

## **White Sands Missile Range- HELSTF Diesel Spill**

### **Data Review**

WHITE SANDS MISSILE RANGE, NEW MEXICO

Volatiles, DRO, Metals and Miscellaneous Analyses

SDG #1303146

Analyses Performed By:  
DHL Analytical, Inc.  
Round Rock, Texas

Report # 19127R  
Review Level: Tier II  
Project: GP08WSMR.2012.MON13

## SUMMARY

This data quality assessment summarizes the review of Sample Delivery Group (SDG) #1303146 for samples collected in association with the HELSTF Deisel Spill. The review was conducted as a Tier II evaluation and included review of data package completeness. Only analytical data associated with constituents of concern were reviewed for this validation. Field documentation was not included in this review. Included with this assessment are the validation annotated sample result sheets, and chain of custody. Analyses were performed on the following samples:

Sample ID	Lab ID	Matrix	Sample Collection Date	Parent Sample	Analysis				
					VOC	DRO	SVOC	MET	MISC
HLSF-0154-DRW-013-0313	1303146-01	Water	3/14/2013		X	X		X	X
HLSF-0154-DRW-113-0313	1303146-02	Water	3/14/2013	HLSF-0154-DRW-013-0313	X	X		X	X
HLSF-0154-TB-0313	1303146-03	Water	3/14/2013		X				

**Note:**

1. Matrix spike/matrix spike duplicate (MS/MSD) was performed on sample location HLSF-0154-DRW-113-0313.
2. Miscellaneous analyses include TOC, hexavalent chromium and pH.

## ANALYTICAL DATA PACKAGE DOCUMENTATION

The table below is the evaluation of the data package completeness.

Items Reviewed	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
1. Sample receipt condition		X		X	
2. Requested analyses and sample results		X		X	
3. Master tracking list		X		X	
4. Methods of analysis		X		X	
5. Reporting limits		X		X	
6. Sample collection date		X		X	
7. Laboratory sample received date		X		X	
8. Sample preservation verification (as applicable)		X		X	
9. Sample preparation/extraction/analysis dates		X		X	
10. Fully executed Chain-of-Custody (COC) form		X		X	
11. Narrative summary of QA or sample problems provided		X		X	
12. Data Package Completeness and Compliance		X		X	

QA - Quality Assurance

## ORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 8260B and 8015D. Data were reviewed in accordance with USEPA National Functional Guidelines of October 1999.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and had already been subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The compound was analyzed for but not detected. The associated value is the compound quantitation limit.
  - B The compound has been found in the sample as well as its associated blank, its presence in the sample may be suspect.
- Quantitation (Q) Qualifiers
  - E The compound was quantitated above the calibration range.
  - D Concentration is based on a diluted sample analysis.
- Validation Qualifiers
  - J The compound was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The compound was not detected above the reported sample quantitation limit. However, the reported limit is approximate and may or may not represent the actual limit of quantitation.
  - UB Compound considered non-detect at the listed value due to associated blank contamination.
  - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

## VOLATILE ORGANIC COMPOUND (VOC) ANALYSES

### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8260	Water	14 days from collection to analysis	Cool to 4°C±2°C; preserved to a pH of less than 2 s.u.
	Soil	48 hours from collection to extraction and 14 days from extraction to analysis	Cool to 4°C±2°C.

s.u. Standard units

Please Note: 2-Chloroethyl vinyl ether degrades in the presence of acid. Since the samples were preserved with acid to a pH of less than 2, all sample results for 2-chloroethyl vinyl ether are rejected.

### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination with which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. VOC analysis requires that all surrogates associated with the analysis exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD analysis was not performed on a sample location within this SDG.

## 5. Laboratory Control Sample (LCS) Analysis

The LCS analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

## 6. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit of 40% for water matrices and 70% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
HLSF-0154-DRW-013-0313/ HLSF-0154-DRW-113-0313	1,1-Dichloroethane	0.00174	0.00178	AC
	Acetone	0.0101 J	0.00976 J	AC
	Chloroform	0.00282	0.00287	AC
	Trichloroethene	0.00357	0.00343	AC

AC Acceptable  
U Not Detected

The calculated RPDs between the parent sample and field duplicate were acceptable.

## 7. Compound Identification

Compounds are identified on the GC/MS by laboratory personnel using the analytes relative retention time and ion spectra. These identifications were not reviewed by the data validator.

## 8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

## DATA VALIDATION CHECKLIST FOR VOCs

VOCs: SW-846 8260B	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY/MASS SPECTROMETRY (GC/MS)					
<b>Tier II Validation</b>					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
C. Trip blanks		X		X	
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate(LCSD)					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS)					X
Matrix Spike Duplicate(MSD)					X
MS/MSD Precision (RPD)					X
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content					X

%R    Percent recovery  
 RPD    Relative percent difference

## DIESEL RANGE ORGANICS (DRO) ORGANICS ANALYSES

### 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 8015D	Soil	14 days from collection to extraction and 40 days from extraction to analysis	Cool to 4°C±2°C
	Water	7 days from collection to extraction and 40 days from extraction to analysis	Cool to 4°C±2°C

All samples were analyzed within the specified holding times.

### 2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the reporting limit (RL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

### 3. Surrogates/System Monitoring Compounds

All samples to be analyzed for organic compounds are spiked with surrogate compounds prior to sample preparation to evaluate overall laboratory performance and efficiency of the analytical technique. The analysis requires surrogate compounds exhibit recoveries within the laboratory-established acceptance limits.

All surrogate recoveries were within control limits.

### 4. Matrix Spike/Matrix Spike Duplicate (MS/MSD) Analysis

MS/MSD data are used to assess the precision and accuracy of the analytical method. The compounds used to perform the MS/MSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits. The relative percent difference (RPD) between the MS/MSD recoveries must exhibit an RPD within the laboratory-established acceptance limits.

Note: The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the compound concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater.

A MS/MSD analysis was not performed on a sample location within this SDG.

## 5. Laboratory Control Sample (LCS) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The compounds associated with the LCS/LCSD analysis must exhibit a percent recovery within the laboratory-established acceptance limits.

All compounds associated with the LCS/LCSD analysis exhibited recoveries within the control limits.

## 6. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit of 40% for water matrices and 70% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
HLSF-0154-DRW-013-0313/ HLSF-0154-DRW-113-0313	DRO	0.0914 J	0.0800 U	AC

AC Acceptable  
U Not Detected

The calculated RPDs between the parent sample and field duplicate were acceptable.

## 7. Compound Identification

Compounds are identified on the GC by laboratory personnel using the analytes relative retention time. These identifications were not reviewed by the data validator.

## 8. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

## DATA VALIDATION CHECKLIST FOR DRO

DRO; SW-846 8015D	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
GAS CHROMATOGRAPHY (GC/FID)					
<b>Tier II Validation</b>					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R					X
LCS/LCSD Precision (RPD)					X
Matrix Spike (MS) %R					X
Matrix Spike Duplicate(MSD) %R					X
MS/MSD Precision (RPD)					X
Field/Lab Duplicate (RPD)		X		X	
Surrogate Spike Recoveries		X		X	
Dilution Factor		X		X	
Moisture Content					X

%RSD – relative standard deviation, %R - percent recovery, RPD - relative percent difference, %D – difference

## INORGANIC ANALYSIS INTRODUCTION

Analyses were performed according to United States Environmental Protection Agency (USEPA) SW-846 Method 6020, SM 5310C, M3500-CR and SM 4500-H. Data were reviewed in accordance with USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review of July 2002.

The data review process is an evaluation of data on a technical basis rather than a determination of contract compliance. As such, the standards against which the data are being weighed may differ from those specified in the analytical method. It is assumed that the data package represents the best efforts of the laboratory and that it was already subjected to adequate and sufficient quality review prior to submission.

During the review process, laboratory qualified and unqualified data are verified against the supporting documentation. Based on this evaluation, qualifier codes may be added, deleted, or modified by the data reviewer. Results are qualified with the following codes in accordance with the USEPA National Functional Guidelines:

- Concentration (C) Qualifiers
  - U The analyte was analyzed for but not detected. The associated value is the analyte instrument detection limit.
  - B The reported value was obtained from a reading less than the contract-required detection limit (CRDL), but greater than or equal to the instrument detection limit (IDL).
- Quantitation (Q) Qualifiers
  - E The reported value is estimated due to the presence of interference.
  - N Spiked sample recovery is not within control limits.
  - \* Duplicate analysis is not within control limits.
- Validation Qualifiers
  - J The analyte was positively identified; however, the associated numerical value is an estimated concentration only.
  - UJ The analyte was not detected above the reported sample detection limit. However, the reported limit is approximate and may or may not represent the actual limit of detection.
  - UB Analyte considered non-detect at the listed value due to associated blank contamination.
  - R The sample results are rejected.

Two facts should be noted by all data users. First, the "R" flag means that the associated value is unusable. In other words, due to significant quality control (QC) problems, the analysis is invalid and provides no information as to whether the compound is present or not. "R" values should not appear on data tables because they cannot be relied upon, even as a last resort. The second fact to keep in mind is that no compound concentration, even if it has passed all QC tests, is guaranteed to be accurate. Strict QC serves to increase confidence in data but any value potentially contains error.

# METALS ANALYSES

## 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
SW-846 6020	Soil	180 days from collection to analysis	Cool to 4°C±2°C.

All samples were analyzed within the specified holding times.

## 2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the IDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

## 3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

### 3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory qualifier "N" will be removed.

A MS/MSD analysis was not performed on a sample location within this SDG.

### 3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the CRDL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the CRDL, a control limit of one times the CRDL is applied for water matrices and two times the CRDL for soil matrices.

A laboratory duplicate analysis was not performed on a sample location within this SDG.

#### 4. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit of 40% for water matrices and 70% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
HLSF-0154-DRW-013-0313/ HLSF-0154-DRW-113-0313	Chromium	0.0426	0.0485	13.0%

AC Acceptable  
U Not detected

The calculated RPDs between the parent sample and field duplicate were acceptable.

#### 5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS/LCSD analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS/LCSD analysis exhibited recoveries within and RPD between the control limits.

#### 6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

## DATA VALIDATION CHECKLIST FOR METALS

METALS; SW-846 6020	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP) Atomic Absorption – Manual Cold Vapor (CV)					
<b>Tier II Validation</b>					
Holding Times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Instrument Blanks		X		X	
B. Method Blanks		X		X	
C. Equipment/Field Blanks					X
Laboratory Control Sample (LCS)		X		X	
Laboratory Control Sample Duplicate (LCSD)		X		X	
LCS/LCSD RPD		X		X	
Matrix Spike (MS) %R					X
Matrix Spike Duplicate (MSD) %R					X
MS/MSD Precision (RPD)					X
Field/Lab Duplicate (RPD)		X		X	
Reporting Limit Verification		X		X	
Moisture Content					X

%R     Percent recovery

RPD    Relative percent difference

# GENERAL CHEMISTRY ANALYSES

## 1. Holding Times

The specified holding times for the following methods are presented in the following table.

Method	Matrix	Holding Time	Preservation
TOC by SM 5310C	Water	28 days from collection to analysis	Cool to 4°C±2°C; preserved to a pH of less than 2 s.u.
Hexavalent Chromium by M3500-Cr D	Water	24 hours from collection to analysis	Cool to 4°C±2°C.
pH by SM 4500-H	Water	ASAP	Cool to 4°C±2°C.

s.u. Standard units

All samples were analyzed within the specified holding times.

## 2. Blank Contamination

Quality assurance (QA) blanks (i.e., method and rinse blanks) are prepared to identify any contamination which may have been introduced into the samples during sample preparation or field activity. Method blanks measure laboratory contamination. Rinse blanks measure contamination of samples during field operations.

A blank action level (BAL) of five times the concentration of a detected compound in an associated blank (common laboratory contaminant compounds are calculated at ten times) is calculated for QA blanks containing concentrations greater than the method detection limit (MDL). The BAL is compared to the associated sample results to determine the appropriate qualification of the sample results, if needed.

Compounds were not detected above the MDL in the associated blanks; therefore detected sample results were not associated with blank contamination.

## 3. Matrix Spike/Matrix Spike Duplicate (MS/MSD)/Laboratory Duplicate Analysis

MS/MSD and laboratory duplicate data are used to assess the precision and accuracy of the analytical method.

### 3.1 MS/MSD Analysis

All metal analytes must exhibit a percent recovery within the established acceptance limits of 75% to 125%. The MS/MSD recovery control limits do not apply for MS/MSD performed on sample locations where the analyte's concentration detected in the parent sample exceeds the MS/MSD concentration by a factor of four or greater. In instance where this is true, the data will not be qualified even if the percent recovery does not meet the control limits and the laboratory qualifier "N" will be removed.

The MS/MSD analysis exhibited recoveries within the control limits.

### 3.2 Laboratory Duplicate Analysis

The laboratory duplicate relative percent difference (RPD) criterion is applied when parent and duplicate sample concentrations are greater than or equal to 5 times the CRDL. A control limit of 20% for water matrices and 35% for soil matrices is applied when the criteria above is true. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the CRDL, a control limit of one times the CRDL is applied for water matrices and two times the CRDL for soil matrices.

The laboratory duplicate sample results exhibited RPD within the control limit.

### 4. Field Duplicate Analysis

Field duplicate analysis is used to assess the precision and accuracy of the field sampling procedures and analytical method. A control limit of 40% for water matrices and 70% for soil matrices is applied to the RPD between the parent sample and the field duplicate. In the instance when the parent and/or duplicate sample concentrations are less than or equal to 5 times the RL, a control limit of two times the RL is applied for water matrices or three times the RL is applied for soil matrices.

Results for duplicate samples are summarized in the following table.

Sample ID/Duplicate ID	Compound	Sample Result	Duplicate Result	RPD
HLSF-0154-DRW-013-0313/ HLSF-0154-DRW-113-0313	TOC	0.397 J	0.304 J	AC
	Hexavalent Chromium	0.0080 U	0.0080 U	AC
	pH	7.38	7.40	0.3%

AC Acceptable

The calculated RPDs between the parent sample and field duplicate were acceptable.

### 5. Laboratory Control Sample/Laboratory Control Sample Duplicate (LCS/LCSD) Analysis

The LCS/LCSD analysis is used to assess the precision and accuracy of the analytical method independent of matrix interferences. The analytes associated with the LCS/LCSD analysis must exhibit a percent recovery between the control limits of 80% and 120%.

The LCS/LCSD analysis exhibited recoveries within and RPD between the control limits.

### 6. System Performance and Overall Assessment

Overall system performance was acceptable. Other than for those deviations specifically mentioned in this review, the overall data quality is within the guidelines specified in the method.

## DATA VALIDATION CHECKLIST FOR GENERAL CHEMISTRY

General Chemistry: SM 5310C, M3500-Cr D and SM 4500-H	Reported		Performance Acceptable		Not Required
	No	Yes	No	Yes	
Miscellaneous Instrumentation					
<b>Tier II Validation</b>					
Holding times		X		X	
Reporting limits (units)		X		X	
Blanks					
A. Method blanks		X		X	
B. Equipment blanks					X
Laboratory Control Sample (LCS) %R		X		X	
Laboratory Control Sample Duplicate(LCSD) %R		X		X	
LCS/LCSD Precision (RPD)		X		X	
Matrix Spike (MS) %R		X		X	
Matrix Spike Duplicate(MSD) %R		X		X	
MS/MSD Precision (RPD)		X		X	
Field/Lab Duplicate (RPD)		X		X	
Dilution Factor					X
Moisture Content					X

%RSD – relative standard deviation, %R - percent recovery, RPD - relative percent difference,  
%D – difference

VALIDATION PERFORMED

BY:

Jeffrey L. Davin

SIGNATURE:

A handwritten signature in black ink, appearing to read "Jeffrey L. Davin", written over a horizontal line.

DATE: April 23, 2013

PEER REVIEW: Dennis Capria

DATE: April 29, 2013

**CHAIN OF CUSTODY/  
CORRECTED SAMPLE ANALYSIS DATA SHEETS**

**DHL Analytical, Inc.**

Date: 28-Mar-13

**CLIENT:** Zia Engineering & Environmental  
**Project:** HELSTF Diesel Spill  
**Project No:**  
**Lab Order:** 1303146

**Client Sample ID:** HLSF-0154-DRW-013-0313  
**Lab ID:** 1303146-01  
**Collection Date:** 03/14/13 03:10 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - WATER</b>		<b>M8015D</b>					Analyst: <b>AJR</b>
TPH-DRO C10-C28	0.0914	0.0800	0.100	J	mg/L	1	03/26/13 06:49 PM
Surr: Isopropylbenzene	64.3	0	47-142		%REC	1	03/26/13 06:49 PM
Surr: Octacosane	120	0	51-124		%REC	1	03/26/13 06:49 PM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>					Analyst: <b>SW</b>
Chromium	0.0426	0.00200	0.00600		mg/L	1	03/26/13 06:30 PM
<b>8260 WATER VOLATILES BY GC/MS</b>		<b>SW8260C</b>					Analyst: <b>KL</b>
1,1,1,2-Tetrachloroethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
1,1,1-Trichloroethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
1,1,2,2-Tetrachloroethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
1,1,2-Trichloroethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
1,1-Dichloroethane	0.00174	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
1,1-Dichloroethene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
1,1-Dichloropropene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
1,2,3-Trichlorobenzene	<0.00150	0.00150	0.00500		mg/L	1	03/22/13 04:52 PM
1,2,3-Trichloropropane	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 04:52 PM
1,2,4-Trichlorobenzene	<0.00150	0.00150	0.00500		mg/L	1	03/22/13 04:52 PM
1,2,4-Trimethylbenzene	<0.00150	0.00150	0.00500		mg/L	1	03/22/13 04:52 PM
1,2-Dibromo-3-chloropropane	<0.00300	0.00300	0.0100		mg/L	1	03/22/13 04:52 PM
1,2-Dibromoethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
1,2-Dichlorobenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 04:52 PM
1,2-Dichloroethane	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 04:52 PM
1,2-Dichloropropane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
1,3,5-Trimethylbenzene	<0.00150	0.00150	0.00500		mg/L	1	03/22/13 04:52 PM
1,3-Dichlorobenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 04:52 PM
1,3-Dichloropropane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
1,4-Dichloro-2-butene	<0.00200	0.00200	0.00200		mg/L	1	03/22/13 04:52 PM
1,4-Dichlorobenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 04:52 PM
2,2-Dichloropropane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
2-Butanone	<0.00500	0.00500	0.0150		mg/L	1	03/22/13 04:52 PM
2-Chloroethylvinylether	<del>&lt;0.00500</del>	<del>0.00500</del>	<del>0.0150</del>	R	<del>mg/L</del>	<del>1</del>	03/22/13 04:52 PM
2-Chlorotoluene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 04:52 PM
2-Hexanone	<0.00500	0.00500	0.0150		mg/L	1	03/22/13 04:52 PM
4-Chlorotoluene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 04:52 PM
4-Methyl-2-pentanone	<0.00500	0.00500	0.0150		mg/L	1	03/22/13 04:52 PM
Acetone	0.0101	0.00500	0.0150	J	mg/L	1	03/22/13 04:52 PM
Acrylonitrile	<0.00100	0.00100	0.00300		mg/L	1	03/22/13 04:52 PM
Benzene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

**DHL Analytical, Inc.**

Date: 28-Mar-13

**CLIENT:** Zia Engineering & Environmental  
**Project:** HELSTF Diesel Spill  
**Project No:**  
**Lab Order:** 1303146

**Client Sample ID:** HLSF-0154-DRW-013-0313  
**Lab ID:** 1303146-01  
**Collection Date:** 03/14/13 03:10 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>8260 WATER VOLATILES BY GC/MS</b>		<b>SW8260C</b>			Analyst: <b>KL</b>		
Bromobenzene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
Bromochloromethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
Bromodichloromethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
Bromoform	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
Bromomethane	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 04:52 PM
Carbon disulfide	<0.00500	0.00500	0.0150		mg/L	1	03/22/13 04:52 PM
Carbon tetrachloride	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
Chlorobenzene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
Chloroethane	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 04:52 PM
Chloroform	0.00282	0.000300	0.00100		mg/L	1	03/22/13 04:52 PM
Chloromethane	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 04:52 PM
cis-1,2-Dichloroethene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
cis-1,3-Dichloropropene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
Dibromochloromethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
Dibromomethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
Dichlorodifluoromethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
Ethylbenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 04:52 PM
Iodomethane	<0.00500	0.00500	0.0150		mg/L	1	03/22/13 04:52 PM
Isopropylbenzene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
m,p-Xylene	<0.000600	0.000600	0.00200		mg/L	1	03/22/13 04:52 PM
Methyl tert-butyl ether	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 04:52 PM
Methylene chloride	<0.00250	0.00250	0.00250		mg/L	1	03/22/13 04:52 PM
n-Butylbenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 04:52 PM
n-Propylbenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 04:52 PM
o-Xylene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 04:52 PM
p-Isopropyltoluene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 04:52 PM
sec-Butylbenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 04:52 PM
Styrene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
tert-Butylbenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 04:52 PM
Tetrachloroethene	<0.000600	0.000600	0.00200		mg/L	1	03/22/13 04:52 PM
Toluene	<0.000600	0.000600	0.00200		mg/L	1	03/22/13 04:52 PM
trans-1,2-Dichloroethene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
trans-1,3-Dichloropropene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
Trichloroethene	0.00357	0.000600	0.00200		mg/L	1	03/22/13 04:52 PM
Trichlorofluoromethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 04:52 PM
Vinyl chloride	<0.000100	0.000100	0.00100		mg/L	1	03/22/13 04:52 PM
Surr: 1,2-Dichloroethane-d4	113	0	70-120		%REC	1	03/22/13 04:52 PM
Surr: 4-Bromofluorobenzene	112	0	75-120		%REC	1	03/22/13 04:52 PM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

**DHL Analytical, Inc.**

Date: 28-Mar-13

**CLIENT:** Zia Engineering & Environmental  
**Project:** HELSTF Diesel Spill  
**Project No:**  
**Lab Order:** 1303146

**Client Sample ID:** HLSF-0154-DRW-013-0313  
**Lab ID:** 1303146-01  
**Collection Date:** 03/14/13 03:10 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>8260 WATER VOLATILES BY GC/MS</b>		<b>SW8260C</b>					Analyst: <b>KL</b>
Surr: Dibromofluoromethane	110	0	85-115		%REC	1	03/22/13 04:52 PM
Surr: Toluene-d8	109	0	85-120		%REC	1	03/22/13 04:52 PM
<b>HEXAVALENT CHROMIUM-WATER</b>		<b>M3500-CR D</b>					Analyst: <b>LM</b>
Hexavalent Chromium	<0.00800	0.00800	0.0100		mg/L	1	03/15/13 02:24 PM
<b>PH</b>		<b>M4500-H+ B</b>					Analyst: <b>JCG</b>
pH	7.38	0	0		pH units	1	03/15/13 03:36 PM
<b>TOTAL ORGANIC CARBON</b>		<b>M5310C</b>					Analyst: <b>JCG</b>
Total Organic Carbon	0.397	0.300	1.00	J	mg/L	1	03/21/13 12:43 PM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

**DHL Analytical, Inc.**

Date: 28-Mar-13

**CLIENT:** Zia Engineering & Environmental  
**Project:** HELSTF Diesel Spill  
**Project No:**  
**Lab Order:** 1303146

**Client Sample ID:** HLSF-0154-DRW-113-0313  
**Lab ID:** 1303146-02  
**Collection Date:** 03/14/13 03:10 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>TPH EXTRACTABLE BY GC - WATER</b>		<b>M8015D</b>		Analyst: <b>AJR</b>			
TPH-DRO C10-C28	<0.0800	0.0800	0.100		mg/L	1	03/20/13 11:52 AM
Surr: Isopropylbenzene	59.3	0	47-142		%REC	1	03/20/13 11:52 AM
Surr: Octacosane	110	0	51-124		%REC	1	03/20/13 11:52 AM
<b>TRACE METALS: ICP-MS - WATER</b>		<b>SW6020A</b>		Analyst: <b>SW</b>			
Chromium	0.0485	0.00200	0.00600		mg/L	1	03/20/13 02:24 PM
<b>8260 WATER VOLATILES BY GC/MS</b>		<b>SW8260C</b>		Analyst: <b>KL</b>			
1,1,1,2-Tetrachloroethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
1,1,1-Trichloroethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
1,1,2,2-Tetrachloroethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
1,1,2-Trichloroethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
1,1-Dichloroethane	0.00178	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
1,1-Dichloroethene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
1,1-Dichloropropene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
1,2,3-Trichlorobenzene	<0.00150	0.00150	0.00500		mg/L	1	03/22/13 05:16 PM
1,2,3-Trichloropropane	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:16 PM
1,2,4-Trichlorobenzene	<0.00150	0.00150	0.00500		mg/L	1	03/22/13 05:16 PM
1,2,4-Trimethylbenzene	<0.00150	0.00150	0.00500		mg/L	1	03/22/13 05:16 PM
1,2-Dibromo-3-chloropropane	<0.00300	0.00300	0.0100		mg/L	1	03/22/13 05:16 PM
1,2-Dibromoethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
1,2-Dichlorobenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:16 PM
1,2-Dichloroethane	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:16 PM
1,2-Dichloropropane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
1,3,5-Trimethylbenzene	<0.00150	0.00150	0.00500		mg/L	1	03/22/13 05:16 PM
1,3-Dichlorobenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:16 PM
1,3-Dichloropropane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
1,4-Dichloro-2-butene	<0.00200	0.00200	0.00200		mg/L	1	03/22/13 05:16 PM
1,4-Dichlorobenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:16 PM
2,2-Dichloropropane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
2-Butanone	<0.00500	0.00500	0.0150		mg/L	1	03/22/13 05:16 PM
2-Chloroethylvinylether	<del>&lt;0.00500</del>	<del>0.00500</del>	<del>0.0150</del>	R	<del>mg/L</del>	<del>1</del>	03/22/13 05:16 PM
2-Chlorotoluene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:16 PM
2-Hexanone	<0.00500	0.00500	0.0150		mg/L	1	03/22/13 05:16 PM
4-Chlorotoluene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:16 PM
4-Methyl-2-pentanone	<0.00500	0.00500	0.0150		mg/L	1	03/22/13 05:16 PM
Acetone	0.00976	0.00500	0.0150	J	mg/L	1	03/22/13 05:16 PM
Acrylonitrile	<0.00100	0.00100	0.00300		mg/L	1	03/22/13 05:16 PM
Benzene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

**DHL Analytical, Inc.**

Date: 28-Mar-13

**CLIENT:** Zia Engineering & Environmental  
**Project:** HELSTF Diesel Spill  
**Project No:**  
**Lab Order:** 1303146

**Client Sample ID:** HLSF-0154-DRW-113-0313  
**Lab ID:** 1303146-02  
**Collection Date:** 03/14/13 03:10 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>8260 WATER VOLATILES BY GC/MS</b>		<b>SW8260C</b>			Analyst: <b>KL</b>		
Bromobenzene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
Bromochloromethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
Bromodichloromethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
Bromoform	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
Bromomethane	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:16 PM
Carbon disulfide	<0.00500	0.00500	0.0150		mg/L	1	03/22/13 05:16 PM
Carbon tetrachloride	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
Chlorobenzene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
Chloroethane	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:16 PM
Chloroform	0.00287	0.000300	0.00100		mg/L	1	03/22/13 05:16 PM
Chloromethane	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:16 PM
cis-1,2-Dichloroethene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
cis-1,3-Dichloropropene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
Dibromochloromethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
Dibromomethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
Dichlorodifluoromethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
Ethylbenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:16 PM
Iodomethane	<0.00500	0.00500	0.0150		mg/L	1	03/22/13 05:16 PM
Isopropylbenzene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
m,p-Xylene	<0.000600	0.000600	0.00200		mg/L	1	03/22/13 05:16 PM
Methyl tert-butyl ether	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:16 PM
Methylene chloride	<0.00250	0.00250	0.00250		mg/L	1	03/22/13 05:16 PM
n-Butylbenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:16 PM
n-Propylbenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:16 PM
o-Xylene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:16 PM
p-Isopropyltoluene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:16 PM
sec-Butylbenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:16 PM
Styrene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
tert-Butylbenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:16 PM
Tetrachloroethene	<0.000600	0.000600	0.00200		mg/L	1	03/22/13 05:16 PM
Toluene	<0.000600	0.000600	0.00200		mg/L	1	03/22/13 05:16 PM
trans-1,2-Dichloroethene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
trans-1,3-Dichloropropene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
Trichloroethene	0.00343	0.000600	0.00200		mg/L	1	03/22/13 05:16 PM
Trichlorofluoromethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:16 PM
Vinyl chloride	<0.000100	0.000100	0.00100		mg/L	1	03/22/13 05:16 PM
Surr: 1,2-Dichloroethane-d4	113	0	70-120		%REC	1	03/22/13 05:16 PM
Surr: 4-Bromofluorobenzene	113	0	75-120		%REC	1	03/22/13 05:16 PM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

**DHL Analytical, Inc.**

Date: 28-Mar-13

**CLIENT:** Zia Engineering & Environmental  
**Project:** HELSTF Diesel Spill  
**Project No:**  
**Lab Order:** 1303146

**Client Sample ID:** HLSF-0154-DRW-113-0313  
**Lab ID:** 1303146-02  
**Collection Date:** 03/14/13 03:10 PM  
**Matrix:** AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>8260 WATER VOLATILES BY GC/MS</b>		<b>SW8260C</b>					Analyst: <b>KL</b>
Surr: Dibromofluoromethane	110	0	85-115		%REC	1	03/22/13 05:16 PM
Surr: Toluene-d8	110	0	85-120		%REC	1	03/22/13 05:16 PM
<b>HEXAVALENT CHROMIUM-WATER</b>		<b>M3500-CR D</b>					Analyst: <b>LM</b>
Hexavalent Chromium	<0.00800	0.00800	0.0100		mg/L	1	03/15/13 02:23 PM
<b>PH</b>		<b>M4500-H+ B</b>					Analyst: <b>JCG</b>
pH	7.40	0	0		pH units	1	03/15/13 03:38 PM
<b>TOTAL ORGANIC CARBON</b>		<b>M5310C</b>					Analyst: <b>JCG</b>
Total Organic Carbon	0.304	0.300	1.00	J	mg/L	1	03/21/13 01:03 PM

<b>Qualifiers:</b>	*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
	C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
	E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
	MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
	RL	Reporting Limit	S	Spike Recovery outside control limits
	N	Parameter not NELAC certified		

**DHL Analytical, Inc.**

Date: 28-Mar-13

**CLIENT:** Zia Engineering & Environmental  
**Project:** HELSTF Diesel Spill  
**Project No:**  
**Lab Order:** 1303146

**Client Sample ID:** HLSF-0154-TB-0313  
**Lab ID:** 1303146-03  
**Collection Date:** 03/14/13 04:00 PM  
**Matrix:** TRIP BLANK

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>8260 WATER VOLATILES BY GC/MS</b>		<b>SW8260C</b>			Analyst: <b>KL</b>		
1,1,1,2-Tetrachloroethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
1,1,1-Trichloroethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
1,1,2,2-Tetrachloroethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
1,1,2-Trichloroethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
1,1-Dichloroethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
1,1-Dichloroethene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
1,1-Dichloropropene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
1,2,3-Trichlorobenzene	<0.00150	0.00150	0.00500		mg/L	1	03/22/13 05:40 PM
1,2,3-Trichloropropane	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:40 PM
1,2,4-Trichlorobenzene	<0.00150	0.00150	0.00500		mg/L	1	03/22/13 05:40 PM
1,2,4-Trimethylbenzene	<0.00150	0.00150	0.00500		mg/L	1	03/22/13 05:40 PM
1,2-Dibromo-3-chloropropane	<0.00300	0.00300	0.0100		mg/L	1	03/22/13 05:40 PM
1,2-Dibromoethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
1,2-Dichlorobenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:40 PM
1,2-Dichloroethane	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:40 PM
1,2-Dichloropropane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
1,3,5-Trimethylbenzene	<0.00150	0.00150	0.00500		mg/L	1	03/22/13 05:40 PM
1,3-Dichlorobenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:40 PM
1,3-Dichloropropane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
1,4-Dichloro-2-butene	<0.00200	0.00200	0.00200		mg/L	1	03/22/13 05:40 PM
1,4-Dichlorobenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:40 PM
2,2-Dichloropropane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
2-Butanone	<0.00500	0.00500	0.0150		mg/L	1	03/22/13 05:40 PM
2-Chloroethylvinylether	<del>&lt;0.00500</del>	<del>0.00500</del>	<del>0.0150</del>	R	<del>mg/L</del>	<del>1</del>	03/22/13 05:40 PM
2-Chlorotoluene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:40 PM
2-Hexanone	<0.00500	0.00500	0.0150		mg/L	1	03/22/13 05:40 PM
4-Chlorotoluene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:40 PM
4-Methyl-2-pentanone	<0.00500	0.00500	0.0150		mg/L	1	03/22/13 05:40 PM
Acetone	<0.00500	0.00500	0.0150		mg/L	1	03/22/13 05:40 PM
Acrylonitrile	<0.00100	0.00100	0.00300		mg/L	1	03/22/13 05:40 PM
Benzene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
Bromobenzene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
Bromochloromethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
Bromodichloromethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
Bromoform	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
Bromomethane	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:40 PM
Carbon disulfide	<0.00500	0.00500	0.0150		mg/L	1	03/22/13 05:40 PM
Carbon tetrachloride	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM

**Qualifiers:**

*	Value exceeds TCLP Maximum Concentration Level	B	Analyte detected in the associated Method Blank
C	Sample Result or QC discussed in the Case Narrative	DF	Dilution Factor
E	TPH pattern not Gas or Diesel Range Pattern	J	Analyte detected between MDL and RL
MDL	Method Detection Limit	ND	Not Detected at the Method Detection Limit
RL	Reporting Limit	S	Spike Recovery outside control limits
N	Parameter not NELAC certified		

**DHL Analytical, Inc.**

Date: 28-Mar-13

**CLIENT:** Zia Engineering & Environmental  
**Project:** HELSTF Diesel Spill  
**Project No:**  
**Lab Order:** 1303146

**Client Sample ID:** HLSF-0154-TB-0313  
**Lab ID:** 1303146-03  
**Collection Date:** 03/14/13 04:00 PM  
**Matrix:** TRIP BLANK

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
<b>8260 WATER VOLATILES BY GC/MS</b>		<b>SW8260C</b>			Analyst: <b>KL</b>		
Chlorobenzene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
Chloroethane	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:40 PM
Chloroform	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:40 PM
Chloromethane	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:40 PM
cis-1,2-Dichloroethene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
cis-1,3-Dichloropropene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
Dibromochloromethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
Dibromomethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
Dichlorodifluoromethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
Ethylbenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:40 PM
Iodomethane	<0.00500	0.00500	0.0150		mg/L	1	03/22/13 05:40 PM
Isopropylbenzene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
m,p-Xylene	<0.000600	0.000600	0.00200		mg/L	1	03/22/13 05:40 PM
Methyl tert-butyl ether	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:40 PM
Methylene chloride	<0.00250	0.00250	0.00250		mg/L	1	03/22/13 05:40 PM
n-Butylbenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:40 PM
n-Propylbenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:40 PM
o-Xylene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:40 PM
p-Isopropyltoluene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:40 PM
sec-Butylbenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:40 PM
Styrene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
tert-Butylbenzene	<0.000300	0.000300	0.00100		mg/L	1	03/22/13 05:40 PM
Tetrachloroethene	<0.000600	0.000600	0.00200		mg/L	1	03/22/13 05:40 PM
Toluene	<0.000600	0.000600	0.00200		mg/L	1	03/22/13 05:40 PM
trans-1,2-Dichloroethene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
trans-1,3-Dichloropropene	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
Trichloroethene	<0.000600	0.000600	0.00200		mg/L	1	03/22/13 05:40 PM
Trichlorofluoromethane	<0.000200	0.000200	0.00100		mg/L	1	03/22/13 05:40 PM
Vinyl chloride	<0.000100	0.000100	0.00100		mg/L	1	03/22/13 05:40 PM
Surr: 1,2-Dichloroethane-d4	111	0	70-120		%REC	1	03/22/13 05:40 PM
Surr: 4-Bromofluorobenzene	113	0	75-120		%REC	1	03/22/13 05:40 PM
Surr: Dibromofluoromethane	110	0	85-115		%REC	1	03/22/13 05:40 PM
Surr: Toluene-d8	110	0	85-120		%REC	1	03/22/13 05:40 PM

<b>Qualifiers:</b>	* Value exceeds TCLP Maximum Concentration Level	B Analyte detected in the associated Method Blank
	C Sample Result or QC discussed in the Case Narrative	DF Dilution Factor
	E TPH pattern not Gas or Diesel Range Pattern	J Analyte detected between MDL and RL
	MDL Method Detection Limit	ND Not Detected at the Method Detection Limit
	RL Reporting Limit	S Spike Recovery outside control limits
	N Parameter not NELAC certified	



755 S. Teator Blvd. Ste. F-201  
 Las Cruces, NM 88011  
 575-532-1526 U  
 575-532-1587 F

### CHAIN OF CUSTODY RECORD

#1303146  
 PAGE        OF       

PROJECT NO.		PROJECT NAME				NO. OF CONTAINERS	ANALYSIS REQUESTED						REMARKS
SAMPLER'S SIGNATURE							Voc	ToC	DRO	Hex Chroma	Total Chroma	PH	
DATE	TIME	SAMPLE ID	MATRIX	LAB NO.									
01	3-14-13	1510	HLSF-0154-DRW-013-0313	WATER	10	✓	✓	✓	✓	✓	✓		
02	3-14-13	1510	HLSF-0154-DRW-113-0313	WATER	10	✓	✓	✓	✓	✓	✓	Note: 24hr Hold Time ON Hex Chroma	
03	3-14-13	1600	HLSF-0154-TB-0313	WATER	2	✓							

PROJECT INFORMATION		SAMPLES RECEIVED	1. RELINQUISHED BY: (SIGNATURE) <i>George Espueta</i> (PRINTED NAME) George ESPUETA	2. RELINQUISHED BY: (SIGNATURE) <i>[Signature]</i> (PRINTED NAME) [Name]	3. RECEIVED BY LAB: (SIGNATURE) <i>[Signature]</i> (PRINTED NAME) [Name]
PROJECT MANAGER	TOTAL NO. OF CONTAINERS	CHAIN OF CUSTODY/SEALS	RECEIVED BY: (SIGNATURE) <i>[Signature]</i>	RECEIVED BY: (SIGNATURE) <i>[Signature]</i>	(COMPANY) <i>[Signature]</i>
SHIPPING ID NO.	GOOD CONDITION & FILLED	CONFORMS TO RECORD	(TIME/DATE) 3/14/13	(TIME/DATE) 3/15/13, 1310	(TIME/DATE) 3/15/13, 1310
VIA: FED <del>X</del>			SPECIAL INSTRUCTIONS / COMMENTS:		