Phone: 970-490-1511

Address:  
225 Commerce Drive  
Fort Collins CO 80524

INL Contact: Peggy Scherbinske Phone: 533-7144

Sample Number	Sample Details
① BEA031231_MFC	<b>Location:</b> MFC (MFC) <b>Analysis:</b> BTEX, EDB, EDC, MTBE \ IVOA-A-018 \ <b>Sample Date:</b> 9/20/2012 2:45:00 PM <b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Contract:</b> TOS-A1175R2 <b>Filtered?</b> N <b>Hold Time:</b> <b>Preservative:</b> cool, no headspace <b>Matrix:</b> SOIL
② BEA031232_MFC	<b>Location:</b> MFC (MFC) <b>Analysis:</b> PAH \ ISVO-A-014 \ <b>Sample Date:</b> 9/20/2012 2:45:00 PM <b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Contract:</b> TOS-A1175R2 <b>Filtered?</b> N <b>Hold Time:</b> <b>Preservative:</b> cool, no head space <b>Matrix:</b> SOIL
③ BEA031233_MFC	<b>Location:</b> MFC (MFC) <b>Analysis:</b> PAH \ ISVO-A-014 \ <b>Sample Date:</b> 9/20/2012 2:50:00 PM <b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Contract:</b> TOS-A1175R2 <b>Filtered?</b> N <b>Hold Time:</b> <b>Preservative:</b> cool, no head space <b>Matrix:</b> SOIL
④ X BEA031234_MFC	<b>Location:</b> MFC (MFC) <b>Analysis:</b> BTEX, EDB, EDC, MTBE \ IVOA-A-018 \ <b>Sample Date:</b> 9/20/2012 2:50:00 PM <b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Contract:</b> TOS-A1175R2 <b>Filtered?</b> N <b>Hold Time:</b> <b>Preservative:</b> cool, no headspace <b>Matrix:</b> SOIL
⑤ BEA031235_MFC	<b>Location:</b> MFC (MFC) <b>Analysis:</b> BTEX, EDB, EDC, MTBE \ IVOA-A-018 \ <b>Sample Date:</b> 9/20/2012 2:55:00 PM <b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Contract:</b> TOS-A1175R2 <b>Filtered?</b> N <b>Hold Time:</b> <b>Preservative:</b> cool, no headspace <b>Matrix:</b> SOIL
⑥ BEA031236_MFC	<b>Location:</b> MFC (MFC) <b>Analysis:</b> PAH \ ISVO-A-014 \ <b>Sample Date:</b> 9/20/2012 2:55:00 PM <b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Contract:</b> TOS-A1175R2 <b>Filtered?</b> N <b>Hold Time:</b> <b>Preservative:</b> cool, no head space <b>Matrix:</b> SOIL

BEA031237_MFC	<b>Location:</b> MFC (MFC) <b>Analysis:</b> PAH \ ISVO-A-014 \ <b>Sample Date:</b> 9/20/2012 3:00:00 PM <b>Contract:</b> TOS-A1175R2 <b>Hold Time:</b> <b>Matrix:</b> SOIL	<b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no head space
BEA031238_MFC	<b>Location:</b> MFC (MFC) <b>Analysis:</b> BTEX, EDB, EDC, MTBE \ IVOA-A-018 \ <b>Sample Date:</b> 9/20/2012 3:00:00 PM <b>Contract:</b> TOS-A1175R2 <b>Hold Time:</b> <b>Matrix:</b> SOIL	<b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no headspace
BEA031239_MFC	<b>Location:</b> MFC (MFC) <b>Analysis:</b> PAH \ ISVO-A-014 \ <b>Sample Date:</b> 9/20/2012 3:05:00 PM <b>Contract:</b> TOS-A1175R2 <b>Hold Time:</b> <b>Matrix:</b> SOIL	<b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no head space
BEA031240_MFC	<b>Location:</b> MFC (MFC) <b>Analysis:</b> BTEX, EDB, EDC, MTBE \ IVOA-A-018 \ <b>Sample Date:</b> 9/20/2012 3:05:00 PM <b>Contract:</b> TOS-A1175R2 <b>Hold Time:</b> <b>Matrix:</b> SOIL	<b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no headspace
BEA031247_MFC	<b>Location:</b> MFC (MFC) <b>Analysis:</b> BTEX, EDB, EDC, MTBE \ IVOA-A-018 \ <b>Sample Date:</b> 9/20/2012 3:10:00 PM <b>Contract:</b> TOS-A1175R2 <b>Hold Time:</b> <b>Matrix:</b> SOIL	<b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no headspace
BEA031248_MFC	<b>Location:</b> MFC (MFC) <b>Analysis:</b> PAH \ ISVO-A-014 \ <b>Sample Date:</b> 9/20/2012 3:10:00 PM <b>Contract:</b> TOS-A1175R2 <b>Hold Time:</b> <b>Matrix:</b> SOIL	<b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no head space
BEA031249_MFC	<b>Location:</b> MFC (MFC) <b>Analysis:</b> BTEX, EDB, EDC, MTBE \ IVOA-A-018 \ <b>Sample Date:</b> 9/20/2012 2:20:00 PM <b>Contract:</b> TOS-A1175R2 <b>Hold Time:</b> <b>Matrix:</b> SOIL	<b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no headspace
BEA031250_MFC	<b>Location:</b> MFC (MFC) <b>Analysis:</b> PAH \ ISVO-A-014 \ <b>Sample Date:</b> 9/20/2012 2:20:00 PM <b>Contract:</b> TOS-A1175R2 <b>Hold Time:</b> <b>Matrix:</b> SOIL	<b>Container Qty - Type:</b> 1 - 4 oz amber glass <b>Filtered?</b> N <b>Preservative:</b> cool, no head space

1269331

BEA031251_MFC	Location: MFC (MFC) Analysis: BTEX, EDB, EDC, MTBE \ IVOA-A-018 \ Sample Date: 9/20/2012 2:25:00 PM Contract: TOS-A1175R2 Hold Time: Matrix: SOIL	Container Qty - Type: 1 - 4 oz amber glass Filtered? N Preservative: cool, no headspace
BEA031252_MFC	Location: MFC (MFC) Analysis: PAH \ ISVO-A-014 \ Sample Date: 9/20/2012 2:25:00 PM Contract: TOS-A1175R2 Hold Time: Matrix: SOIL	Container Qty - Type: 1 - 4 oz amber glass Filtered? N Preservative: cool, no head space
BEA031253_MFC	Location: MFC (MFC) Analysis: BTEX, EDB, EDC, MTBE \ IVOA-A-018 \ Sample Date: 9/20/2012 2:30:00 PM Contract: TOS-A1175R2 Hold Time: Matrix: SOIL	Container Qty - Type: 1 - 4 oz amber glass Filtered? N Preservative: cool, no headspace
BEA031254_MFC	Location: MFC (MFC) Analysis: PAH \ ISVO-A-014 \ Sample Date: 9/20/2012 2:30:00 PM Contract: TOS-A1175R2 Hold Time: Matrix: SOIL	Container Qty - Type: 1 - 4 oz amber glass Filtered? N Preservative: cool, no head space

Relinquished By:	Date:	Time:	Received By:	Date:	Time:
<i>[Signature]</i>	9/20/2012	1550	C. Drumble	9-21-12	0945

Comments:

TOS-A1175 Rev 2





ALS Environmental - Fort Collins  
CONDITION OF SAMPLE UPON RECEIPT FORM

Client: BEA Workorder No: 1209339  
Project Manager: JK Initials: CT Date: 9-21-12

1. Does this project require any special handling in addition to standard ALS procedures?		YES	<input checked="" type="radio"/> NO
2. Are custody seals on shipping containers intact?	NONE	<input checked="" type="radio"/> YES	NO
3. Are Custody seals on sample containers intact?	<input checked="" type="radio"/> NONE	YES	NO
4. Is there a COC (Chain-of-Custody) present or other representative documents?		<input checked="" type="radio"/> YES	NO
5. Are the COC and bottle labels complete and legible?		<input checked="" type="radio"/> YES	NO
6. Is the COC in agreement with samples received? (IDs, dates, times, no. of samples, no. of containers, matrix, requested analyses, etc.)		<input checked="" type="radio"/> YES	NO
7. Were airbills / shipping documents present and/or removable?	DROP OFF	<input checked="" type="radio"/> YES	NO
8. Are all aqueous samples requiring preservation preserved correctly? (excluding volatiles)	<input checked="" type="radio"/> N/A	YES	NO
9. Are all aqueous non-preserved samples pH 4-9?	<input checked="" type="radio"/> N/A	YES	NO
10. Is there sufficient sample for the requested analyses?		<input checked="" type="radio"/> YES	NO
11. Were all samples placed in the proper containers for the requested analyses?		<input checked="" type="radio"/> YES	NO
12. Are all samples within holding times for the requested analyses?		<input checked="" type="radio"/> YES	NO
13. Were all sample containers received intact? (not broken or leaking, etc.)		<input checked="" type="radio"/> YES	NO
14. Are all samples requiring no headspace (VOC, GRO, RSK/MEE, Rx CN/S, radon) headspace free? Size of bubble: ___ < green pea ___ > green pea	<input checked="" type="radio"/> N/A	YES	NO
15. Do any water samples contain sediment? Amount Amount of sediment: ___ dusting ___ moderate ___ heavy	<input checked="" type="radio"/> N/A	YES	NO
16. Were the samples shipped on ice?		<input checked="" type="radio"/> YES	NO
17. Were cooler temperatures measured at 0.1-6.0°C? IR gun used*: #2 <input checked="" type="radio"/> #4		<input checked="" type="radio"/> YES	NO
Cooler #: <u>1</u>			
Temperature (°C): <u>2.2</u>			
No. of custody seals on cooler: <u>2</u>			
External µR/hr reading: <u>13</u>			
Background µR/hr reading: <u>11</u>			
Were external µR/hr readings ≤ two times background and within DOT acceptance criteria? <input checked="" type="radio"/> YES <input type="radio"/> NO / NA (If no, see Form 008.)			

**Additional Information:** PROVIDE DETAILS BELOW FOR A NO RESPONSE TO ANY QUESTION ABOVE, EXCEPT #1 AND #16.

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If applicable, was the client contacted? YES / NO /  NA Contact: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
Project Manager Signature / Date: [Signature] 9-21-12

ORIGIN ID: IDAA (208) 533-7482  
ROB FLORES  
BATTELLE ENERGY ALLIANCE ON BEHALF  
OF THE U.S. DEPARTMENT OF ENERGY  
MATERIALS & FUELS COMPLEX-BLDG 781  
SCOVILLE, ID 83415  
UNITED STATES US

SHIP  
ACTWGT: 50  
CAD: 0947638/CAFE...  
DIMS: 24x28x28 IN

BILL SENDER

TO JEFF KUJAWA  
ALS LABORATORY GROUP  
225 COMMERCE DRIVE

FORT COLLINS CO 80524  
(970) 490-1511 REF: 5301837M2 H530 23324  
DEPT: ROB

1209339  
13  
-2

54821/8038/1882



FedEx  
Express



J111110888125

TRKH  
5300 9533 5466

0945 FRI - 21 SEP A2  
PRIORITY OVERNIGHT

XH FTCA 2.2

80524  
CO-US DEN

9501 1501401-025-0000-0-0-0-1-1\*





## Analytical Results

# GC/MS Semi-volatiles

Method SW8270SIMPAHD

Method Blank

Lab Name: ALS Environmental – FC  
 Work Order Number: 1209339  
 Client Name: Battelle Energy Alliance  
 Client/Project ID: MFC Biodiesel Tank Removal ,TOS-A1175 Rev2 BEA031231

Lab ID: EX120921-6MB	Sample Matrix: SOIL % Moisture: N/A Date Collected: N/A Date Extracted: 21-Sep-12 Date Analyzed: 22-Sep-12 Prep Method: SW3540 Rev C	Prep Batch: EX120921-6 QCBatchID: EX120921-6-1 Run ID: SV120922-1 Cleanup: NONE Basis: N/A File Name: N8033	Sample Aliquot: 30 g Final Volume: 1 ml Result Units: UG/KG Clean DF: 1
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CASNO	Target Analyte	DF	Result	Reporting Limit	Result Qualifier	EPA Qualifier
91-20-3	NAPHTHALENE	1	3.3	3.3	U	
208-98-8	ACENAPHTHYLENE	1	3.3	3.3	U	
83-32-9	ACENAPHTHENE	1	3.3	3.3	U	
86-73-7	FLUORENE	1	3.3	3.3	U	
85-01-8	PHENANTHRENE	1	3.3	3.3	U	
120-12-7	ANTHRACENE	1	3.3	3.3	U	
206-44-0	FLUORANTHENE	1	3.3	3.3	U	
129-00-0	PYRENE	1	3.3	3.3	U	
56-55-3	BENZO(A)ANTHRACENE	1	3.3	3.3	U	
218-01-9	CHRYSENE	1	3.3	3.3	U	
205-99-2	BENZO(B)FLUORANTHENE	1	3.3	3.3	U	
207-08-9	BENZO(K)FLUORANTHENE	1	3.3	3.3	U	
50-32-8	BENZO(A)PYRENE	1	3.3	3.3	U	
193-39-5	INDENO(1,2,3-CD)PYRENE	1	3.3	3.3	U	
53-70-3	DIBENZO(A,H)ANTHRACENE	1	3.3	3.3	U	
191-24-2	BENZO(G,H)PERYLENE	1	3.3	3.3	U	

## Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	48.4		66.7	73	41 - 106
4165-60-0	NITROBENZENE-D5	53		66.7	80	28 - 113
1718-51-0	TERPHENYL-D14	45		66.7	68	25 - 147

Data Package ID: SV1209339-1

**GC/MS SEMI-VOLATILES**  
**Method SW8270SIMPAH Revision D**  
**Sample Results**

Lab Name: **ALS Environmental -- FC**  
 Work Order Number: 1209339  
 Client Name: **Battelle Energy Alliance**  
 ClientProject ID: **MFC Biodiesel Tank Removal ,TOS-A1175 Rev2 BEA031231**

Field ID: BEA031232_MFC
Lab ID: 1209339-2

Sample Matrix: SOIL	Prep Batch: EX120921-6	Analyst: Joe Kostelnik
% Moisture: 9.2	QCBatchID: EX120921-6-1	Sample Aliquot: 30.31 G
Date Collected: 20-Sep-12	Run ID: SV120922-1	Final Volume: 1 ML
Date Extracted: 21-Sep-12	Cleanup: NONE	Result Units: UG/KG
Date Analyzed: 22-Sep-12	Basis: Dry Weight	Clean DF: 1
Prep Method: SW3540 Rev C	File Name: N8049	

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
91-20-3	NAPHTHALENE	1	3.6	3.6	U	
208-96-8	ACENAPHTHYLENE	1	3.6	3.6	U	
83-32-9	ACENAPHTHENE	1	3.6	3.6	U	
86-73-7	FLUORENE	1	3.6	3.6	U	
85-01-8	PHENANTHRENE	1	9.6	3.6		
120-12-7	ANTHRACENE	1	3.2	3.6	J	
206-44-0	FLUORANTHENE	1	66	3.6		
129-00-0	PYRENE	1	61	3.6		
56-55-3	BENZO(A)ANTHRACENE	1	44	3.6		
218-01-9	CHRYSENE	1	42	3.6		
205-99-2	BENZO(B)FLUORANTHENE	1	99	3.6		
207-08-9	BENZO(K)FLUORANTHENE	1	40	3.6		
50-32-8	BENZO(A)PYRENE	1	60	3.6		
193-39-5	INDENO(1,2,3-CD)PYRENE	1	25	3.6		
53-70-3	DIBENZO(A,H)ANTHRACENE	1	9.3	3.6		
191-24-2	BENZO(G,H,I)PERYLENE	1	30	3.6		

**Surrogate Recovery**

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	55.1		72.6	76	41 - 106
4165-80-0	NITROBENZENE-D5	60.3		72.6	83	28 - 113
1718-51-0	TERPHENYL-D14	68.7		72.6	95	25 - 147

Data Package ID: **SV1209339-1**

# GC/MS Semi-volatiles

Method SW8270SIMPAH Revision D

## Sample Results

Lab Name: **ALS Environmental – FC**  
 Work Order Number: 1209339  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 Rev2 BEA031231

Field ID: BEA031233_MFC Lab ID: 1209339-3	Sample Matrix: SOIL % Moisture: 8.8 Date Collected: 20-Sep-12 Date Extracted: 21-Sep-12 Date Analyzed: 22-Sep-12 Prep Method: SW3540 Rev C	Prep Batch: EX120921-6 QCBatchID: EX120921-6-1 Run ID: SV120922-1 Cleanup: NONE Basis: Dry Weight File Name: N8052	Analyst: Joe Kostelnik Sample Aliquot: 30.9 G Final Volume: 1 ML Result Units: UG/KG Clean DF: 1
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CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
91-20-3	NAPHTHALENE	1	3.5	3.5	U	
208-96-8	ACENAPHTHYLENE	1	3.5	3.5	U	
83-32-9	ACENAPHTHENE	1	3.5	3.5	U	
86-73-7	FLUORENE	1	3.5	3.5	U	
85-01-8	PHENANTHRENE	1	7.5	3.5		
120-12-7	ANTHRACENE	1	2.5	3.5	J	
206-44-0	FLUORANTHENE	1	55	3.5		
129-00-0	PYRENE	1	35	3.5		
56-55-3	BENZO(A)ANTHRACENE	1	25	3.5		
218-01-9	CHRYSENE	1	26	3.5		
205-99-2	BENZO(B)FLUORANTHENE	1	53	3.5		
207-08-9	BENZO(K)FLUORANTHENE	1	24	3.5		
50-32-8	BENZO(A)PYRENE	1	32	3.5		
193-39-5	INDENO(1,2,3-CD)PYRENE	1	13	3.5		
53-70-3	DIBENZO(A,H)ANTHRACENE	1	4.5	3.5		
191-24-2	BENZO(G,H,I)PERYLENE	1	14	3.5		

### Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	48.8		71	69	41 - 106
4165-60-0	NITROBENZENE-D5	53.8		71	76	28 - 113
1718-51-0	TERPHENYL-D14	34.6		71	49	25 - 147

Data Package ID: *SV1209339-1*

# GC/MS Semi-volatiles

Method SW8270SIMPAH Revision D

## Sample Results

Lab Name: ALS Environmental -- FC  
 Work Order Number: 1209339  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 Rev2 BEA031231

Field ID: BEA031236_MFC	Sample Matrix: SOIL	Prep Batch: EX120921-6	Analyst: Joe Kostelnik
Lab ID: 1209339-6	% Moisture: 11.7	QCBatchID: EX120921-6-1	Sample Aliquot: 30.14 G
	Date Collected: 20-Sep-12	Run ID: SV120922-1	Final Volume: 1 ML
	Date Extracted: 21-Sep-12	Cleanup: NONE	Result Units: UG/KG
	Date Analyzed: 23-Sep-12	Basis: Dry Weight	Clean DF: 1
	Prep Method: SW3540 Rev C	File Name: N6053	

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
91-20-3	NAPHTHALENE	1	3.8	3.8	U	
208-96-8	ACENAPHTHYLENE	1	2.1	3.8	J	
83-32-9	ACENAPHTHENE	1	3.8	3.8	U	
86-73-7	FLUORENE	1	3.8	3.8	U	
85-01-8	PHENANTHRENE	1	11	3.8		
120-12-7	ANTHRACENE	1	4.4	3.8		
206-44-0	FLUORANTHENE	1	74	3.8		
129-00-0	PYRENE	1	71	3.8		
56-55-3	BENZO(A)ANTHRACENE	1	44	3.8		
218-01-9	CHRYSENE	1	40	3.8		
205-99-2	BENZO(B)FLUORANTHENE	1	95	3.8		
207-08-9	BENZO(K)FLUORANTHENE	1	37	3.8		
50-32-8	BENZO(A)PYRENE	1	58	3.8		
193-39-5	INDENO(1,2,3-CD)PYRENE	1	29	3.8		
53-70-3	DIBENZO(A,H)ANTHRACENE	1	11	3.8		
191-24-2	BENZO(G,H,I)PERYLENE	1	34	3.8		

### Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	52.6		75.1	70	41 - 106
4165-60-0	NITROBENZENE-D5	59.6		75.1	79	28 - 113
1718-51-0	TERPHENYL-D14	80.5		75.1	107	25 - 147

Data Package ID: SV1209339-1

# GC/MS Semi-volatiles

Method SW8270SIMPAH Revision D

## Sample Results

Lab Name: ALS Environmental -- FC  
 Work Order Number: 1209339  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 Rev2 BEA031231

Field ID: BEA031237_MFC	Sample Matrix: SOIL	Prep Batch: EX120921-6	Analyst: Joe Kostelnik
Lab ID: 1209339-7	% Moisture: 12.2	QC Batch ID: EX120921-6-1	Sample Aliquot: 30.16 G
	Date Collected: 20-Sep-12	Run ID: SV120922-1	Final Volume: 1 ML
	Date Extracted: 21-Sep-12	Cleanup: NONE	Result Units: UG/KG
	Date Analyzed: 22-Sep-12	Basis: Dry Weight	Clean DF: 1
	Prep Method: SW3640 Rev C	File Name: N6048	

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
91-20-3	NAPHTHALENE	1	3.8	3.8	U	
208-96-8	ACENAPHTHYLENE	1	3.8	3.8	U	
83-32-9	ACENAPHTHENE	1	3.8	3.8	U	
86-73-7	FLUORENE	1	3.8	3.8	U	
85-01-8	PHENANTHRENE	1	4.5	3.8		
120-12-7	ANTHRACENE	1	1.5	3.8	J	
206-44-0	FLUORANTHENE	1	32	3.8		
129-00-0	PYRENE	1	25	3.8		
56-55-3	BENZO(A)ANTHRACENE	1	20	3.8		
218-01-9	CHRYSENE	1	19	3.8		
205-99-2	BENZO(B)FLUORANTHENE	1	49	3.8		
207-08-9	BENZO(K)FLUORANTHENE	1	17	3.8		
50-32-8	BENZO(A)PYRENE	1	27	3.8		
193-39-5	INDENO(1,2,3-CD)PYRENE	1	9.4	3.8		
53-70-3	DIBENZO(A,H)ANTHRACENE	1	3.3	3.8	J	
191-24-2	BENZO(G,H,I)PERYLENE	1	10	3.8		

### Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	56.8		75.5	75	41 - 106
4165-60-0	NITROBENZENE-D5	62.7		75.5	83	28 - 113
1718-51-0	TERPHENYL-D14	63.5		75.5	84	25 - 147

Data Package ID: SV1209339-1

Date Printed: Tuesday, September 25, 2012

ALS Environmental -- FC

Page 4 of 10

LMS Version: 6.613

16 of 47



# GC/MS Semi-volatiles

Method SW8270SIMPAH Revision D

## Sample Results

Lab Name: ALS Environmental – FC  
 Work Order Number: 1209339  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 Rev2 BEA031231

Field ID: BEA031239\_MFC  
 Lab ID: 1209339-9

Sample Matrix: SOIL  
 % Moisture: 11.9  
 Date Collected: 20-Sep-12  
 Date Extracted: 21-Sep-12  
 Date Analyzed: 23-Sep-12  
 Prep Method: SW3540 Rev C

Prep Batch: EX120921-6  
 QCBatchID: EX120921-6-1  
 Run ID: SV120922-1  
 Cleanup: NONE  
 Basis: Dry Weight  
 File Name: N6054

Analyst: Joe Kostelnik  
 Sample Aliquot: 30.2 G  
 Final Volume: 1 ML  
 Result Units: UG/KG  
 Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
91-20-3	NAPHTHALENE	1	3.8	3.8	U	
208-96-8	ACENAPHTHYLENE	1	3.8	3.8	U	
83-32-9	ACENAPHTHENE	1	3.8	3.8	U	
86-73-7	FLUORENE	1	3.8	3.8	U	
85-01-8	PHENANTHRENE	1	5.5	3.8		
120-12-7	ANTHRACENE	1	1.8	3.8	J	
206-44-0	FLUORANTHENE	1	45	3.8		
129-00-0	PYRENE	1	56	3.8		
56-55-3	BENZO(A)ANTHRACENE	1	35	3.8		
218-01-9	CHRYSENE	1	36	3.8		
205-99-2	BENZO(B)FLUORANTHENE	1	72	3.8		
207-08-9	BENZO(K)FLUORANTHENE	1	31	3.8		
50-32-8	BENZO(A)PYRENE	1	41	3.8		
193-39-5	INDENO(1,2,3-CD)PYRENE	1	19	3.8		
53-70-3	DIBENZO(A,H)ANTHRACENE	1	6.4	3.8		
191-24-2	BENZO(G,H,I)PERYLENE	1	23	3.8		

### Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	49.1		75.2	65	41 - 106
4165-60-0	NITROBENZENE-D5	49.9		75.2	66	28 - 113
1718-51-0	TERPHENYL-D14	80.6		75.2	107	25 - 147

Data Package ID: SV1209339-1

# GC/MS Semi-volatiles

Method SW8270SIMPAH Revision D

## Sample Results

Lab Name: ALS Environmental – FC  
 Work Order Number: 1209339  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 Rev2 BEA031231

Field ID: BEA031248_MFC
Lab ID: 1209339-12

Sample Matrix: SOIL	Prep Batch: EX120921-6	Analyst: Joe Kostelnik
% Moisture: 10.1	QCBatchID: EX120921-6-1	Sample Aliquot: 30.2 G
Date Collected: 20-Sep-12	Run ID: SV120922-1	Final Volume: 1 ML
Date Extracted: 21-Sep-12	Cleanup: NONE	Result Units: UG/KG
Date Analyzed: 23-Sep-12	Basis: Dry Weight	Clean DF: 1
Prep Method: SW3540 Rev C	File Name: N6055	

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
91-20-3	NAPHTHALENE	1	3.7	3.7	U	
208-96-8	ACENAPHTHYLENE	1	3.7	3.7	U	
83-32-9	ACENAPHTHENE	1	3.7	3.7	U	
86-73-7	FLUORENE	1	3.7	3.7	U	
85-01-8	PHENANTHRENE	1	16	3.7		
120-12-7	ANTHRACENE	1	5	3.7		
206-44-0	FLUORANTHENE	1	97	3.7		
129-00-0	PYRENE	1	110	3.7		
56-55-3	BENZO(A)ANTHRACENE	1	66	3.7		
218-01-9	CHRYSENE	1	72	3.7		
205-99-2	BENZO(B)FLUORANTHENE	1	140	3.7		
207-08-9	BENZO(K)FLUORANTHENE	1	48	3.7		
50-32-8	BENZO(A)PYRENE	1	84	3.7		
193-39-5	INDENO(1,2,3-CD)PYRENE	1	45	3.7		
53-70-3	DIBENZO(A,H)ANTHRACENE	1	15	3.7		
191-24-2	BENZO(G,H,I)PERYLENE	1	52	3.7		

### Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	52.8		73.7	72	41 - 106
4165-60-0	NITROBENZENE-D5	56.2		73.7	76	28 - 113
1718-51-0	TERPHENYL-D14	84.6		73.7	115	25 - 147

Data Package ID: SV1209339-1

Date Printed: Tuesday, September 25, 2012

ALS Environmental -- FC

Page 6 of 10

LMS Version: 6.613

18 of 47

# GC/MS Semi-volatiles

Method SW8270SIMPAAH Revision D

## Sample Results

Lab Name: **ALS Environmental – FC**  
 Work Order Number: 1209339  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 Rev2 BEA031231

Field ID: BEA031250_MFC Lab ID: 1209339-14	Sample Matrix: SOIL % Moisture: 3.1 Date Collected: 20-Sep-12 Date Extracted: 21-Sep-12 Date Analyzed: 24-Sep-12 Prep Method: SW3540 Rev C	Prep Batch: EX120921-6 QCBatchID: EX120921-6-1 Run ID: SV120924-1 Cleanup: NONE Basis: Dry Weight File Name: N8072	Analyst: Joe Kostelnik Sample Aliquot: 30.17 G Final Volume: 1 ML Result Units: UG/KG Clean DF: 1
-----------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
91-20-3	NAPHTHALENE	1	3.4	3.4	U	
208-96-8	ACENAPHTHYLENE	1	3.4	3.4	U	
83-32-9	ACENAPHTHENE	1	1.1	3.4	J	
86-73-7	FLUORENE	1	3.4	3.4	U	
85-01-8	PHENANTHRENE	1	4.6	3.4		
120-12-7	ANTHRACENE	1	1.6	3.4	J	
206-44-0	FLUORANTHENE	1	15	3.4		
129-00-0	PYRENE	1	13	3.4		
56-55-3	BENZO(A)ANTHRACENE	1	9.1	3.4		
218-01-9	CHRYSENE	1	7.4	3.4		
205-99-2	BENZO(B)FLUORANTHENE	1	19	3.4		
207-08-9	BENZO(K)FLUORANTHENE	1	7.3	3.4		
50-32-8	BENZO(A)PYRENE	1	11	3.4		
193-39-5	INDENO(1,2,3-CD)PYRENE	1	4.7	3.4		
53-70-3	DIBENZO(A,H)ANTHRACENE	1	1.5	3.4	J	
191-24-2	BENZO(G,H,I)PERYLENE	1	5.8	3.4		

### Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	51.5		68.4	75	41 - 106
4165-60-0	NITROBENZENE-D5	55.9		68.4	82	28 - 113
1718-51-0	TERPHENYL-D14	60.6		68.4	89	25 - 147

Data Package ID: SV1209339-1

# GC/MS Semi-volatiles

Method SW8270SIMPAH Revision D

## Sample Results

Lab Name: ALS Environmental – FC  
 Work Order Number: 1209339  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 Rev2 BEA031231

Field ID: BEA031252\_MFC  
 Lab ID: 1209339-16

Sample Matrix: SOIL  
 % Moisture: 3.0  
 Date Collected: 20-Sep-12  
 Date Extracted: 21-Sep-12  
 Date Analyzed: 22-Sep-12  
 Prep Method: SW3540 Rev C

Prep Batch: EX120921-6  
 QCBatchID: EX120921-6-1  
 Run ID: SV120922-1  
 Cleanup: NONE  
 Basis: Dry Weight  
 File Name: N6037

Analyst: Joe Kostelnik  
 Sample Aliquot: 30.18 G  
 Final Volume: 1 ML  
 Result Units: UG/KG  
 Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
91-20-3	NAPHTHALENE	7	24	24	U	
208-96-8	ACENAPHTHYLENE	7	24	24	U	
83-32-9	ACENAPHTHENE	7	24	24	U	
86-73-7	FLUORENE	7	24	24	U	
85-01-8	PHENANTHRENE	7	29	24		
120-12-7	ANTHRACENE	7	9.2	24	J	
206-44-0	FLUORANTHENE	7	160	24		
129-00-0	PYRENE	7	110	24		
56-55-3	BENZO(A)ANTHRACENE	7	90	24		
218-01-9	CHRYSENE	7	88	24		
205-99-2	BENZO(B)FLUORANTHENE	7	150	24		
207-08-9	BENZO(K)FLUORANTHENE	7	62	24		
50-32-8	BENZO(A)PYRENE	7	110	24		
193-39-5	INDENO(1,2,3-CD)PYRENE	7	70	24		
53-70-3	DIBENZO(A,H)ANTHRACENE	7	23	24	J	
191-24-2	BENZO(G,H,I)PERYLENE	7	77	24		

### Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	56.3		68.3	82	41 - 106
4165-60-0	NITROBENZENE-D5	56.8		68.3	83	28 - 113
1718-51-0	TERPHENYL-D14	52.4		68.3	77	25 - 147

Data Package ID: SV1209339-1

# GC/MS Semi-volatiles

Method SW8270SIMPAH Revision D

## Sample Results

Lab Name: ALS Environmental – FC  
 Work Order Number: 1209339  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 Rev2 BEA031231

Field ID: BEA031254_MFC	Sample Matrix: SOIL	Prep Batch: EX120921-6	Analyst: Joe Kostelnik
Lab ID: 1209339-18	% Moisture: 5.8	QCBatchID: EX120921-6-1	Sample Aliquot: 30.16 G
	Date Collected: 20-Sep-12	Run ID: SV120924-1	Final Volume: 1 ML
	Date Extracted: 21-Sep-12	Cleanup: NONE	Result Units: UG/KG
	Date Analyzed: 24-Sep-12	Basis: Dry Weight	Clean DF: 1
	Prep Method: SW3540 Rev C	File Name: N6073	

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
91-20-3	NAPHTHALENE	1	3.5	3.5	U	
208-96-8	ACENAPHTHYLENE	1	3.5	3.5	U	
83-32-9	ACENAPHTHENE	1	3.5	3.5	U	
86-73-7	FLUORENE	1	3.5	3.5	U	
85-01-8	PHENANTHRENE	1	4.3	3.5		
120-12-7	ANTHRACENE	1	1.6	3.5	J	
206-44-0	FLUORANTHENE	1	38	3.5		
129-00-0	PYRENE	1	37	3.5		
56-55-3	BENZO(A)ANTHRACENE	1	31	3.5		
218-01-9	CHRYSENE	1	27	3.5		
205-99-2	BENZO(B)FLUORANTHENE	1	60	3.5		
207-08-9	BENZO(K)FLUORANTHENE	1	33	3.5		
50-32-8	BENZO(A)PYRENE	1	43	3.5		
193-39-5	INDENO(1,2,3-CD)PYRENE	1	20	3.5		
53-70-3	DIBENZO(A,H)ANTHRACENE	1	6.4	3.5		
191-24-2	BENZO(G,H,I)PERYLENE	1	24	3.5		

### Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	51.3		70.4	73	41 - 106
4165-80-0	NITROBENZENE-D5	55.5		70.4	79	28 - 113
1718-51-0	TERPHENYL-D14	65		70.4	92	25 - 147

Data Package ID: SV1209339-1

# GC/MS Semi-volatiles

Method SW8270SIMPAAH Revision D

## Sample Results

Lab Name: ALS Environmental -- FC  
 Work Order Number: 1209339  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 Rev2 BEA031231

Field ID: BEA031252\_MFC  
 Lab ID: 1209339-16RR1

Sample Matrix: SOIL  
 % Moisture: 3.0  
 Date Collected: 20-Sep-12  
 Date Extracted: 21-Sep-12  
 Date Analyzed: 22-Sep-12  
 Prep Method: SW3540 Rev C

Prep Batch: EX120921-6  
 QCBatchID: EX120921-6-1  
 Run ID: SV120922-1  
 Cleanup: NONE  
 Basis: Dry Weight  
 File Name: N8047

Analyst: Joe Kostelnik  
 Sample Aliquot: 30.18 G  
 Final Volume: 1 ML  
 Result Units: UG/KG  
 Clean DF: 1

CASNO	Target Analyte	Dilution Factor	Result	Reporting Limit	Result Qualifier	EPA Qualifier
91-20-3	NAPHTHALENE	1	3.4	3.4	U	
208-96-8	ACENAPHTHYLENE	1	3.4	3.4	U	
83-32-9	ACENAPHTHENE	1	3.4	3.4	U	
86-73-7	FLUORENE	1	3.4	3.4	U	
85-01-8	PHENANTHRENE	1	28	3.4		
120-12-7	ANTHRACENE	1	8.6	3.4		
206-44-0	FLUORANTHENE	1	130	3.4		
129-00-0	PYRENE	1	100	3.4		
56-55-3	BENZO(A)ANTHRACENE	1	84	3.4		
218-01-9	CHRYSENE	1	92	3.4		
205-99-2	BENZO(B)FLUORANTHENE	1	180	3.4	E	
207-08-9	BENZO(K)FLUORANTHENE	1	57	3.4		
50-32-8	BENZO(A)PYRENE	1	110	3.4		
193-39-5	INDENO(1,2,3-CD)PYRENE	1	37	3.4		
53-70-3	DIBENZO(A,H)ANTHRACENE	1	13	3.4		
191-24-2	BENZO(G,H,I)PERYLENE	1	38	3.4		

### Surrogate Recovery

CASNO	Surrogate Analyte	Result	Flag	Spike Amount	Percent Recovery	Control Limits
321-60-8	2-FLUOROBIPHENYL	48.9		68.3	72	41 - 106
4165-60-0	NITROBENZENE-D5	52.9		68.3	77	28 - 113
1718-51-0	TERPHENYL-D14	54.6		68.3	80	25 - 147

Data Package ID: SV1209339-1

Date Printed: Tuesday, September 25, 2012

ALS Environmental -- FC

Page 10 of 10

LIMS Version: 6.613

22 of 47



## Supporting QA/QC Data

# Surrogate Summary for GC/MS Semi-volatiles

Method SW8270SIMPAMD

Lab Name: ALS Environmental -- FC  
 Work Order Number: 1209339  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 Rev2 BEA031231

PrepBatchID: EX120921-6  
 QC Batch ID: EX120921-6-1  
 Date Extracted: 9/21/2012

Surrogate Compound	Control Limits	
	Lower	Upper
2,4,6-Tribromophenol		
2-Fluorobiphenyl	41	106
2-Fluorophenol		
Nitrobenzene-d5	28	113
Phenol-d5		
Terphenyl-d14	25	147

Lab ID	Client Sample ID	Date Collected	Date Received	246TB % Recovery	2FBP % Recovery	2FP % Recovery	ND5 % Recovery	PD5 % Recovery	TD14 % Recovery
1209339-6	BEA031236_MFC	9/20/2012	9/21/2012		70		79		107
1209339-9	BEA031239_MFC	9/20/2012	9/21/2012		65		66		107
1209339-12	BEA031248_MFC	9/20/2012	9/21/2012		72		76		115
EX120921-6MB	XXXXXXXX	NA	XXXXXXXX		73		80		68
EX120921-6LCS	XXXXXXXX	NA	XXXXXXXX		78		85		75
EX120921-6LCSd	XXXXXXXX	NA	XXXXXXXX		72		80		74
1209339-16	BEA031252_MFC	9/20/2012	9/21/2012		82		83		77
1209339-16RR1	BEA031252_MFC	9/20/2012	9/21/2012		72		77		80
1209339-7	BEA031237_MFC	9/20/2012	9/21/2012		75		83		84
1209339-2	BEA031232_MFC	9/20/2012	9/21/2012		76		83		95
1209339-2MS	BEA031232_MFC	9/20/2012	9/21/2012		66		71		80
1209339-2MSD	BEA031232_MFC	9/20/2012	9/21/2012		71		76		94
1209339-3	BEA031233_MFC	9/20/2012	9/21/2012		69		76		49

Data Package ID: SV1209339-1

Date Printed: Tuesday, September 25, 2012  
 Shaded values exceed established control limits.

ALS Environmental -- FC  
 LIMS Version: 6.613

Page 1 of 1

24 of 47



# Surrogate Summary for GC/MS Semi-volatiles

Method SW8270SIMPAMD

Lab Name: ALS Environmental -- FC  
 Work Order Number: 1209339  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 Rev2 BEA031231

PrepBatchID: EX120921-6
QC Batch ID: EX120921-6-1
Date Extracted: 9/21/2012

Surrogate Compound	Control Limits	
	Lower	Upper
2,4,6-Tribromophenol		
2-Fluorobiphenyl	41	106
2-Fluorophenol		
Nitrobenzene-d5	28	113
Phenol-d5		
Terphenyl-d14	25	147

Lab ID	Client Sample ID	Date Collected	Date Received	245TB % Recovery	2FBP % Recovery	2FP % Recovery	ND5 % Recovery	PD5 % Recovery	TD14 % Recovery
1209339-14	BEA031250_MFC	9/20/2012	9/21/2012		75		82		89
1209339-18	BEA031254_MFC	9/20/2012	9/21/2012		73		79		92

Data Package ID: SV1209339-1

Date Printed: Tuesday, September 25, 2012  
 Shaded values exceed established control limits.

ALS Environmental -- FC  
 LIMS Version: 6.613

Page 1 of 1

25 of 47

# GC/MS Semi-volatiles

Method SW8270SIMPAMD

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS Environmental – FC

Work Order Number: 1209339

Client Name: Battelle Energy Alliance

ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 Rev2 BEA031231

Lab ID: EX120921-8LCS	Sample Matrix: SOIL	Prep Batch: EX120921-6	Sample Aliquot: 30 g
	% Moisture: N/A	QCBatchID: EX120921-6-1	Final Volume: 1 ml
	Date Collected: N/A	Run ID: SV120922-1	Result Units: UG/KG
	Date Extracted: 09/21/2012	Cleanup: NONE	Clean DF: 1
	Date Analyzed: 09/22/2012	Basis: N/A	
	Prep Method: SW3540C	File Name: N8034	

CASNO	Target Analyte	Spike Added	LCS Result	Reporting Limit	Result Qualifier	LCS % Rec.	Control Limits
91-20-3	NAPHTHALENE	66.7	55.5	3.33		83	40 - 107%
208-98-8	ACENAPHTHYLENE	66.7	55.8	3.33		84	44 - 107%
83-32-9	ACENAPHTHENE	66.7	56	3.33		84	46 - 108%
86-73-7	FLUORENE	66.7	55.9	3.33		84	49 - 108%
85-01-8	PHENANTHRENE	66.7	55.4	3.33		83	50 - 110%
120-12-7	ANTHRACENE	66.7	57	3.33		86	53 - 107%
206-44-0	FLUORANTHENE	66.7	57.8	3.33		87	54 - 114%
129-00-0	PYRENE	66.7	44.3	3.33		66	46 - 123%
56-55-3	BENZO(A)ANTHRACENE	66.7	55	3.33		82	52 - 111%
218-01-9	CHRYSENE	66.7	55.3	3.33		83	53 - 112%
205-99-2	BENZO(B)FLUORANTHENE	66.7	60.2	3.33		90	45 - 114%
207-08-9	BENZO(K)FLUORANTHENE	66.7	53.4	3.33		80	45 - 123%
50-32-8	BENZO(A)PYRENE	66.7	59.7	3.33		90	50 - 111%
193-39-5	INDENO(1,2,3-CD)PYRENE	66.7	64.4	3.33		97	38 - 121%
53-70-3	DIBENZO(A,H)ANTHRACENE	66.7	71.4	3.33		107	41 - 125%
191-24-2	BENZO(G,H,I)PERYLENE	66.7	64.4	3.33		97	38 - 128%

Data Package ID: SV1209339-1

Date Printed: Tuesday, September 25, 2012

ALS Environmental -- FC

Page 1 of 2

LMS Version: 6.613

# GC/MS Semi-volatiles

Method SW8270SIMPAMD

Laboratory Control Sample and Laboratory Control Sample Duplicate

Lab Name: ALS Environmental – FC

Work Order Number: 1209339

Client Name: Battelle Energy Alliance

ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 Rev2 BEA031231

Lab ID: EX120921-6LCSD	Sample Matrix: SOIL	Prep Batch: EX120921-6	Sample Aliquot: 30 g
	% Moisture: N/A	QCBatchID: EX120921-6-1	Final Volume: 1 ml
	Date Collected: N/A	Run ID: SV120922-1	Result Units: UG/KG
	Date Extracted: 09/21/2012	Cleanup: NONE	Clean DF: 1
	Date Analyzed: 09/22/2012	Basis: N/A	
	Prep Method: SW3540C	File Name: N8036	

CASNO	Target Analyte	Spike Added	LCSD Result	Reporting Limit	Result Qualifier	LCSD % Rec.	RPD Limit	RPD
91-20-3	NAPHTHALENE	66.7	51.9	3.33		78	30	7
208-96-8	ACENAPHTHYLENE	66.7	50.7	3.33		76	30	10
83-32-9	ACENAPHTHENE	66.7	51.1	3.33		77	30	9
86-73-7	FLUORENE	66.7	50.4	3.33		76	30	10
85-01-8	PHENANTHRENE	66.7	50.4	3.33		76	30	9
120-12-7	ANTHRACENE	66.7	52.8	3.33		79	30	8
206-44-0	FLUORANTHENE	66.7	52.8	3.33		79	30	9
129-00-0	PYRENE	66.7	43.7	3.33		66	30	1
56-55-3	BENZO(A)ANTHRACENE	66.7	51	3.33		77	30	7
218-01-9	CHRYSENE	66.7	53	3.33		79	30	4
205-99-2	BENZO(B)FLUORANTHENE	66.7	59.2	3.33		89	30	2
207-08-9	BENZO(K)FLUORANTHENE	66.7	51.1	3.33		77	30	4
50-32-8	BENZO(A)PYRENE	66.7	55.5	3.33		83	30	7
193-39-5	INDENO(1,2,3-CD)PYRENE	66.7	57	3.33		85	30	12
53-70-3	DIBENZO(A,H)ANTHRACENE	66.7	62.5	3.33		94	30	13
191-24-2	BENZO(G,H,I)PERYLENE	66.7	56.7	3.33		85	30	13

## Surrogate Recovery LCS/LCSD

CASNO	Target Analyte	Spike Added	LCS % Rec.	LCS Flag	LCSD % Rec.	LCSD Flag	Control Limits
321-80-8	2-FLUOROBIPHENYL	66.7	78		72		41 - 108
4165-60-0	NITROBENZENE-D5	66.7	85		80		28 - 113
1718-51-0	TERPHENYL-D14	66.7	75		74		25 - 147

Data Package ID: SV1209339-1

**GC/MS Semi-volatiles**  
**Method SW8270SIMPAMD**  
**Matrix Spike And Matrix Spike Duplicate**

Lab Name: ALS Environmental -- FC  
 Work Order Number: 1209339  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 Rev2 BEA03123

Field ID: BEA031232_MFC LabID: 1209339-2MS	Sample Matrix: SOIL % Moisture: 9.2 Date Collected: 20-Sep-12 Date Extracted: 21-Sep-12 Date Analyzed: 22-Sep-12 Prep Method: SW3540 Rev C	Prep Batch: EX120921-6 QCBatchID: EX120921-6-1 Run ID: SV120922-1 Cleanup: NONE Basis: Dry Weight	Sample Aliquot: 30.67 g Final Volume: 1 ml Result Units: UG/KG File Name: N8060
-----------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------

CASNO	Target Analyte	Sample Result	Samp Qual	MS Result	MS Qual	Reporting Limit	Spike Added	MS % Rec.	Control Limits
91-20-3	NAPHTHALENE	3.6	U	48.8		3.50	71.8	68	40 - 107%
208-96-8	ACENAPHTHYLENE	3.6	U	49.1		3.50	71.8	68	44 - 107%
83-32-9	ACENAPHTHENE	3.6	U	51.4		3.50	71.8	72	46 - 108%
86-73-7	FLUORENE	3.6	U	52.1		3.50	71.8	73	49 - 108%
85-01-8	PHENANTHRENE	9.6		53		3.50	71.8	60	50 - 110%
120-12-7	ANTHRACENE	3.2	J	52.4		3.50	71.8	69	53 - 107%
208-44-0	FLUORANTHENE	66		78.5	*	3.50	71.8	17	54 - 114%
129-00-0	PYRENE	61		73.4	*	3.50	71.8	18	46 - 123%
56-55-3	BENZO(A)ANTHRACENE	44		69	*	3.50	71.8	34	52 - 111%
218-01-9	CHRYSENE	42		73	*	3.50	71.8	43	53 - 112%
205-99-2	BENZO(B)FLUORANTHENE	99		114	*	3.50	71.8	21	45 - 114%
207-08-9	BENZO(K)FLUORANTHENE	40		81.5		3.50	71.8	58	45 - 123%
50-32-8	BENZO(A)PYRENE	60		81.3	*	3.50	71.8	30	50 - 111%
193-39-5	INDENO(1,2,3-CD)PYRENE	25		51.8	*	3.50	71.8	37	38 - 121%
53-70-3	DIBENZO(A,H)ANTHRACENE	9.3		50.8		3.50	71.8	58	41 - 125%
191-24-2	BENZO(G,H,I)PERYLENE	30		50.2	*	3.50	71.8	28	38 - 126%

Data Package ID: SV1209339-1

Date Printed: Tuesday, September 25, 2012

ALS Environmental -- FC

Page 1 of 2

LMS Version: 6.613

**GC/MS Semi-volatiles**  
**Method SW8270SIMPAMD**  
**Matrix Spike And Matrix Spike Duplicate**

Lab Name: ALS Environmental -- FC  
 Work Order Number: 1209339  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: MFC Biodiesel Tank Removal ,TOS-A1175 Rev2 BEA03123

Field ID: BEA031232_MFC LabID: 1209339-2MSD	Sample Matrix: SOIL % Moisture: 9.2 Date Collected: 20-Sep-12 Date Extracted: 21-Sep-12 Date Analyzed: 22-Sep-12 Prep Method: SW3540 Rev C	Prep Batch: EX120921-6 QCBatchID: EX120921-6-1 Run ID: SV120922-1 Cleanup: NONE Basis: Dry Weight	Sample Aliquot: 30.14 g Final Volume: 1 ml Result Units: UG/KG File Name: N8051
------------------------------------------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------

CASNO	Target Analyte	MSD Result	MSD Qual	Spike Added	MSD % Rec.	Reporting Limit	RPD Limit	RPD
91-20-3	NAPHTHALENE	53.3		73	73	3.65	30	9
208-96-8	ACENAPHTHYLENE	55.7		73	76	3.65	30	13
83-32-9	ACENAPHTHENE	58.1		73	79	3.65	30	12
86-73-7	FLUORENE	57.5		73	79	3.65	30	10
85-01-8	PHENANTHRENE	60.1		73	69	3.65	30	13
120-12-7	ANTHRACENE	59.2		73	77	3.65	30	12
206-44-0	FLUORANTHENE	89.9	*	73	32	3.65	30	14
129-00-0	PYRENE	89	*	73	39	3.65	30	19
56-55-3	BENZO(A)ANTHRACENE	79.8	*	73	49	3.65	30	14
218-01-9	CHRYSENE	78.7	*	73	50	3.65	30	7
205-99-2	BENZO(B)FLUORANTHENE	126	*	73	38	3.65	30	11
207-08-9	BENZO(K)FLUORANTHENE	104		73	88	3.65	30	24
50-32-8	BENZO(A)PYRENE	92.7	*	73	45	3.65	30	13
193-39-5	INDENO(1,2,3-CD)PYRENE	56.4		73	43	3.65	30	9
53-70-3	DIBENZO(A,H)ANTHRACENE	55.7		73	64	3.65	30	9
191-24-2	BENZO(G,H,I)PERYLENE	53.3	*	73	31	3.65	30	6

**Surrogate Recovery MS/MSD**

CASNO	Target Analyte	Spike Added	MS % Rec.	MS Flag	MSD % Rec.	MSD Flag	Control Limits
321-80-8	2-FLUOROBIPHENYL	71.8	66		71		41 - 106
4185-60-0	NITROBENZENE-D5	71.8	71		76		28 - 113
1718-51-0	TERPHENYL-D14	71.8	80		94		25 - 147

Data Package ID: SV1209339-1

Date Printed: Tuesday, September 25, 2012

ALS Environmental -- FC

Page 2 of 2

LMS Version: 5.513



# 5B

## Semi-Volatile Organic GC/MS Tuning And Mass Calibration--Decafluorotriphenylphosphine (DFTPP)

Lab Name: ALS Environmental -- FC	DFTPP Injection Date: 9/20/2012
Work Order Number: 1209339	DFTPP Injection Time: 9:27
Client Name: Battelle Energy Alliance	Instrument ID: HPSV1
ClientProject ID: BEA031231MFC Biodiesel Tank Removal ,TOS-A1175 Rev2	Reported on: Tuesday, September 25, 2012

FileID: N8000

m/e	Ion Abundance Criteria SW8270SIMPAMD	% Relative Abundance
51	30.0 - 60.0 percent of mass 198	51.7
68	Less than 2.0 percent of mass 69	0
69	Mass 69 relative abundance of mass 198	52.9
70	Less than 2.0 percent of mass 69	0
127	40.0 - 60.0 percent of mass 198	58.8
197	Less than 1.0 percent of mass 198	0
198	Base peak, 100 percent of relative abundance	100
199	5.0 - 9.0 percent of mass 198	6.9
275	10.0 - 30.0 percent of mass 198	28.6
365	Greater than 1.00 percent of mass 198	3.4
441	Present, but less than mass 443 (percent of 443)	73.1
442	Greater than 40.0 percent of mass 198	79.8
443	17.0 - 23.0 percent of mass 442	19.3

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS, AND STANDARDS:

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	QC BatchID
XXXXXXXX	ICALSVSTD0500CSTD	N8001	9/20/2012	10:02	SV120920-1
XXXXXXXX	ICALSVSTD0050CSTD	N8002	9/20/2012	10:23	SV120920-1
XXXXXXXX	ICALSVSTD0100CSTD	N8003	9/20/2012	10:44	SV120920-1
XXXXXXXX	ICALSVSTD0200CSTD	N8004	9/20/2012	11:04	SV120920-1
XXXXXXXX	ICALSVSTD1000CSTD	N8005	9/20/2012	11:25	SV120920-1
XXXXXXXX	ICALSVSTD2000CSTD	N8006	9/20/2012	11:45	SV120920-1
XXXXXXXX	ICALSVSTD5000CSTD	N8007	9/20/2012	12:06	SV120920-1
XXXXXXXX	ICVSVSTD2000ICV	N8009	9/20/2012	13:11	SV120920-1
XXXXXXXX	1209035-14	N8011	9/20/2012	14:14	EX120915-2-1
XXXXXXXX	1209035-17	N8013	9/20/2012	14:55	EX120915-2-1
XXXXXXXX	1209035-17MS	N8014	9/20/2012	15:18	EX120915-2-1
XXXXXXXX	1209035-17MSD	N8015	9/20/2012	15:43	EX120915-2-1
XXXXXXXX	1209035-1	N8016	9/20/2012	16:08	EX120915-2-1

Data Package ID: SV1209339-1

5B

Semi-Volatile Organic GC/MS Tuning And Mass Calibration--Decafluorotriphenylphosphine (DFTPP)

Lab Name: ALS Environmental – FC  
Work Order Number: 1209339  
Client Name: Battelle Energy Alliance  
ClientProject ID: BEA031231MFC Biodiesel Tank Removal ,TOS-A1175 Rev2

DFTPP Injection Date: 9/20/2012  
DFTPP Injection Time: 9:27  
Instrument ID: HPSV1

Reported on: Tuesday, September 25, 2012

FileID: N6000

m/e	Ion Abundance Criteria SW8270SIMPAMD	% Relative Abundance
51	30.0 - 60.0 percent of mass 198	51.7
68	Less than 2.0 percent of mass 69	0
69	Mass 69 relative abundance of mass 198	52.9
70	Less than 2.0 percent of mass 69	0
127	40.0 - 60.0 percent of mass 198	58.8
197	Less than 1.0 percent of mass 198	0
198	Base peak, 100 percent of relative abundance	100
199	5.0 - 9.0 percent of mass 198	6.9
275	10.0 - 30.0 percent of mass 198	28.6
365	Greater than 1.00 percent of mass 198	3.4
441	Present, but less than mass 443 (percent of 443)	73.1
442	Greater than 40.0 percent of mass 198	79.8
443	17.0 - 23.0 percent of mass 442	19.3

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS, AND STANDARDS:

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	QC BatchID
XXXXXXXX	1209035-12	N6017	9/20/2012	16:32	EX120915-2-1
XXXXXXXX	1209035-6	N6018	9/20/2012	16:55	EX120915-2-1
XXXXXXXX	1209035-14RR1	N6019	9/20/2012	17:17	EX120915-2-1
XXXXXXXX	1209035-16	N6020	9/20/2012	17:47	EX120915-2-1
XXXXXXXX	1209035-8	N6021	9/20/2012	18:07	EX120915-2-1
XXXXXXXX	1209035-4	N6022	9/20/2012	18:28	EX120915-2-1
XXXXXXXX	1209035-3	N6023	9/20/2012	18:48	EX120915-2-1
XXXXXXXX	1209035-9	N6024	9/20/2012	19:09	EX120915-2-1
XXXXXXXX	1209035-11	N6025	9/20/2012	19:30	EX120915-2-1
XXXXXXXX	1209035-15	N6026	9/20/2012	19:51	EX120915-2-1
XXXXXXXX	1209035-2	N6027	9/20/2012	20:11	EX120915-2-1
XXXXXXXX	1209035-10	N6028	9/20/2012	20:32	EX120915-2-1
XXXXXXXX	1209035-13	N6029	9/20/2012	20:53	EX120915-2-1

Data Package ID: SV1209339-1



# 5B

## Semi-Volatile Organic GC/MS Tuning And Mass Calibration--Decafluorotriphenylphosphine (DFTPP)

Lab Name: ALS Environmental – FC	DFTPP Injection Date: 9/22/2012
Work Order Number: 1209339	DFTPP Injection Time: 16:55
Client Name: Battelle Energy Alliance	Instrument ID: HPSV1
ClientProject ID: BEA031231MFC Biodiesel Tank Removal ,TOS-A1175 Rev2	Reported on: Tuesday, September 25, 2012

FileID: N6031

m/e	Ion Abundance Criteria SW8270SIMPAMD	% Relative Abundance
51	30.0 - 60.0 percent of mass 198	50.1
68	Less than 2.0 percent of mass 69	0
69	Mass 69 relative abundance of mass 198	50.2
70	Less than 2.0 percent of mass 69	0
127	40.0 - 60.0 percent of mass 198	51.8
197	Less than 1.0 percent of mass 198	0
198	Base peak, 100 percent of relative abundance	100
199	5.0 - 9.0 percent of mass 198	6.6
275	10.0 - 30.0 percent of mass 198	26.4
365	Greater than 1.00 percent of mass 198	3.2
441	Present, but less than mass 443 (percent of 443)	33.6
442	Greater than 40.0 percent of mass 198	66.5
443	17.0 - 23.0 percent of mass 442	19.3

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS, AND STANDARDS:

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	QC BatchID
XXXXXXXX	CCV1CCV	N6032	9/22/2012	17:09	SV120922-1
XXXXXXXX	EX120921-6MB	N6033	9/22/2012	17:30	EX120921-6-1
XXXXXXXX	EX120921-6LCS	N6034	9/22/2012	17:50	EX120921-6-1
XXXXXXXX	EX120921-6LCSD	N6036	9/22/2012	18:31	EX120921-6-1
BEA031252_MFC	1209339-16	N6037	9/22/2012	18:51	EX120921-6-1
BEA031252_MFC	1209339-16RR1	N6047	9/22/2012	22:15	EX120921-6-1
BEA031237_MFC	1209339-7	N6048	9/22/2012	22:35	EX120921-6-1
BEA031232_MFC	1209339-2	N6049	9/22/2012	22:56	EX120921-6-1
BEA031232_MFC	1209339-2MS	N6050	9/22/2012	23:16	EX120921-6-1
BEA031232_MFC	1209339-2MSD	N6051	9/22/2012	23:36	EX120921-6-1
BEA031233_MFC	1209339-3	N6052	9/22/2012	23:57	EX120921-6-1
BEA031236_MFC	1209339-6	N6053	9/23/2012	0:17	EX120921-6-1
BEA031239_MFC	1209339-9	N6054	9/23/2012	0:38	EX120921-6-1

Data Package ID: SV1209339-1

# 5B

## Semi-Volatile Organic GC/MS Tuning And Mass Calibration--Decafluorotriphenylphosphine (DFTPP)

Lab Name: ALS Environmental – FC	DFTPP Injection Date: 9/22/2012
Work Order Number: 1209339	DFTPP Injection Time: 16:55
Client Name: Battelle Energy Alliance	Instrument ID: HPSV1
ClientProject ID: BEA031231MFC Biodiesel Tank Removal ,TOS-A1175 Rev2	Reported on: Tuesday, September 25, 2012

FileID: N6031

m/e	Ion Abundance Criteria SW8270SIMPAMD	% Relative Abundance
51	30.0 - 60.0 percent of mass 198	50.1
68	Less than 2.0 percent of mass 69	0
69	Mass 69 relative abundance of mass 198	50.2
70	Less than 2.0 percent of mass 69	0
127	40.0 - 60.0 percent of mass 198	51.8
197	Less than 1.0 percent of mass 198	0
198	Base peak, 100 percent of relative abundance	100
199	5.0 - 9.0 percent of mass 198	6.6
275	10.0 - 30.0 percent of mass 198	26.4
365	Greater than 1.00 percent of mass 198	3.2
441	Present, but less than mass 443 (percent of 443)	33.6
442	Greater than 40.0 percent of mass 198	66.5
443	17.0 - 23.0 percent of mass 442	19.3

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS, AND STANDARDS:

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	QC BatchID
BEA031248_MFC	1209339-12	N6055	9/23/2012	0:58	EX120921-6-1

Data Package ID: SV1209339-1

Date Printed: Tuesday, September 25, 2012

ALS Environmental – FC

LIMS Version: 6.613

Page 2 of 2

34 of 47

# 5B

## Semi-Volatile Organic GC/MS Tuning And Mass Calibration--Decafluorotriphenylphosphine (DFTPP)

Lab Name: ALS Environmental – FC  
 Work Order Number: 1209339  
 Client Name: Battelle Energy Alliance  
 ClientProject ID: BEA031231MFC Biodiesel Tank Removal ,TOS-A1175 Rev2

DFTPP Injection Date: 9/24/2012  
 DFTPP Injection Time: 11:06  
 Instrument ID: HPSV1  
 Reported on: Tuesday, September 25, 2012

FileID: N6059

m/e	Ion Abundance Criteria SW8270SIMPAHD	% Relative Abundance
51	30.0 - 80.0 percent of mass 198	53.9
68	Less than 2.0 percent of mass 69	0
69	Mass 69 relative abundance of mass 198	52.8
70	Less than 2.0 percent of mass 69	0
127	40.0 - 80.0 percent of mass 198	54.4
197	Less than 1.0 percent of mass 198	0
198	Base peak, 100 percent of relative abundance	100
199	5.0 - 9.0 percent of mass 198	6.7
275	10.0 - 30.0 percent of mass 198	26.3
365	Greater than 1.00 percent of mass 198	2.7
441	Present, but less than mass 443 (percent of 443)	43
442	Greater than 40.0 percent of mass 198	64
443	17.0 - 23.0 percent of mass 442	19.6

THIS TUNE APPLIES TO THE FOLLOWING SAMPLES, MS/MSD, BLANKS, AND STANDARDS:

Client Sample ID	Lab Sample ID	Lab File ID	Date Analyzed	Time Analyzed	QC BatchID
XXXXXXXX	ICALSVSTD0500CSTD	N6060	9/24/2012	11:19	SV120924-1
XXXXXXXX	ICALSVSTD0050CSTD	N6061	9/24/2012	12:15	SV120924-1
XXXXXXXX	ICALSVSTD0100CSTD	N6062	9/24/2012	12:35	SV120924-1
XXXXXXXX	ICALSVSTD0200CSTD	N6063	9/24/2012	12:55	SV120924-1
XXXXXXXX	ICALSVSTD1000CSTD	N6064	9/24/2012	13:16	SV120924-1
XXXXXXXX	ICALSVSTD2000CSTD	N6065	9/24/2012	13:36	SV120924-1
XXXXXXXX	ICALSVSTD5000CSTD	N6066	9/24/2012	13:56	SV120924-1
XXXXXXXX	ICVSVSTD2000ICV	N6067	9/24/2012	14:17	SV120924-1
XXXXXXXX	EX120920-4MB	N6069	9/24/2012	14:57	EX120920-4-1
XXXXXXXX	EX120920-4LCS	N6070	9/24/2012	15:18	EX120920-4-1
XXXXXXXX	EX120920-4LCS	N6071	9/24/2012	15:38	EX120920-4-1
BEA031250_MFC	1209339-14	N6072	9/24/2012	15:58	EX120921-6-1
BEA031254_MFC	1209339-18	N6073	9/24/2012	16:21	EX120921-6-1

Data Package ID: SV1209339-1

	N6007.D 9000	N6008.D 2000	N6005.D 1000	N6051.D 500	N6004.D 200	N6003.D 100	N6002.D 50	Average	%RSD	Curve type	Corr (r2)	Higher Order Equation			
												quad term	linear term	const term	
Naphthalene-d8															
Nitrobenzene-d5	2.907	3.045	2.853	3.200	3.250	3.403	3.485	3.198	7.52	Ave RF	n/a				
Naphthalene	0.891	1.031	1.114	1.099	1.142	1.160	1.150	1.099	5.97	Ave RF	n/a				
2-Methylnaphthalene	0.744	0.783	0.851	1.109	0.885	0.908	0.845	0.800	15.41	Ave RF	n/a				
1-Methylnaphthalene	0.712	0.751	0.829	1.130	0.874	0.891	0.819	0.878	15.72	Ave RF	n/a				
Acenaphthene-d10															
2-Fluorobiphenyl	1.107	1.090	1.047	1.714	1.979	1.580	1.893	1.733	16.91	Ave RF	n/a				
Acenaphthylene	1.838	1.905	2.088	2.113	2.250	2.335	2.501	2.120	8.28	Ave RF	n/a				
Acenaphthene	1.134	1.187	1.258	1.241	1.259	1.284	1.300	1.234	4.94	CCC	Ave RF	n/a			
Fluorene	1.426	1.322	1.419	1.432	1.425	1.541	1.590	1.449	6.92	Ave RF	n/a				
Phenanthrene-d10															
Hexachlorobenzene	0.952	0.954	0.897	1.229	0.907	1.010	1.220	1.007	16.02	Ave RF	n/a				
Phenanthrene	0.897	1.057	1.150	1.150	1.230	1.287	1.300	1.160	13.31	Ave RF	n/a				
Anthracene	0.861	1.043	1.131	1.121	1.152	1.209	1.353	1.131	12.62	Ave RF	n/a				
Fluoranthene	0.997	1.209	1.300	1.290	1.325	1.372	1.474	1.277	11.71	CCC	Ave RF	n/a			
Chrysene-d12															
Pyrene	1.449	1.511	1.734	1.882	2.400	2.034	2.067	1.854	17.65	Ave RF	n/a				
p-Terphenyl-d14	0.881	0.944	0.889	0.947	1.432	1.086	1.113	1.047	18.08	Ave RF	n/a				
Benzo[a]anthracene	1.118	1.144	1.198	1.217	1.230	1.420	1.543	1.287	12.31	Ave RF	n/a				
Chrysene	1.062	1.138	1.170	1.128	1.216	1.282	1.284	1.182	6.71	Ave RF	n/a				
Perylene-d12															
Benzo[b]fluoranthene	1.555	1.415	1.437	1.478	1.603	1.647	1.607	1.520	5.75	Ave RF	n/a				
Benzo[k]fluoranthene	1.208	1.355	1.234	1.330	1.374	1.478	1.617	1.371	16.32	CCC	Ave RF	n/a			
Benzo[e]pyrene	1.157	1.164	1.145	1.228	1.210	1.387	1.421	1.350	7.07	Ave RF	n/a				
Indeno[1,2,3-c,d]pyrene	3.628	3.338	3.917	4.038	3.728	3.580	4.116	3.788	8.77	Ave RF	n/a				
Dibenzo[a,h]anthracene	2.609	2.292	2.871	2.938	2.742	2.887	2.867	2.742	7.88	Ave RF	n/a				
Benzo[g,h,i]perylene	3.150	2.711	3.322	3.475	3.412	3.509	3.694	3.388	9.18	Ave RF	n/a				

Average = 10.77

ju  
9-20-11

FORM 7  
Continuing Calibration Verification Report

Data File : D:\PCH\EM1\DATA\020121\8000.D  
Acq On: 9/20/2012 12:11  
Sample: ICVSVSTD0008  
Misc: 91100607-11

Int: 9  
Operator: Jk. SOP 502 Rev. 12  
Inst: HPSV1  
Multiplier: 1

Method: 002012SH  
Title: GC-MS Semivolatiles SOP no. 009  
Last Upd: Thu Sep 20 12:58:28 2012

		Compound	AvgRF	GCDC	Exam Conc	Found Conc	% Dev or % Diff	Area % Difference	R.T. Dev (min)	Curve Fit Type
1)	ISTD	Hexachloro-c8	1.000	1.000					0.00	Ave RF
3)		Methylcyclohexane	1.000	1.004			-0.2	175	0.00	Ave RF
4)		2-Methylcyclohexane	0.898	0.794			-10.7	160	0.00	Ave RF
5)		1-Methylcyclohexane	0.898	0.721			-17.8	150	0.00	Ave RF
6)	ISTD	Acenaphthene-d10	1.000	1.000					0.00	Ave RF
8)		Acenaphthylene	2.125	1.973			-7.2	101	0.00	Ave RF
9)	GCDC	Acenaphthene	1.204	1.191			-1.0	182	0.00	Ave RF
10)		Fluorene	1.449	1.333			-8.0	234	-0.10	Ave RF
11)	ISTD	Phenanthrene-d10	1.000	1.000					0.00	Ave RF
12)		Hexachlorobenzene	1.007	0.987			-1.9	251	0.00	Ave RF
13)		Phenanthrene	1.103	1.070			-2.9	200	0.00	Ave RF
14)		Anthracene	1.131	1.082			-4.3	205	0.00	Ave RF
15)	GCDC	Fluoranthene	1.277	1.198			-6.2	180	0.00	Ave RF
16)	ISTD	Chrysene-d12	1.000	1.000					0.01	Ave RF
17)		Pyrene	1.854	1.819			-1.8	230	0.01	Ave RF
18)		Benzo[a]anthracene	1.207	1.118			-7.4	212	0.01	Ave RF
20)		Chrysene	1.182	1.082			-8.4	211	0.01	Ave RF
21)	ISTD	Perylene-d12	1.000	1.000					0.01	Ave RF
22)		Benzo[b]fluoranthene	1.528	1.507			-1.3	180	0.01	Ave RF
23)		Benzo[k]fluoranthene	1.571	1.240			-20.4	160	0.01	Ave RF
24)	GCDC	Benzo[e]pyrene	1.200	1.221			1.7	170	0.01	Ave RF
26)		Indeno[1,2,3-cd]pyrene	2.788	2.889			3.6	170	0.01	Ave RF
28)		Dibenz[a,h]anthracene	2.742	2.802			2.2	175	0.02	Ave RF
27)		Benzo[ghi]perylene	3.308	3.335			0.8	170	0.01	Ave RF

Average of absolute values = 7.2

JK  
9-20-12  
37 of 47

FORM 7  
Continuing Calibration Verification Report

Data File: D:\HPCHEM\DATA\062212\N0602.E.D  
Acq On: 02/28/12 17:09  
Sample: ICALSVSTD0600  
Misc: ST125917-1 000 FPB  
Method: 002012SH  
Title: GC-MS Semivolatiles - GCP no. 935  
Last Upd: Sat Sep 22 17:27:03 2012

Vol: 2  
Operator: Jk SOP 909 Rev. 12  
Inst: GCMS tra  
Multiplier: 1

	Compound	Area%	GCSE	Exp Conc	Found Conc	% Dev or % Diff	Area % Difference	RLT Dev (ppb)	Curve Fit Type
1)	*ISTD Naphthalene-d8	1.025	1.002				100	0.00	Ave RP
2)	Nitrobenzene-d5	3.196	3.381			5.8	65	0.00	Ave RP
3)	Naphthalene	1.093	1.097			-0.2	54	0.00	Ave RP
4)	2-Methylnaphthalene	0.898	0.861			-4.1	65	0.00	Ave RP
5)	1-Methylnaphthalene	0.878	0.835			-4.9	65	0.00	Ave RP
6)	*ISTD Acenaphthene-d10	1.009	1.000			-0.9	126	0.00	Ave RP
7)	2-Fluorobiphenyl	1.753	1.717			-2.0	65	0.00	Ave RP
8)	Acenaphthylene	2.128	2.150			1.2	63	0.00	Ave RP
9)	Acenaphthene	1.204	1.200			-0.3	63	0.00	Ave RP
10)	Fluorene	1.449	1.490			0.7	64	0.00	Ave RP
11)	*ISTD Fluoranthene-d10	1.000	1.000				132	0.00	Ave RP
12)	Hexachlorobenzene	1.007	0.903			-9.4	69	0.00	Ave RP
13)	Fluoranthene	1.163	1.167			0.4	67	0.00	Ave RP
14)	Anthracene	1.131	1.159			2.5	67	0.00	Ave RP
15)	Fluorethene	1.277	1.267			-0.8	68	0.00	Ave RP
16)	*ISTD Chrysene-d12	1.000	1.000				100	0.00	Ave RP
17)	Pyrene	1.854	1.693			-9.1	69	0.00	Ave RP
18)	p-Terphenyl-d14	1.047	0.896			-15.4	69	0.00	Ave RP
19)	Benzo[a]anthracene	1.267	1.252			-1.2	78	0.00	Ave RP
20)	Chrysene	1.122	1.210			8.3	78	0.00	Ave RP
21)	*ISTD Perylene-d12	1.000	1.000				110	0.00	Ave RP
22)	Benzo[b]fluoranthene	1.526	1.559			2.2	63	0.00	Ave RP
23)	Benzo[k]fluoranthene	1.371	1.387			1.2	63	0.00	Ave RP
24)	Benzo[a]pyrene	1.250	1.300			4.0	64	0.00	Ave RP
25)	Indene(1,2,3-c,d)pyrene	3.766	4.019			6.7	68	0.00	Ave RP
26)	Dibenz[a,h]anthracene	2.762	3.169			15.1	61	0.00	Ave RP
27)	Benzo[ghi]perylene	3.206	3.462			8.0	59	0.00	Ave RP

Average of absolute value = 6.8

JK  
9-24-10

	N8089.D	N8085.D	N8084.D	N8090.D	N8063.D	N8062.D	N8061.D	Average	%RSD	Curve type	Cor (±)	Higher Order Equation				
	8000	2000	1000	800	200	100	50					quad term	linear term	const term		
Naphthalene-d8																
Nitrobenzene-d5	2.930	3.058	3.188	3.284	3.348	3.195	3.285	3.168	3.96	Ave RF	n/a					
Naphthalene	0.986	1.042	1.101	1.058	1.143	1.165	1.194	1.104	8.88	Ave RF	n/a					
2-Methylnaphthalene	0.728	0.780	0.828	0.852	0.898	0.875	0.894	0.851	8.82	Ave RF	n/a					
1-Methylnaphthalene	0.707	0.755	0.808	0.828	0.875	0.825	0.884	0.821	9.57	Ave RF	n/a					
Acenaphthene-d10																
2-Fluorenylphenyl	1.951	1.542	1.680	1.740	1.826	1.917	1.923	1.735	10.88	Ave RF	n/a					
Acenaphthylene	1.843	1.940	2.050	2.054	2.098	2.102	2.114	2.033	5.04	Ave RF	n/a					
Acenaphthene	1.127	1.193	1.258	1.281	1.282	1.313	1.384	1.285	0.84	CCC	Ave RF	n/a				
Fluorene	1.263	1.362	1.408	1.510	1.514	1.603	1.572	1.463	7.76	Ave RF	n/a					
Phenanthrene-d10																
Hexachlorobenzene	0.773	0.804	0.862	0.833	0.892	0.908	1.200	0.805	18.00	Ave RF	n/a					
Phenanthrene	1.004	1.080	1.123	1.199	1.237	1.292	1.347	1.174	10.86	Ave RF	n/a					
Anthracene	1.000	1.058	1.135	1.199	1.128	1.149	1.215	1.118	0.30	Ave RF	n/a					
Fluoranthene	1.709	1.205	1.389	1.390	1.367	1.402	1.503	1.325	9.88	CCC	Ave RF	n/a				
Chrysene-d12																
Pyrene	1.328	1.387	1.497	1.543	1.624	1.740	1.841	1.587	11.83	Ave RF	n/a					
p-Terphenyl-d14	0.763	0.756	0.842	0.852	0.888	0.932	1.016	0.870	8.81	Ave RF	n/a					
Benzo[a]anthracene	1.100	1.165	1.224	1.269	1.303	1.353	1.537	1.282	10.86	Ave RF	n/a					
Chrysene	1.110	1.140	1.218	1.242	1.255	1.340	1.303	1.248	8.08	Ave RF	n/a					
Perylene-d12																
Benzo[b]fluoranthene	1.388	1.342	1.415	1.528	1.529	1.709	1.780	1.537	18.74	Ave RF	n/a					
Benzo[a]fluoranthene	1.199	1.317	1.380	1.423	1.382	1.307	1.394	1.335	7.19	CCC	Ave RF	n/a				
Benzo[a]pyrene	1.175	1.216	1.219	1.276	1.220	1.257	1.209	1.237	2.73	Ave RF	n/a					
Indeno[1,2,3-cd]pyrene	4.161	4.238	4.230	4.318	4.304	4.400	4.436	4.305	2.64	Ave RF	n/a					
Dibenz[a,h]anthracene	3.298	3.351	3.300	3.330	3.279	3.345	3.437	3.334	1.67	Ave RF	n/a					
Benzo[ghi]perylene	3.614	3.770	3.610	3.924	4.003	4.115	4.191	3.922	5.22	Ave RF	n/a					

Average = 7.68

*JK*  
*5-15-12*

FORM 7  
Continuing Calibration Verification Report

Date File: D:\MSDCHEM1\DATA\092412\N4607.D  
Acq On: 9/24/12 14:11  
Sample: KIVSSTD0030  
Misc: 8112907-11  
Method: 062412SH  
Title: GC-MS SemiVolatiles SOP no. 608  
Last Upd: Mon Sep 24 14:12:33 2012

Vol: 9  
Operator: J  
Inst: B SOP 608 Rev. 12  
HPCV1  
Multiplier: 1

	Compound	AvgRF	CCRE	Expd Conc	Found Conc	% Dev or % Diff	Area % Difference	R.T. Dev (min)	Curve Fit Type
1)	ISTD	Naphthalene-d8	1.000	1.000			104	0.00	Ave RF
3)		Naphthalene	1.104	1.060		-3.7	200	0.00	Ave RF
4)		2-Methylnaphthalene	0.921	0.791		-6.0	165	0.00	Ave RF
5)		1-Methylnaphthalene	0.821	0.721		-12.2	180	0.00	Ave RF
6)	ISTD	Acenaphthene-d10	1.000	1.000			162	0.00	Ave RF
8)		Acenaphthylene	2.033	1.944		-4.3	160	0.00	Ave RF
9)	CCC	Acenaphthene	1.265	1.212		-4.2	168	0.00	Ave RF
10)		Fluorene	1.463	1.355		-7.4	189	0.00	Ave RF
11)	ISTD	Phenanthrene-d10	1.000	1.000			162	0.00	Ave RF
12)		Fluoranthene	0.993	0.913		-10.2	193	0.00	Ave RF
13)		Phenanthrene	1.175	1.064		-9.5	184	0.00	Ave RF
14)		Anthracene	1.118	1.077		-3.7	194	-0.01	Ave RF
15)	CCC	Fluoranthene	1.320	1.226		-7.0	167	0.00	Ave RF
16)	ISTD	Chrysene-d12	1.000	1.000			160	0.00	Ave RF
18)		Pyrene	1.567	1.625		3.7	218	0.00	Ave RF
19)		Benzo[a]anthracene	1.282	1.172		-8.6	192	0.01	Ave RF
20)		Chrysene	1.248	1.105		-11.5	180	0.00	Ave RF
21)	ISTD	Benzo[b]fluoranthene	1.000	1.000			98	0.01	Ave RF
22)		Benzo[k]fluoranthene	1.537	1.818		18.3	208	0.01	Ave RF
23)		Benzo[e]fluoranthene	1.335	1.191		-10.8	170	0.01	Ave RF
24)	CCC	Benzo[a]pyrene	1.297	1.239		-4.5	196	0.01	Ave RF
25)		Indeno[1,2,3-cd]pyrene	4.305	4.191		-2.6	190	0.00	Ave RF
26)		Dibenz[a,h]anthracene	3.594	3.278		-8.8	196	0.00	Ave RF
27)		Benzo[ghi]perylene	3.022	3.727		23.3	193	0.00	Ave RF

Average of absolute values = 0.0

JK  
9-25-12



# 8B

## Semi-Volatile Internal Standard Area Summary

Lab Name: ALS Environmental – FC  
 Work Order Number: 1209339

Date Analyzed: 9/22/2012  
 Time Analyzed: 17:09

Client Name: Battelle Energy Alliance

ClientProject ID: BEA031231 MFC Biodiesel Tank Removal ,TOS-A1175 Rev2

Reported on: Tuesday, September 25, 2012

Instrument ID: HPSV1

Lab File ID: N6032

	IS1		IS2		IS3		IS4		IS5		IS6	
	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT
12 Hour STD			539814	5.21	307609	6.76	464694	8.05	400788	10.32	265971	11.82
Upper Limit			1079628	5.71	615218	7.26	929388	8.55	801576	10.8	531942	12.3
Lower Limit			269907	4.71	153805	6.26	232347	7.55	200394	9.82	132986	11.3
Lab Sample ID												
EX120921-6MB			549803	5.21	307685	6.76	462962	8.05	421388	10.32	288009	11.82
EX120921-6LCS			549130	5.21	302209	6.76	458629	8.05	409110	10.33	290537	11.82
EX120921-6LCSD			549911	5.21	304578	6.76	452298	8.05	374166	10.32	236776	11.82
1209339-16			593000	5.22	337640	6.76	505816	8.05	439357	10.33	269450	11.83
1209339-16RR1			637726	5.21	361242	6.76	581709	8.05	461738	10.33	148993	11.83
1209339-7			643600	5.22	363274	6.76	580977	8.05	461903	10.33	139074	11.82
1209339-2			648236	5.22	357005	6.76	561668	8.06	385511	10.32	98396	11.82
1209339-2MS			673607	5.21	369599	6.76	600144	8.06	437852	10.33	118248	11.83
1209339-2MSD			651400	5.21	359550	6.76	576306	8.06	387399	10.33	92054	11.82
1209339-3			674464	5.22	384325	6.76	780882	8.05	743159	10.33	146883	11.83
1209339-6			684549	5.22	390915	6.76	627354	8.06	396109	10.33	86953	11.82
1209339-9			686295	5.21	369238	6.76	571735	8.05	280215	10.32	53032	11.83
1209339-12			687590	5.21	379427	6.76	597292	8.05	324612	10.33	77915	11.83

Shaded values exceed established area count limits.

LIMS Version: 6.513

Upper Limit = + 100 percent of internal standard area.

Lower Limit = - 50 percent of internal standard area.

41 of 47

# 8B

## Semi-Volatile Internal Standard Area Summary

**Lab Name:** ALS Environmental – FC **Date Analyzed:** 9/24/2012  
**Work Order Number:** 1209339 **Time Analyzed:** 11:19  
**Client Name:** Battelle Energy Alliance  
**ClientProject ID:** BEA031231 MFC Biodiesel Tank Removal ,TOS-A1175 Rev2 **Reported on:** Tuesday, September 25, 2012

**Instrument ID:** HPSV1  
**Lab File ID:** N6060

	IS1		IS2		IS3		IS4		IS5		IS6	
	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT	Area	RT
12 Hour STD			583316	5.21	324355	6.76	527843	8.04	479720	10.31	395230	11.81
Upper Limit			1186632	5.71	648710	7.26	1055686	8.54	950440	10.8	790480	12.3
Lower Limit			291658	4.71	162178	6.26	263922	7.54	239880	9.81	197615	11.3
<b>Lab Sample ID</b>												
1209339-14			599519	5.21	330216	6.75	524803	8.05	477942	10.31	184894	11.81
1209339-18			627911	5.21	346804	6.76	561395	8.05	469536	10.31	158348	11.80

Shaded values exceed established area count limits.

LMS Version: 6.513

Upper Limit = + 100 percent of internal standard area.

Lower Limit = - 50 percent of internal standard area.

42 of 47



## Supporting Raw Data

GCMS Semivolatile Instrument Run Log  
ALS Laboratory Group

Sequence Name: D:\HPCHEM\1\SEQUENCE\092012S.S  
 Comment: HPSV-1 5973 MSDMS Serial Number US80210987  
 Data Path: D:\HPCHEM\1\DATA\092012\  
 Operator: jk SOP 506 Rev. 12 Analysis Date: September 20, 2012 JK  
 IS Amount and ID 40 µl/L ST110507-1  
 Logbook Number: 2985

Line Type	Vial	DataFile	Method	Sample Name	Dil.	RA?	Comment
1	DFTPP	1 N6000	DFTPP	50 ppm dftpp+PC			
2	Sample	2 N6001	092012SH	ICALSVSTD0500		ND	ST110507-1
3	Sample	3 N6002	092012SH	ICALSVSTD0050			ST110507-1
4	Sample	4 N6003	092012SH	ICALSVSTD0100			ST110507-5
5	Sample	5 N6004	092012SH	ICALSVSTD0200			ST110507-6
6	Sample	6 N6005	092012SH	ICALSVSTD1000			ST110507-7
7	Sample	7 N6006	092012SH	ICALSVSTD2000			ST110507-8
8	Sample	8 N6007	092012SH	ICALSVSTD5000			ST110507-9
9	Sample	2 N6008	092012SH	ICALSVSTD0500			ST110507-10 (not used)
10	Sample	9 N6009	092012SH	ICALSVSTD2000			ST110507-11
11	Sample	10 N6010	091812SH	INSTRUMENT BLANK			OK
12	Sample	11 N6011	091812SH	1209035-14	5X		N6011
13	Sample	12 N6012	091812SH	1209035-6	3X		N6012
14	Sample	13 N6013	091812SH	1209035-17			N
15	Sample	14 N6014	091812SH	1209035-17MS			
16	Sample	15 N6015	091812SH	1209035-17MSD			
17	Sample	16 N6016	091812SH	1209035-1			NS95
18	Sample	17 N6017	091812SH	1209035-12			NS96
19	Sample	18 N6018	091812SH	1209035-6			NS97
20	Sample	19 N6019	091812SH	1209035-14			NS98
21	Sample	20 N6020	091812SH	1209035-16			NS99
22	Sample	21 N6021	091812SH	1209035-8			NS100
23	Sample	22 N6022	091812SH	1209035-4			NS101
24	Sample	23 N6023	091812SH	1209035-3			NS102
25	Sample	24 N6024	091812SH	1209035-9			NS103
26	Sample	25 N6025	091812SH	1209035-11			NS104
27	Sample	26 N6026	091812SH	1209035-15			NS105

GCMS Semivolatatile Instrument Run Log  
 Paragon Analytics, Inc.

Sequence Name: D:\HPCHEM\1\SEQUENCE\092012S.8  
 Comment: HPSV-1 5973 MSDMS Serial Number US80210987  
 Data Path: D:\HPCHEM\1\DATA\092012\  
 Operator: jk SOP 506 Rev. 12 Analysis Date: September 20, 2012  
 IS Amount and ID 40% STRADOL-1  
 Logbook Number: 2985

Line Type	Vial	DataFile	Method	Sample Name	Dil.	RA?	Comment
28 Sample	27	N6027	091812SH	1209035-2	1	NO	533↑ MS148
29 Sample	28	N6028	091812SH	1209035-10	1	1	755↑ N1790
30 Sample	29	N6029	091812SH	1209035-13	1	1	755↑ MS71
31 Sample	30	N6030	091812SH	INSTRUMENT BLANK	1	1	OK

GCMS Semivolatle Instrument Run Log  
ALS Laboratory Group

Sequence Name: D:\HPCHEM\1\SEQUENCE\092212S.S  
 Comment: HPSV-1 5973 MSDMS Serial Number US80210987  
 Data Path: D:\HPCHEM\1\DATA\092212\  
 Operator:jk SOP 506 Rev. 12 Analysis Date: September 22, 2012 jlc  
 IS Amount and ID 40 p/b SK12502-1  
 Logbook Number: 2985

Line Type	Vial	DataFile	Method	Sample Name	Dil.	RA?	Comment
1	DFTPP	1 N6031	DFTPP	50 ppm ditpp+PC			ST100720-1 ST100917-1
2	Sample	2 N6032	092012SH	CCV			
3	Sample	3 N6033	092012SH	EX120921-6MB			
4	Sample	4 N6034	092012SH	EX120921-6LCS			
5	Sample	5 N6035	092012SH	EX120921-6LCSD			
6	Sample	5 N6036	092012SH	EX120921-6LCSD			
7	Sample	6 N6037	092012SH	1209339-16 7X			
8	Sample	7 N6038	092012SH	1209339-7 7X			
9	Sample	8 N6039	092012SH	1209339-3 7X			
10	Sample	9 N6040	092012SH	1209339-6 7X			
11	Sample	10 N6041	092012SH	1209339-9 7X			
12	Sample	11 N6042	092012SH	1209339-12 7X			
13	Sample	12 N6043	092012SH	1209339-14 7X			
14	Sample	13 N6044	092012SH	1209339-2 7X			
15	Sample	14 N6045	092012SH	1209339-18 7X			
16	Sample	15 N6046	092012SH	INSTRUMENT BLANK			
17	Sample	16 N6047	092012SH	1209339-16			
18	Sample	17 N6048	092012SH	1209339-7			
19	Sample	18 N6049	092012SH	1209339-2			
20	Sample	19 N6050	092012SH	1209339-2MS			
21	Sample	20 N6051	092012SH	1209339-2MSD			
22	Sample	21 N6052	092012SH	1209339-3			
23	Sample	22 N6053	092012SH	1209339-6			
24	Sample	23 N6054	092012SH	1209339-9			
25	Sample	24 N6055	092012SH	1209339-12			
26	Sample	25 <del>N6056</del>	092012SH	1209339-14			
27	Sample	26 N6057	092012SH	1209339-18			
28	Sample	27 N6058	092012SH	Instrument Blank			

GCMS Semivolatle Instrument Run Log  
 ALS Laboratory Group

Sequence Name: D:\HPCHEM\1\SEQUENCE\092412S.S  
 Comment: HPSV-1 5973 MSDMS Serial Number US80210987  
 Data Path: D:\HPCHEM\1\DATA\092412\  
 Operator:jk SOP 506 Rev. 12 Analysis Date: September 24, 2012 7/1  
 IS Amount and ID 46% 2110502-1  
 Logbook Number: 2985

Line Type	Vial	DataFile	Method	Sample Name	Dil.	RA?	Comment
1	DFI PP	1	N6059	DFTPP	50 ppm dftpp+PC		
2	Sample	2	N6060	092412SH	ICALSVSTD0500		ST110507-1
3	Sample	3	N6061	092412SH	ICALSVSTD0050		ST110507-1
4	Sample	4	N6062	092412SH	ICALSVSTD0100		ST110507-6
5	Sample	5	N6063	092412SH	ICALSVSTD0200		ST110507-7
6	Sample	6	N6064	092412SH	ICALSVSTD1000		ST110507-8
7	Sample	7	N6065	092412SH	ICALSVSTD2000		ST110507-9
8	Sample	8	N6066	092412SH	ICALSVSTD5000		ST110507-10
9	Sample	9	N6067	092412SH	ICVSVSTD2000		ST110507-11
10	Sample	10	N6068	092412SH	GPC BLANK		OK
11	Sample	11	N6069	092412SH	EX120920-4MB		
12	Sample	12	N6070	092412SH	EX120920-4LCS		
13	Sample	13	N6071	092412SH	EX120920-4LCSD		
14	Sample	14	N6072	092412SH	1209339-14		
15	Sample	15	N6073	092412SH	1209339-18		IS 454 } N6057
16	Sample	16	N6074	092412SH	1209040-1 5X		IS 454 } N6057
17	Sample	17	N6075	092412SH	1209040-1		IS 454 } N6057
18	Sample	18	N6076	092412SH	INSTRUMENT BLANK		OK
19	Sample	19	N6077	092412SH	1209040-1MS		IS 454 } confirms
20	Sample	20	N6078	092412SH	1209040-1MSD		IS 454 } confirms
21	Sample	18	N6079	092412SH	INSTRUMENT BLANK		OK
22	Sample	18	N6080	092412SH	INSTRUMENT BLANK		OK

# Appendix G

## Notification of Underground Storage Tank Soil Samples #2 (CCN 228585)

Idaho National Laboratory Mail - CCN 228585: DISCUSSION WITH DEQ REGARDING MFC BIODIESEL... Page 1 of 1



Nisson, Kerry L <kerry.nisson@inl.gov>

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### CCN 228585: DISCUSSION WITH DEQ REGARDING MFC BIODIESEL TANK SAMPLES AND COMPLETION OF CORRECTIVE ACTIONS FOR OUTSTANDING NOTICE OF VIOLATIONS

1 message

---

Nisson, Kerry L <kerry.nisson@inl.gov>

Thu, Sep 27, 2012 at 7:56 AM

To: BEA CORRESPONDENCE CONTROL ServiceID <beacc@inl.gov>, ENVIRONMENTAL CORRESPONDENCE ServiceID <envaff@inl.gov>, Timothy L Carlson <Timothy.Carlson@inl.gov>, James F Graham <James.Graham@inl.gov>, Timothy A Miller <Timothy.Miller@inl.gov>, Bradley K Griffith <bradley.griffith@inl.gov>, "Jason R. Sturm" <sturmjr@id.doe.gov>, Scott L Lyman <Scott.Lyman@inl.gov>, Mark R Cole <mark.cole@inl.gov>, Reva A Nickelson <reva.nickelson@inl.gov>, Carlo D Melbiness <carlo.melbiness@inl.gov>

On September 26, 2012 at 15:10, a call was placed to Steve Heaton (DEQ) by Jason Sturm, Bradley Griffith, and I. The purpose of the call was to discuss analysis received for the second set of samples taken from the removal of the Materials and Fuels Complex (MFC) biodiesel tank and the completion of corrective actions for outstanding Notice of Violations (NOV's) associated with INL underground storage tanks.

Steve was informed that the second set of samples identified levels of Benzo(a)pyrene in nine of the ten samples higher than the screening level in IDAPA 58.01.24.800, table 2 - Residential Use Screening Levels.

Steve stated that we should use the commercial screening levels or perform a risk evaluation. Brad and I were unaware that there are commercial screening levels. Steve could not readily locate the commercial screening levels and stated that he would try to find them and would contact us.

Regarding the INL NOV's, Steve stated that he was aware that the INL had completed the corrective actions by the commitment date and would issue a letter of completion once the closure report was completed for the MFC biodiesel tank. Steve is aware that the corrective action (cathodic protection) is complete for the MFC biodiesel tank and the closure report will not be completed and sent to DEQ by the corrective action commitment date.

--  
Kerry L. Nisson  
Nuclear Operations Environmental Support - UST TPOC  
Office (208) 533-7102  
Cell (208) 569-4721  
email: kerry.nisson@inl.gov  
Mail Stop 6134



# Appendix H

## Discussion and Verbal Approval Regarding the Use of EPA Region 9 Industrial Screening Levels (CCN 228607)

Idaho National Laboratory Mail - CCN 228607: DISCUSSION WITH DEQ REGARDING THE USE O... Page 1 of 1



Nisson, Kerry L <kerry.nisson@inl.gov>

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### CCN 228607: DISCUSSION WITH DEQ REGARDING THE USE OF EPA REGION 9 INDUSTRIAL SCREENING LEVEL GUIDANCE.

1 message

Nisson, Kerry L <kerry.nisson@inl.gov>

Thu, Sep 27, 2012 at 1:53 PM

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On September 26, 2012 at 11:00, a call was placed to Steve Heaton (DEQ) by Jason Sturm, Gary McManus, and I. The purpose of the call was to discuss the use of industrial screening levels found in the Environmental Protection Agency (EPA) guidelines for Region 9.

Background: After talking with Steve Heaton, DEQ yesterday, there was a search for guidance for commercial screening levels in the Idaho Risk Evaluation Manual for Petroleum Releases as suggested by Steve. No guidance could be found in the manual. An internet search revealed EPA guidelines for industrial screening levels for Region 9, but could not find any guidance for Region 10. Gary McManus utilized a download spreadsheet provided in the EPA website and processed the sampling analysis Region 9 using ingestion levels (most conservative). The samples levels were lower than the industrial screening levels.

The call was placed to Steve Heaton (DEQ) to explain the actions taken above. Steve wanted to know if we had found any guidance for commercial screening levels in the Idaho Risk Evaluation Manual for Petroleum Releases. I told him that we were unable to identify any guidance in the manual. Steve responded that he was acceptable to using the EPA Region 9 guidance and gave verbal authorization to continue. Steve requested that the EPA Region 9 information be included in the tank closure plan. I communicated to Steve that I was prepared to e-mail him the sampling analysis and the spreadsheet that we utilized to review. Steve replied that he would, so the information was sent. Steve responded that he had received the e-mail. I requested that he contact us if he encountered any issues and that we would be proceeding with the construction project.

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<https://mail.google.com/mail/u/0/?ui=2&ik=f559dada2e&view=pt&q=228607&qs=true&search=query&t...> 10/4/2012

# Appendix I

## Spreadsheet Comparison of EPA Region 9 Industrial Screening Levels vs. IDAPA Residential Screening Levels

MFC Biodiesel Tank Soil Sample Analysis #1										
Sample ID	Field ID: BEA030489_MFC		Lab ID: 1209154-2							
CAS Number	Target Analyte	DF	Result (ug/kg)	IDAPA 58.01.24 Screening Limit (ug/kg)	Region 9 Industrial Screening Level (ug/kg)	Critical Pathway	Exceed Residential Screening Limit	Exceed Industrial Screening Limit	Reporting Limit (ug/kg)	Result Qualifier
91-20-3	NAPHTHALENE	1	2	1.20E+02		VI	no		3.7	J
208-96-8	ACENAPHTHYLENE	1	2.3	ND			no		3.7	J
83-32-9	ACENAPHTHENE	1	3.7	2.00E+05		GWP	no		3.7	U
86-73-7	FLUORENE	1	3.7	2.40E+05		GWP	no		3.7	U
85-01-8	PHENANTHRENE	1	1.6	ND			no		3.7	J
120-12-7	ANTHRACENE	1	1.7	3.20E+06		GWP	no		3.7	J
206-44-0	FLUORANTHENE	1	1.4	1.40E+06		GWP	no		3.7	J
129-00-0	PYRENE	1	2.2	1.00E+06		GWP	no		3.7	J
56-65-3	BENZO(A)ANTHRACENE	1	1.3	9.00E+01		GWP	no		3.7	J
218-01-9	CHRYSENE	1	3.7	9.50E+03		GWP	no		3.7	U
205-99-2	BENZO(B)FLUORANTHENE	1	2.7	2.00E+02		DC	no		3.7	J
207-08-9	BENZO(K)FLUORANTHENE	1	3.7	1.90E+03		DC	no		3.7	U
50-32-5	BENZO(A)PYRENE	1	2.3	2.00E+01	3.90E+02	DC	no	no	3.7	J
193-39-5	INDENO(1,2,3-CD)PYRENE	1	2.5	ND			no		3.7	J
53-70-3	DIBENZO(A,H)ANTHRACENE	1	3.7	ND			no		3.7	U
191-24-2	BENZO(G,H,I)PERYLENE	1	4.4	ND			no		3.7	U
Sample ID	Field ID: BEA030490_MFC		Lab ID: 1209154-3							
CAS Number	Target Analyte	DF	Result (ug/kg)	IDAPA 58.01.24 Screening Limit (ug/kg)	Region 9 Industrial Screening Level (ug/kg)	Critical Pathway	Exceed Residential Screening Limit	Exceed Industrial Screening Limit	Reporting Limit (ug/kg)	Result Qualifier
91-20-3	NAPHTHALENE	1	3.9	1.20E+02		VI	no		3.9	U
208-96-8	ACENAPHTHYLENE	1	3.9	ND			no		3.9	U
83-32-9	ACENAPHTHENE	1	3.9	2.00E+05		GWP	no		3.9	U
86-73-7	FLUORENE	1	3.9	2.40E+05		GWP	no		3.9	U
85-01-8	PHENANTHRENE	1	3.9	ND			no		3.9	U
120-12-7	ANTHRACENE	1	3.9	3.20E+06		GWP	no		3.9	U
206-44-0	FLUORANTHENE	1	3.9	1.40E+06		GWP	no		3.9	U
129-00-0	PYRENE	1	3.9	1.00E+05		GWP	no		3.9	U
56-65-3	BENZO(A)ANTHRACENE	1	3.9	9.00E+01		GWP	no		3.9	U
218-01-9	CHRYSENE	1	3.9	9.50E+03		GWP	no		3.9	U
205-99-2	BENZO(B)FLUORANTHENE	1	3.9	2.00E+02	3.90E+02	DC	no	no	3.9	U
207-08-9	BENZO(K)FLUORANTHENE	1	3.9	1.90E+03		DC	no		3.9	U
50-32-5	BENZO(A)PYRENE	1	3.9	2.00E+01		DC	no		3.9	U
193-39-5	INDENO(1,2,3-CD)PYRENE	1	3.9	ND			no		3.9	U
53-70-3	DIBENZO(A,H)ANTHRACENE	1	3.9	ND			no		3.9	U
191-24-2	BENZO(G,H,I)PERYLENE	1	3.9	ND			no		3.9	U

Sample ID	Field ID: BEA030493_MFC	Lab ID: 1209154-6								
CAS Number	Target Analyte	DF	Result (ug/kg)	IDAPA 58.01.24 Screening Limit (ug/kg)	Region 9 Industrial Screening Level (ug/kg)	Critical Pathway	Exceed Residential Screening Limit	Exceed Industrial Screening Limit	Reporting Limit (ug/kg)	Result Qualifier
91-20-3	NAPHTHALENE	1	3.6	1.20E+02		VI	no		3.6	U
208-96-8	ACENAPHTHYLENE	1	3.6	ND			no		3.6	U
83-32-9	ACENAPHTHENE	1	3.6	2.00E+05		GWP	no		3.6	U
86-73-7	FLUORENE	1	1.3	2.40E+05		GWP	no		3.6	J
85-01-8	PHENANTHRENE	1	31	ND			no		3.6	
120-12-7	ANTHRACENE	1	10	3.20E+06		GWP	no		3.6	
206-44-0	FLUORANTHENE	1	280	1.40E+06		GWP	no		3.6	E
129-00-0	PYRENE	1	170	1.00E+05		GWP	no		3.6	
56-55-3	BENZO(A)ANTHRACENE	1	180	9.00E+01	3.90E+03	GWP	YES	NO	3.6	E
218-01-9	CHRYSENE	1	190	9.50E+03		GWP	no		3.6	E
205-99-2	BENZO(B)FLUORANTHENE	1	330	2.00E+02	3.90E+03	DC	YES	NO	3.6	E
207-08-9	BENZO(K)FLUORANTHENE	1	130	1.90E+03		DC	no		3.6	
50-32-8	BENZO(A)PYRENE	1	240	2.00E+01	3.90E+02	DC	YES	NO	3.6	E
193-39-5	INDENO(1,2,3-CD)PYRENE	1	120	ND			no		3.6	
53-70-3	DIBENZO(A,H)ANTHRACENE	1	35	ND			no		3.6	
191-24-2	BENZO(G,H,I)PERYLENE	1	110	ND			no		3.6	
Sample ID	Field ID: BEA030494_MFC	Lab ID: 1209154-7								
CAS Number	Target Analyte	DF	Result (ug/kg)	IDAPA 58.01.24 Screening Limit (ug/kg)	Region 9 Industrial Screening Level (ug/kg)	Critical Pathway	Exceed Residential Screening Limit	Exceed Industrial Screening Limit	Reporting Limit (ug/kg)	Result Qualifier
91-20-3	NAPHTHALENE	1	3.7	1.20E+02		VI	no		3.7	U
208-96-8	ACENAPHTHYLENE	1	3.7	ND			no		3.7	U
83-32-9	ACENAPHTHENE	1	3.7	2.00E+05		GWP	no		3.7	U
86-73-7	FLUORENE	1	3.7	2.40E+05		GWP	no		3.7	U
85-01-8	PHENANTHRENE	1	3.7	ND			no		3.7	J
120-12-7	ANTHRACENE	1	3.7	3.20E+06		GWP	no		3.7	U
206-44-0	FLUORANTHENE	1	21	1.40E+06		GWP	no		3.7	
129-00-0	PYRENE	1	16	1.00E+05		GWP	no		3.7	
56-55-3	BENZO(A)ANTHRACENE	1	15	9.00E+01		GWP	no		3.7	
218-01-9	CHRYSENE	1	18	9.50E+03		GWP	no		3.7	
205-99-2	BENZO(B)FLUORANTHENE	1	24	2.00E+02		DC	no		3.7	
207-08-9	BENZO(K)FLUORANTHENE	1	12	1.90E+03		DC	no		3.7	
50-32-8	BENZO(A)PYRENE	1	19	2.00E+01	3.90E+02	DC	no	no	3.7	
193-39-5	INDENO(1,2,3-CD)PYRENE	1	14	ND			no		3.7	
53-70-3	DIBENZO(A,H)ANTHRACENE	1	4.1	ND			no		3.7	
191-24-2	BENZO(G,H,I)PERYLENE	1	14	ND			no		3.7	

Sample ID	Field ID: BEA030497_MFC	Lab ID: 1209154-10								
CAS Number	Target Analyte	DF	Result (ug/kg)	IDAPA 58.01.24 Screening Limit (ug/kg)	Region 9 Industrial Screening Level (ug/kg)	Critical Pathway	Exceed Residential Screening Limit	Exceed Industrial Screening Limit	Reporting Limit (ug/kg)	Result Qualifier
91-20-3	NAPHTHALENE	1	3.7	1.20E+02		VI	no		3.7	U
208-96-8	ACENAPHTHYLENE	1	3.7	ND			no		3.7	U
83-32-9	ACENAPHTHENE	1	3.7	2.00E+05		GWP	no		3.7	U
86-73-7	FLUORENE	1	1.7	2.40E+05		GWP	no		3.7	J
85-01-8	PHENANTHRENE	1	10	ND			no		3.7	
120-12-7	ANTHRACENE	1	3.1	3.20E+06		GWP	no		3.7	J
206-44-0	FLUORANTHENE	1	40	1.40E+06		GWP	no		3.7	
129-00-0	PYRENE	1	30	1.90E+05		GWP	no		3.7	
56-55-3	BENZO(A)ANTHRACENE	1	30	9.00E+01		GWP	no		3.7	
218-01-9	CHRYSENE	1	35	9.50E+03		GWP	no		3.7	
205-99-2	BENZO(B)FLUORANTHENE	1	56	2.00E+02		DC	no		3.7	
207-08-9	BENZO(K)FLUORANTHENE	1	22	1.90E+03		DC	no		3.7	
50-32-8	BENZO(A)PYRENE	1	40	2.00E+01	3.90E+02	DC	YES	NO	3.7	
193-39-5	INDENO(1,2,3-CD)PYRENE	1	22	ND			no		3.7	
53-70-3	DIBENZO(A,H)ANTHRACENE	1	6.4	ND			no		3.7	
191-24-2	BENZO(G,H,I)PERYLENE	1	21	ND			no		3.7	
Sample ID	Field ID: BEA030498_MFC	Lab ID: 1209154-11								
CAS Number	Target Analyte	DF	Result (ug/kg)	IDAPA 58.01.24 Screening Limit (ug/kg)	Region 9 Industrial Screening Level (ug/kg)	Critical Pathway	Exceed Residential Screening Limit	Exceed Industrial Screening Limit	Reporting Limit (ug/kg)	Result Qualifier
91-20-3	NAPHTHALENE	1	3.7	1.20E+02		VI	no		3.7	U
208-96-8	ACENAPHTHYLENE	1	3.7	ND			no		3.7	U
83-32-9	ACENAPHTHENE	1	3.7	2.00E+05		GWP	no		3.7	U
86-73-7	FLUORENE	1	3.7	2.40E+05		GWP	no		3.7	U
85-01-8	PHENANTHRENE	1	17	ND			no		3.7	
120-12-7	ANTHRACENE	1	6.1	3.20E+06		GWP	no		3.7	
206-44-0	FLUORANTHENE	1	140	1.40E+06		GWP	no		3.7	
129-00-0	PYRENE	1	85	1.00E+05		GWP	no		3.7	
56-55-3	BENZO(A)ANTHRACENE	1	94	9.00E+01	3.90E+03	GWP	YES	NO	3.7	
218-01-9	CHRYSENE	1	96	9.50E+03		GWP	no		3.7	
205-99-2	BENZO(B)FLUORANTHENE	1	150	2.00E+02		DC	no		3.7	
207-08-9	BENZO(K)FLUORANTHENE	1	57	1.90E+03		DC	no		3.7	
50-32-8	BENZO(A)PYRENE	1	110	2.00E+01	3.90E+02	DC	YES	NO	3.7	
193-39-5	INDENO(1,2,3-CD)PYRENE	1	66	ND			no		3.7	
53-70-3	DIBENZO(A,H)ANTHRACENE	1	19	ND			no		3.7	
191-24-2	BENZO(G,H,I)PERYLENE	1	63	ND			no		3.7	

Sample ID	Field ID: BEA030493_MFC	Lab ID: 1209154-6RR1								
CAS Number	Target Analyte	DF	Result (ug/kg)	IDAPA 58.01.24 Screening Limit (ug/kg)	Region 9 Industrial Screening Level (ug/kg)	Critical Pathway	Exceed Residential Screening Limit	Exceed Industrial Screening Limit	Reporting Limit (ug/kg)	Result Qualifier
91-20-3	NAPHTHALENE	3	11	1.20E+02		VI	no		11	U
208-96-8	ACENAPHTHYLENE	3	11	ND			no		11	U
83-32-9	ACENAPHTHENE	3	11	2.00E+05		GWP	no		11	U
86-73-7	FLUORENE	3	11	2.40E+05		GWP	no		11	U
85-01-8	PHENANTHRENE	3	29	ND			no		11	
120-12-7	ANTHRACENE	3	9.2	3.20E+06		GWP	no		11	J
206-44-0	FLUORANTHENE	3	220	1.40E+06		GWP	no		11	
129-00-0	PYRENE	3	120	1.00E+05		GWP	no		11	
56-55-3	BENZO(A)ANTHRACENE	3	130	9.00E+01	3.90E+03	GWP	YES	NO	11	
218-01-9	CHRYSENE	3	130	9.50E+03		GWP	no		11	
205-99-2	BENZO(E)FLUORANTHENE	3	210	2.00E+02	3.00E+03	DC	YES	NO	11	
207-08-9	BENZO(K)FLUORANTHENE	3	74	1.90E+03		DC	no		11	
50-32-8	BENZO(A)PYRENE	3	150	2.00E+01	3.90E+02	DC	YES	NO	11	
193-39-5	INDENO(1,2,3-CD)PYRENE	3	94	ND			no		11	
53-70-3	DIBENZO(A,H)ANTHRACENE	3	26	ND			no		11	
191-24-2	BENZO(G,H,I)PERYLENE	3	89	ND			no		11	

MFC Biodiesel Tank Soil Sample Analysis #2										
Sample ID	Field ID: BEA031232_MFC	Lab ID: 1209339-2MS		IDAPA 58.01.24 Screening Limit (ug/kg)	Region 9 Industrial Screening Level (ug/kg)	Critical Pathway	Exceed Screening Limit	Exceed Screening Limit	Reporting Limit (ug/kg)	Result Qualifier
CAS Number	Target Analyte	DF	Result (ug/kg)	IDAPA 58.01.24 Screening Limit (ug/kg)	Region 9 Industrial Screening Level (ug/kg)	Critical Pathway	Exceed Residential Screening Limit	Exceed Industrial Screening Limit	Reporting Limit (ug/kg)	Result Qualifier
91-20-3	NAPHTHALENE	1	3.6	1.20E+02		VI	no		3.60E+00	U
208-96-8	ACENAPHTHYLENE	1	3.6	ND					3.60E+00	U
83-32-9	ACENAPHTHENE	1	3.6	2.00E+05		GWP	no		3.60E+00	U
86-73-7	FLUORENE	1	3.6	2.40E+05		GWP	no		3.60E+00	U
85-01-8	PHENANTHRENE	1	9.6	ND					3.60E+00	
120-12-7	ANTHRACENE	1	3.2	3.20E+06		GWP	no		3.60E+00	J
206-44-0	FLUORANTHENE	1	66	1.40E+06		GWP	no		3.60E+00	
129-00-0	PYRENE	1	61	1.00E+05		GWP	no		3.60E+00	
56-55-3	BENZO(A)ANTHRACENE	1	44	9.00E+01		GWP	no		3.60E+00	
218-01-9	CHRYSENE	1	42	9.50E+03		GWP	no		3.60E+00	
205-99-2	BENZO(B)FLUORANTHENE	1	99	2.00E+02		DC	no		3.60E+00	
207-08-9	BENZO(K)FLUORANTHENE	1	40	1.90E+03		DC	no		3.60E+00	
50-32-8	BENZO(A)PYRENE	1	60	2.00E+01	3.90E+02	DC	YES	NO	3.60E+00	
193-39-5	INDENO(1,2,3-CD)PYRENE	1	25	ND					3.60E+00	
53-70-3	DIBENZO(A,H)ANTHRACENE	1	9.3	ND					3.60E+00	
191-24-2	BENZO(G,H,I)PERYLENE	1	30	ND					3.60E+00	
Sample ID	Field ID: BEA031233_MFC	Lab ID: 1209339-3		IDAPA 58.01.24 Screening Limit (ug/kg)	Region 9 Industrial Screening Level (ug/kg)	Critical Pathway	Exceed Residential Screening Limit	Exceed Industrial Screening Limit	Reporting Limit (ug/kg)	Result Qualifier
CAS Number	Target Analyte	DF	Result (ug/kg)	IDAPA 58.01.24 Screening Limit (ug/kg)	Region 9 Industrial Screening Level (ug/kg)	Critical Pathway	Exceed Residential Screening Limit	Exceed Industrial Screening Limit	Reporting Limit (ug/kg)	Result Qualifier
91-20-3	NAPHTHALENE	1	3.5	1.20E+02		VI	no		3.50E+00	U
208-96-8	ACENAPHTHYLENE	1	3.5	ND					3.50E+00	U
83-32-9	ACENAPHTHENE	1	3.5	2.00E+05		GWP	no		3.50E+00	U
86-73-7	FLUORENE	1	3.5	2.40E+05		GWP	no		3.50E+00	U
85-01-8	PHENANTHRENE	1	7.5	ND					3.50E+00	
120-12-7	ANTHRACENE	1	2.5	3.20E+06		GWP	no		3.50E+00	J
206-44-0	FLUORANTHENE	1	55	1.40E+06		GWP	no		3.50E+00	
129-00-0	PYRENE	1	35	1.00E+05		GWP	no		3.50E+00	
56-55-3	BENZO(A)ANTHRACENE	1	25	9.00E+01		GWP	no		3.50E+00	
218-01-9	CHRYSENE	1	26	9.50E+03		GWP	no		3.50E+00	
205-99-2	BENZO(B)FLUORANTHENE	1	53	2.00E+02		DC	no		3.50E+00	
207-08-9	BENZO(K)FLUORANTHENE	1	24	1.90E+03		DC	no		3.50E+00	
50-32-8	BENZO(A)PYRENE	1	32	2.00E+01	3.90E+02	DC	YES	NO	3.50E+00	
193-39-5	INDENO(1,2,3-CD)PYRENE	1	13	ND					3.50E+00	
53-70-3	DIBENZO(A,H)ANTHRACENE	1	4.5	ND					3.50E+00	
191-24-2	BENZO(G,H,I)PERYLENE	1	14	ND					3.50E+00	

Sample ID	Field ID: BEA031236_MFC	Lab ID: 1209339-6									
CAS Number	Target Analyte	DF	Result (ug/kg)	IDAPA 58.01.24 Screening Limit (ug/kg)	Region 9 Industrial Screening Level (ug/kg)	Critical Pathway	Exceed Residential Screening Limit	Exceed Industrial Screening Limit	Reporting Limit (ug/kg)	Result Qualifier	
91-20-3	NAPHTHALENE	1	3.8	1.20E+02		VI	no		3.80E+00	U	
208-96-8	ACENAPHTHYLENE	1	2.1	ND					3.80E+00	J	
83-32-9	ACENAPHTHENE	1	3.8	2.00E+05		GWP	no		3.80E+00	U	
86-73-7	FLUORENE	1	3.8	2.40E+05		GWP	no		3.80E+00	U	
85-01-8	PHENANTHRENE	1	11	ND					3.80E+00		
120-12-7	ANTHRACENE	1	4.4	3.20E+06		GWP	no		3.80E+00		
206-44-0	FLUORANTHENE	1	74	1.40E+06		GWP	no		3.80E+00		
129-00-0	PYRENE	1	71	1.00E+05		GWP	no		3.80E+00		
56-55-3	BENZO(A)ANTHRACENE	1	44	9.00E+01		GWP	no		3.80E+00		
218-01-9	CHRYSENE	1	40	9.50E+03		GWP	no		3.80E+00		
205-99-2	BENZO(B)FLUORANTHENE	1	95	2.00E+02		DC	no		3.80E+00		
207-08-9	BENZO(K)FLUORANTHENE	1	37	1.90E+03		DC	no		3.80E+00		
50-32-8	BENZO(A)PYRENE	1	58	2.00E+01	3.90E+02	DC	YES	NO	3.80E+00		
193-39-5	INDENO(1,2,3-CD)PYRENE	1	29	ND					3.80E+00		
53-70-3	DIBENZO(A,H)ANTHRACENE	1	11	ND					3.80E+00		
191-24-2	BENZO(G,H,I)PERYLENE	1	34	ND					3.80E+00		
Sample ID	Field ID: BEA031237_MFC	Lab ID: 1209339-7									
CAS Number	Target Analyte	DF	Result (ug/kg)	IDAPA 58.01.24 Screening Limit (ug/kg)	Region 9 Industrial Screening Level (ug/kg)	Critical Pathway	Exceed Residential Screening Limit	Exceed Industrial Screening Limit	Reporting Limit (ug/kg)	Result Qualifier	
91-20-3	NAPHTHALENE	1	3.8	1.20E+02		VI	no		3.80E+00	U	
208-96-8	ACENAPHTHYLENE	1	3.8	ND					3.80E+00	U	
83-32-9	ACENAPHTHENE	1	3.8	2.00E+05		GWP	no		3.80E+00	U	
86-73-7	FLUORENE	1	3.8	2.40E+05		GWP	no		3.80E+00	U	
85-01-8	PHENANTHRENE	1	4.5	ND					3.80E+00		
120-12-7	ANTHRACENE	1	1.5	3.20E+06		GWP	no		3.80E+00	J	
206-44-0	FLUORANTHENE	1	32	1.40E+06		GWP	no		3.80E+00		
129-00-0	PYRENE	1	25	1.00E+05		GWP	no		3.80E+00		
56-55-3	BENZO(A)ANTHRACENE	1	20	9.00E+01		GWP	no		3.80E+00		
218-01-9	CHRYSENE	1	19	9.50E+03		GWP	no		3.80E+00		
205-99-2	BENZO(B)FLUORANTHENE	1	49	2.00E+02		DC	no		3.80E+00		
207-08-9	BENZO(K)FLUORANTHENE	1	17	1.90E+03		DC	no		3.80E+00		
50-32-8	BENZO(A)PYRENE	1	27	2.00E+01	3.90E+02	DC	YES	NO	3.80E+00		
193-39-5	INDENO(1,2,3-CD)PYRENE	1	9.4	ND					3.80E+00		
53-70-3	DIBENZO(A,H)ANTHRACENE	1	3.3	ND					3.80E+00	J	
191-24-2	BENZO(G,H,I)PERYLENE	1	10	ND					3.80E+00		

Sample ID	Field ID: BEA031239_MFC	Lab ID: 1209339-9									
CAS Number	Target Analyte	DF	Result (ug/kg)	IDAPA 58.01.24 Screening Limit (ug/kg)	Region 9 Industrial Screening Level (ug/kg)	Critical Pathway	Exceed Residential Screening Limit	Exceed Industrial Screening Limit	Reporting Limit (ug/kg)	Result Qualifier	
91-20-3	NAPHTHALENE	1	3.8	1.20E+02		VI	no		3.80E+00	U	
208-96-8	ACENAPHTHYLENE	1	3.8	ND					3.80E+00	U	
83-32-9	ACENAPHTHENE	1	3.8	2.00E+05		GWP	no		3.80E+00	U	
86-73-7	FLUORENE	1	3.8	2.40E+05		GWP	no		3.80E+00	U	
85-01-8	PHENANTHRENE	1	5.5	ND					3.80E+00		
120-12-7	ANTHRACENE	1	1.8	3.20E+06		GWP	no		3.80E+00	J	
206-44-0	FLUORANTHENE	1	45	1.40E+06		GWP	no		3.80E+00		
129-00-0	PYRENE	1	56	1.00E+05		GWP	no		3.80E+00		
56-55-3	BENZO(A)ANTHRACENE	1	35	9.00E+01		GWP	no		3.80E+00		
218-01-9	CHRYSENE	1	36	9.50E+03		GWP	no		3.80E+00		
205-99-2	BENZO(B)FLUORANTHENE	1	72	2.00E+02		DC	no		3.80E+00		
207-08-9	BENZO(K)FLUORANTHENE	1	31	1.90E+03		DC	no		3.80E+00		
50-32-8	BENZO(A)PYRENE	1	41	2.00E+01	3.90E+02	DC	YES	NO	3.80E+00		
193-39-5	INDENO(1,2,3-CD)PYRENE	1	19	ND					3.80E+00		
53-70-3	DIBENZO(A,H)ANTHRACENE	1	6.4	ND					3.80E+00		
191-24-2	BENZO(G,H,I)PERYLENE	1	23	ND					3.80E+00		
Sample ID	Field ID: BEA031248_MFC	Lab ID: 1209339-12									
CAS Number	Target Analyte	DF	Result (ug/kg)	IDAPA 58.01.24 Screening Limit (ug/kg)	Region 9 Industrial Screening Level (ug/kg)	Critical Pathway	Exceed Residential Screening Limit	Exceed Industrial Screening Limit	Reporting Limit (ug/kg)	Result Qualifier	
91-20-3	NAPHTHALENE	1	3.7	1.20E+02		VI	no		3.70E+00	U	
208-96-8	ACENAPHTHYLENE	1	3.7	ND			no		3.70E+00	U	
83-32-9	ACENAPHTHENE	1	3.7	2.00E+05		GWP	no		3.70E+00	U	
86-73-7	FLUORENE	1	3.7	2.40E+05		GWP	no		3.70E+00	U	
85-01-8	PHENANTHRENE	1	16	ND			no		3.70E+00		
120-12-7	ANTHRACENE	1	5	3.20E+06		GWP	no		3.70E+00		
206-44-0	FLUORANTHENE	1	97	1.40E+06		GWP	no		3.70E+00		
129-00-0	PYRENE	1	110	1.00E+05		GWP	no		3.70E+00		
56-55-3	BENZO(A)ANTHRACENE	1	66	9.00E+01		GWP	no		3.70E+00		
218-01-9	CHRYSENE	1	72	9.50E+03		GWP	no		3.70E+00		
205-99-2	BENZO(B)FLUORANTHENE	1	140	2.00E+02		DC	no		3.70E+00		
207-08-9	BENZO(K)FLUORANTHENE	1	48	1.90E+03		DC	no		3.70E+00		
50-32-8	BENZO(A)PYRENE	1	84	2.00E+01	3.90E+02	DC	YES	NO	3.70E+00		
193-39-5	INDENO(1,2,3-CD)PYRENE	1	45	ND			no		3.70E+00		
53-70-3	DIBENZO(A,H)ANTHRACENE	1	15	ND			no		3.70E+00		
191-24-2	BENZO(G,H,I)PERYLENE	1	52	ND			no		3.70E+00		



Sample ID	Field ID: BEA031250_MFC	Lab ID: 1209339-14								
CAS Number	Target Analyte	DF	Result (ug/kg)	IDAPA 58.01.24 Screening Limit (ug/kg)	Region 9 Industrial Screening Level (ug/kg)	Critical Pathway	Exceed Residential Screening Limit	Exceed Industrial Screening Limit	Reporting Limit (ug/kg)	Result Qualifier
91-20-3	NAPHTHALENE	1	3.4	1.20E+02		VI	no		3.40E+00	U
208-96-8	ACENAPHTHYLENE	1	3.4	ND			no		3.40E+00	U
83-32-9	ACENAPHTHENE	1	1.1	2.00E+05		GWP	no		3.40E+00	J
86-73-7	FLUORENE	1	3.4	2.40E+05		GWP	no		3.40E+00	U
85-01-8	PHENANTHRENE	1	4.6	ND			no		3.40E+00	
120-12-7	ANTHRACENE	1	1.6	3.20E+06		GWP	no		3.40E+00	J
206-44-0	FLUORANTHENE	1	15	1.40E+06		GWP	no		3.40E+00	
129-00-0	PYRENE	1	13	1.00E+05		GWP	no		3.40E+00	
56-55-3	BENZO(A)ANTHRACENE	1	9.1	9.00E+01		GWP	no		3.40E+00	
218-01-9	CHRYSENE	1	7.4	9.50E+03		GWP	no		3.40E+00	
205-99-2	BENZO(B)FLUORANTHENE	1	19	2.00E+02		DC	no		3.40E+00	
207-08-9	BENZO(K)FLUORANTHENE	1	7.3	1.90E+03		DC	no		3.40E+00	
50-32-8	BENZO(A)PYRENE	1	11	2.00E+01	3.90E+02	DC	no	no	3.40E+00	
193-39-5	INDENO(1,2,3-CD)PYRENE	1	4.7	ND			no		3.40E+00	
53-70-3	DIBENZO(A,H)ANTHRACENE	1	1.5	ND			no		3.40E+00	J
191-24-2	BENZO(G,H,I)PERYLENE	1	5.8	ND			no		3.40E+00	
Sample ID	Field ID: BEA031252_MFC	Lab ID: 1209339-16								
CAS Number	Target Analyte	DF	Result (ug/kg)	IDAPA 58.01.24 Screening Limit (ug/kg)	Region 9 Industrial Screening Level (ug/kg)	Critical Pathway	Exceed Residential Screening Limit	Exceed Industrial Screening Limit	Reporting Limit (ug/kg)	Result Qualifier
91-20-3	NAPHTHALENE	7	24	1.20E+02		VI	no		2.40E+01	U
208-96-8	ACENAPHTHYLENE	7	24	ND			no		2.40E+01	U
83-32-9	ACENAPHTHENE	7	24	2.00E+05		GWP	no		2.40E+01	U
86-73-7	FLUORENE	7	24	2.40E+05		GWP	no		2.40E+01	U
85-01-8	PHENANTHRENE	7	29	ND			no		2.40E+01	
120-12-7	ANTHRACENE	7	9.2	3.20E+06		GWP	no		2.40E+01	J
206-44-0	FLUORANTHENE	7	160	1.40E+06		GWP	no		2.40E+01	
129-00-0	PYRENE	7	110	1.00E+05		GWP	no		2.40E+01	
56-55-3	BENZO(A)ANTHRACENE	7	90	9.00E+01		GWP	no		2.40E+01	
218-01-9	CHRYSENE	7	88	9.50E+03		GWP	no		2.40E+01	
205-99-2	BENZO(B)FLUORANTHENE	7	150	2.00E+02		DC	no		2.40E+01	
207-08-9	BENZO(K)FLUORANTHENE	7	62	1.90E+03		DC	no		2.40E+01	
50-32-8	BENZO(A)PYRENE	7	110	2.00E+01	3.90E+02	DC	YES	NO	2.40E+01	
193-39-5	INDENO(1,2,3-CD)PYRENE	7	70	ND			no		2.40E+01	
53-70-3	DIBENZO(A,H)ANTHRACENE	7	23	ND			no		2.40E+01	J
191-24-2	BENZO(G,H,I)PERYLENE	7	77	ND			no		2.40E+01	



Sample ID	Field ID: BEA031254_MFC	Lab ID: 1209339-18								
CAS Number	Target Analyte	DF	Result (ug/kg)	IDAPA 58.01.24 Screening Limit (ug/kg)	Region 9 Industrial Screening Level (ug/kg)	Critical Pathway	Exceed Residential Screening Limit	Exceed Industrial Screening Limit	Reporting Limit (ug/kg)	Result Qualifier
91-20-3	NAPHTHALENE	1	3.5	1.20E+02		VI	no		3.50E+00	U
208-96-8	ACENAPHTHYLENE	1	3.5	ND			no		3.50E+00	U
83-32-9	ACENAPHTHENE	1	3.5	2.00E+05		GWP	no		3.50E+00	U
86-73-7	FLUORENE	1	3.5	2.40E+05		GWP	no		3.50E+00	U
85-01-8	PHENANTHRENE	1	4.3	ND			no		3.50E+00	
120-12-7	ANTHRACENE	1	1.6	3.20E+06		GWP	no		3.50E+00	J
206-44-0	FLUORANTHENE	1	38	1.40E+06		GWP	no		3.50E+00	
129-00-0	PYRENE	1	37	1.00E+05		GWP	no		3.50E+00	
56-55-3	BENZO(A)ANTHRACENE	1	31	9.00E+01		GWP	no		3.50E+00	
218-01-9	CHRYSENE	1	27	9.50E+03		GWP	no		3.50E+00	
205-99-2	BENZO(B)FLUORANTHENE	1	60	2.00E+02		DC	no		3.50E+00	
207-08-9	BENZO(K)FLUORANTHENE	1	33	1.90E+03		DC	no		3.50E+00	
50-32-8	BENZO(A)PYRENE	1	43	2.00E+01	3.90E+02	DC	YES	NO	3.50E+00	
193-39-5	INDENO(1,2,3-CD)PYRENE	1	20	ND			no		3.50E+00	
53-70-3	DIBENZO(A,H)ANTHRACENE	1	6.4	ND			no		3.50E+00	
191-24-2	BENZO(G,H,I)PERYLENE	1	24	ND			no		3.50E+00	
Sample ID	Field ID: BEA031252_MFC	Lab ID: 1209339-16RR1								
CAS Number	Target Analyte	DF	Result (ug/kg)	IDAPA 58.01.24 Screening Limit (ug/kg)	Region 9 Industrial Screening Level (ug/kg)	Critical Pathway	Exceed Residential Screening Limit	Exceed Industrial Screening Limit	Reporting Limit (ug/kg)	Result Qualifier
91-20-3	NAPHTHALENE	1	3.4	1.20E+02		VI	no		3.40E+00	U
208-96-8	ACENAPHTHYLENE	1	3.4	ND			no		3.40E+00	U
83-32-9	ACENAPHTHENE	1	3.4	2.00E+05		GWP	no		3.40E+00	U
86-73-7	FLUORENE	1	3.4	2.40E+05		GWP	no		3.40E+00	U
85-01-8	PHENANTHRENE	1	28	ND			no		3.40E+00	
120-12-7	ANTHRACENE	1	8.6	3.20E+06		GWP	no		3.40E+00	
206-44-0	FLUORANTHENE	1	130	1.40E+06		GWP	no		3.40E+00	
129-00-0	PYRENE	1	100	1.00E+05		GWP	no		3.40E+00	
56-55-3	BENZO(A)ANTHRACENE	1	84	9.00E+01		GWP	no		3.40E+00	
218-01-9	CHRYSENE	1	92	9.50E+03		GWP	no		3.40E+00	
205-99-2	BENZO(B)FLUORANTHENE	1	180	2.00E+02		DC	no		3.40E+00	E
207-08-9	BENZO(K)FLUORANTHENE	1	57	1.90E+03		DC	no		3.40E+00	
50-32-8	BENZO(A)PYRENE	1	110	2.00E+01	3.90E+02	DC	YES	NO	3.40E+00	
193-39-5	INDENO(1,2,3-CD)PYRENE	1	37	ND			no		3.40E+00	
53-70-3	DIBENZO(A,H)ANTHRACENE	1	13	ND			no		3.40E+00	
191-24-2	BENZO(G,H,I)PERYLENE	1	38	ND			no		3.40E+00	

# Appendix J

## E-mail to DEQ with Soil Analytical Analysis #1 and #2 and Spreadsheet Comparison of EPA Region 9 Industrial Screening Levels vs. IDAPA Residential Screening Levels

MFC Biodiesel Tank Samples and Screening Levels - kerry.nisson@inl.gov - Idaho National Laboratory ... Page 1 of 1

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**Nisson, Kerry L.** kerry.nisson@inl.gov **Sep 27 (5 days ago)**  
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