

**FINAL ANALYTICAL REPORT FOR LIQUID WASTE  
SAMPLES FROM 231ZDR-11 BOX -  
SAMPLE DELIVERY GROUP 222S20120400**

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**Ruth A. Bushaw**

Advanced Technologies and Laboratories International, Inc.

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Prepared for:



Prepared by:



Scot L. Fitzgerald

CH2M Hill Plateau Remediation Co.

P.O. Box 1600

Richland, WA 99352

509-373-7495

ATL, Inc.

P.O. Box 250

Richland, WA 99352-0250

509-373-4314

 4/6/2012  
\_\_\_\_\_  
R. A. Bushaw, ATL Project Manager

 for JAM 4/6/2012  
\_\_\_\_\_  
J. A. McCluskey; ATL Quality Scientist

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## 222-S LABORATORY

### FINAL ANALYTICAL REPORT FOR LIQUID WASTE SAMPLES FROM 231ZDR-11 BOX

#### 1.0 INTRODUCTION

This final report presents the results for the liquid samples taken from 231ZDR-11 on March 8, 2012. The samples were analyzed in accordance with *Sampling Authorization Form F12-015* (SAF), ATL-MP-1011, *ATL Quality Assurance Project Plan for 222-S Laboratory* (QAPP); SW-846, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*; and the additional guidance given by the customer point of contact (POC).

Because the 222-S Laboratory facility was designed to analyze hazardous and complex tank waste samples, most SW-846 test methods performed at the 222-S Laboratory contain deviations that are listed in an appendix in the analytical procedures. All other known deviations or variances from SW-846 are documented in this narrative. The following attachments are included in this report.

- Attachment 1 Sample Issue Resolution SDR12-229
- Attachment 2 Data Summary Report
- Attachment 3 Holding Time Report
- Attachment 4 Additional Quality Control (QC) Results
- Attachment 5 Correspondence
- Attachment 6 Receipt Paperwork

#### 2.0 SAMPLE RECEIPT AND APPEARANCE

A total of 4 samples, including a trip blank, were received by the 222-S Laboratory on March 8, 2012. Since the samples were received double wrapped with heavy plastic, and there was no evidence of cooling, the receipt temperature was not recorded. The samples were stored under refrigeration upon receipt.

Both sample B2KNC0 and B2KNC4 were described as black/brown colored opaque liquids. In addition, sample B2KNC4 was described as containing three distinct layers. This sample was thoroughly mixed prior to removing an aliquot for digestion. Following the acid digestion for the metals analysis, the digestates were clear with small brown/orange flake-like particulates settled on the bottom. These particulates were filtered prior to metals analysis.

#### 3.0 ANALYTICAL RESULTS SUMMARY

The Data Summary Report (Attachment 2) presents the final analytical results for those analytes requested on the SAF, as modified by the chain of custody forms and communication with the customer POC.

The “Det Limit” column in Attachment 2 contains the method detection limit (MDL).

In Attachment 2, the column labeled “A#” indicates the aliquot class or the method used for sample preparation before analysis. The aliquot classes are defined as follows:

“B” indicates samples that were prepared by SW-846 3010A

“O” indicates samples that were extracted by SW-846 3520C

Samples without a letter identifier in the “A#” column were analyzed directly with no separate preparation or with sample preparation performed as a part of the procedure steps.

The “Qual Flags” column in Attachment 2 contains data qualifier flags from FEAD CP-15383, Common Requirements of the Format for Electronic Analytical Data (FEAD), which are defined as follows:

“B” for organic results is used to indicate that the analyte was detected in the method or preparation blank and in the sample.

“B” for inorganic results is used to indicate that the reported result should be considered an estimate because it is below the quantitation limit. The “B” flag is applied to sample concentrations that are greater than the MDL but less than the quantitation limit.

“J” for organic results is used to indicate that the reported result should be considered an estimate because it is below the quantitation limit. The “J” flag is applied to sample concentrations that are greater than the MDL but less than the quantitation limit.

“U” for all results is used to indicate that the reported result is less than the calculated detection limit.

“T” for GC/MS is used to indicate that the MS or MSD recovery was outside of the specified range in the QAPP or SAP.

“X” is a user defined flag that was used to identify laboratory control sample (LCS), relative percent difference (RPD), or serial dilution failures, as described in the sections below.

Manual calculations using rounded results from the Data Summary Report (Attachment 2) or result calculation forms may differ slightly from the actual results derived from the raw data.

### **3.1 INORGANIC ANALYSES**

#### **3.1.1 pH Analysis**

The pH analysis was performed on grab sample B2KNC0. This analysis met all QC requirements in the QAPP. SW846 lists a pH holding time requirement of “immediate”. The analysis was performed as soon as practical after receipt of the samples, approximately 92 hours after sampling. Note that pH analysis was requested by the client after receipt of the samples (see Attachment 5).

### 3.1.2 Mercury

Analysis for mercury by cold vapor atomic absorption was performed on samples B2KNC0 and B2KNC4. This analysis met the QC requirements in the QAPP and the holding time was met.

### 3.1.3 Inductively Coupled Plasma/Atomic Emission Spectroscopy

The ICP/AES analysis was performed on an acid-digest (SW-846 3010A) of grab samples B2KNC0 and B2KNC4. All analyses met the holding time. All the RPDs for the duplicate exceeded the required 20% in the QAPP for cadmium, lead, and vanadium. Since the results for these elements were below the estimated quantitation limit, this criterion does not apply.

The interference check standard “A” (ICSA) results for manganese, nickel, silver, and vanadium were slightly above the MDL. The concentrations for manganese in the samples were sufficiently high that the slight high bias indicated by detection in the ICSA will not have an impact on the reported results. However, there might be a slight high bias for nickel, silver, and vanadium for sample B2KNC0 and nickel for sample B2KNC4. Since the results for nickel, silver, and vanadium were below the estimated quantitation limit, reanalysis was not required, and the usability of the data was not affected.

The percent difference for the serial dilution for manganese was slightly greater than 10%, which is required by the QAPP. The serial dilution is designed to indicate potential problems (e.g., high solids effects) that can impact sample uptake, resulting in analyte measurement differences. For this sample, the result for the serial dilution, which is an additional 5-fold dilution of the sample, was only slightly higher than the undiluted sample result, with a percent difference of 10.8%. This indicates a potential slightly low bias in the reported sample result. An “X” flag was applied to the result for sample B2KNC0, which was used for the serial dilution.

## 3.2 ORGANIC ANALYSES

### 3.2.1 Volatile Organic Analysis

The volatile organic analysis (VOA) by GC/MS was performed on grab sample B2KNC0 and the trip blank (B2KNC1). The holding time for this analysis was met for both samples.

The method blank contained acetone, benzene, styrene, and toluene at levels near the MDL and below the quantitation limit. A “B” flag was applied to the sample results to indicate the analytes detected in the blank. All results for the compounds were below the quantitation limit, except for one, acetone in B2KNC0. This sample result was more than 20 times the blank result. Since all results were below the quantitation limit, or more than 20 times the blank, reanalysis was not required and the data usability was not affected.

Client sample number B2KNC0 was used as the MS and MSD sample and was an opaque black aqueous liquid. The MS and/or MSD recoveries for 2-hexanone, hexone, and 1-butanol were above the statistical process control (SPC) limits established for this method and a “T” flag was applied to the results. Since the LCS recoveries for these compounds were within the SPC limits, and the RPD between the MS and MSD were in good agreement, it is the laboratory’s opinion

that the high recoveries for the MS and MSD are due to sample matrix interference and no reanalysis was requested.

The surrogate recoveries for bromofluorobenzene were above the SPC limits in sample B2KNC0 and its associated MS and MSD. It is the laboratory's opinion that the high recoveries were due to either direct matrix interference with this surrogate, or to matrix interference that caused a low recovery of the internal standard 1,4-dichlorobenzene-d4 (see Attachment 4), since no other sample in this batch experienced low internal standard recovery. Due to the detrimental effects of this sample on the VOA instrumentation, reanalysis was not requested.

### 3.2.2 Semivolatile Organic Analysis

The semivolatile organic analysis (SVOA) by GC/MS was performed on methylene chloride extractions of samples B2KNC0 and B2KNC5. All samples were extracted and analyzed within the required holding times.

A number of compounds in the LCS failed to meet the acceptance limits. An "X" flag was applied to all sample results for these compounds to indicate this failure. For most of the compounds that failed the LCS recovery (all except 4-chloro-3-methylphenol), the laboratory is comparing the recovery to the administrative limits of 70% - 130% because we only recently started to spike all compounds for the LCS and, at this time, we have not generated sufficient data to calculate SPC limits. The SPC limits provide information to the chemist to determine what a "normal" recovery would be for these compounds using our modified liquid-liquid extractors. Therefore, compounds exceeding the administrative limits do not necessarily constitute a failure of the extraction. Note that one compound had a particularly low LCS recovery; hexachlorocyclopentadiene, at 8%. This compound is typically very difficult to extract, so the low recovery still may not be indicative of a poor result. Another compound, 4-chloro-3-methylphenol, had a slightly high recovery, above the SPC limits. This would be indicative of a potential high bias; but this compound was not detected in the samples.

A number of organic compounds also had spike recoveries that failed to meet requirements. Some of these failed to meet the administrative limits of 70% - 130% recovery. As discussed with the LCS, these might not be indicative of true failures, we just don't currently have sufficient data to calculate SPC limits. For the others that failed to meet the SPC limits, the failures are believed to be caused by matrix interference, and no reanalysis was requested. A "T" flag was applied to the sample results to indicate analytes that failed to meet the criteria for the MS recoveries.

One surrogate, 2, 4, 6-tribromophenol, had a recovery outside of the SPC limits only for the MS sample analysis. Since the recovery of the surrogate in the QC samples was much higher, it is the laboratory's opinion that the failure was due to matrix interference, and no reanalysis was requested.

### 3.2.3 Polychlorinated Biphenyls Analysis

Polychlorinated biphenyls (PCB) analysis was performed on methylene chloride extraction of sample B2KNC0. This analysis met all QC requirements in the QAPP, except for the RPD

between the MS and MSD. The MS and MSD recoveries were within the SPC limits. The RPD of 32% was outside the SPC limit of  $\leq 30\%$  (see Attachment 4). It is the laboratory's opinion that this failure is due to matrix interference. The laboratory submitted a Sample Issue Resolution form (see Attachment 1) to inform the customer, who approved notation in the narrative and flagging the results for the failure. No reanalysis was requested. An "X" flag was applied to the result for Aroclor-1254, which is the only spike compound used for this analysis because it is the most common Aroclor detected in Hanford site samples.

The recoveries for the tetrachloro-m-xylene surrogate for the sample and its associated QC samples were outside of the SPC limits. The results were accepted based on the requirements of SW-846 method 8082A, which focuses on acceptable recovery for decachlorobiphenyl (DCB). The DCB recoveries were within the SPC limits for all samples (see Attachment 4).

#### 4.0 PROCEDURES

Table 2 lists the procedures used in preparation and analysis of the samples contained in this report.

**Table 2. Analytical Procedures**

Analysis	Preparation Method	Analysis Procedure
<b>Inorganic Analyses</b>		
pH (solid)	NA	LA-212-106, Rev. I-0 (SW-846 9040C)
Mercury – Cold Vapor Atomic Absorption	LA-325-110, Rev. A-0 (SW-846 7470A)	LA-325-110, Rev. A-0 (SW-846 7470A)
Metals – ICP /AES	LA-505-158, Rev. K-0 (SW-846 3010A)	LA-505-161, Rev. K-0 (SW-846 6010C)
<b>Organic Analyses</b>		
VOC – GC/MS	NA	LA-523-118, Rev.H-0-A SW-846 8260C
SVOC – GC/MS	LA-523-115, Rev. I-1 SW-846 3520C	LA-523-135, Rev. D-0-A SW-846 8270D
PCB – GC/Electron Capture Detector	LA-523-115, Rev. I-1 SW-846 3520C	LA-523-140, Rev. H-0 SW-846 8082A

#### 5.0 REFERENCES

- ATL-MP-1011, 2010, *ATL Quality Assurance Project Plan for 222-S Laboratory*, Rev. 10-A, Advanced Technologies and Laboratories International, Inc., Richland, Washington.
- FEAD CP-15383, 2007, *Common Requirements of the Format for Electronic Analytical Data*, Version 8, CH2M Hill Plateau Remediation Company, Richland, Washington.
- SW-846, 1986, *Test Methods for Evaluating Solid Waste: Physical/Chemical Methods*, Third Edition, as amended, U.S. Environmental Protection Agency, Washington, D.C.

Attachment 1

SAMPLE ISSUE RESOLUTION SDR12-229

## SAMPLE ISSUE RESOLUTION

**SIR NUM** SDR12-229  
**REV NUM** 0  
**DATE INITIATED** 4/2/2012

### SAMPLE EVENT INFORMATION

**SAF NUM(S)** F12-015  
**OPERABLE UNIT(S)** NONE  
**PROJECT(S)** CWC Waste  
**SAMPLE EVENT TITLE(S)** Box 231-Z-DR Liquids  
**LABORATORY** 222-S Lab Operations

### SAMPLING INFORMATION

**NUMBER OF SAMPLES** 1  
**SAMPLE NUMBERS** B2KNC0  
**SAMPLE MATRIX**  
**COLLECTION DATE** -  
**SDG NUM**

### ISSUE BACKGROUND

**CLASS** Laboratory Issue  
**TYPE** Quality Control Failure  
**DESCRIPTION** The RPD between the MS and the MSD exceeded the 30% requirement at 32%. The MS recovery for Aroclor 1254 spike was 116% and the MS was 86%. Both recoveries are within our statistical limits but too far apart to pass the RPD. The sample had 30ppb 1248, MS had 39 ppb and MSD had 29 for Aroclor 1248.

### DISPOSITION

**DESCRIPTION** PROPOSED DISPOSITION: The lab believes the higher MS recovery is due to a matrix issue. We are planning on reporting these results with notation in narrative and flagging for the failed RPD. The LCS (Aroclor 1254) recovery was 78%. Our statistically derived control limits are 50%-115%. Please let us know if this is acceptable?  
**JUSTIFICATION** ACCEPTED DISPOSITION: Accept the proposed disposition.

SUBMITTED BY: Gerald Ritenour/222S DATE: 4/2/12  
ACCEPTED BY: Bob Evans/CHPRC DATE: 4/3/12

Attachment 2

DATA SUMMARY REPORT

Data Summary Report

Sample Group: 20120400

Customer Group or SDG Number: 222S20120400

Customer Sample ID: B2KNC0

Sample Portion: Resample #1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S12M000086			71-55-6	1,1,1-Trichloroethane	ug/L	n/a	<0.0481	<0.0481	n/a	n/a	n/a	n/a	0.0481	n/a	U
S12M000086			79-34-5	1,1,2,2-Tetrachloroethane	ug/L	n/a	<0.0226	<0.0226	n/a	n/a	n/a	n/a	0.0226	n/a	U
S12M000086			79-00-5	1,1,2-Trichloroethane	ug/L	n/a	<0.0256	<0.0256	n/a	n/a	n/a	n/a	0.0256	n/a	U
S12M000086			75-34-3	1,1-Dichloroethane	ug/L	n/a	<0.0330	<0.0330	n/a	n/a	n/a	n/a	0.0330	n/a	U
S12M000086			75-35-4	1,1-Dichloroethene	ug/L	108	<0.191	<0.191	n/a	n/a	n/a	103	0.191	n/a	U
S12M000086			120-82-1	1,2,4-Trichlorobenzene	ug/L	n/a	<0.0629	0.105	n/a	n/a	n/a	n/a	0.0629	n/a	J
S12M000086			96-12-8	1,2-Dibromo-3-Chloropropane	ug/L	n/a	<0.415	<0.415	n/a	n/a	n/a	n/a	0.415	n/a	U
S12M000086			106-93-4	Ethylene Dibromide	ug/L	n/a	<0.0377	<0.0377	n/a	n/a	n/a	n/a	0.0377	n/a	U
S12M000086			95-50-1	1,2-Dichlorobenzene	ug/L	n/a	<0.0506	0.155	n/a	n/a	n/a	n/a	0.0506	n/a	J
S12M000086			107-06-2	1,2-Dichloroethane	ug/L	n/a	<0.0270	<0.0270	n/a	n/a	n/a	n/a	0.0270	n/a	U
S12M000086			78-87-5	1,2-Dichloropropane	ug/L	n/a	<0.0670	<0.0670	n/a	n/a	n/a	n/a	0.0670	n/a	U
S12M000086			541-73-1	1,3-Dichlorobenzene	ug/L	n/a	<0.0276	0.106	n/a	n/a	n/a	n/a	0.0276	n/a	J
S12M000086			106-46-7	1,4-Dichlorobenzene	ug/L	n/a	<0.0541	<0.0541	n/a	n/a	n/a	n/a	0.0541	n/a	U
S12M000086			78-93-3	2-Butanone	ug/L	95.9	<0.509	3.32	n/a	n/a	n/a	118	0.509	n/a	J
S12M000086			591-78-6	2-Hexanone	ug/L	98.0	<0.505	0.631	n/a	n/a	n/a	134	0.505	n/a	JT
S12M000086			79-46-9	2-Nitropropane	ug/L	n/a	<0.295	<0.295	n/a	n/a	n/a	n/a	0.295	n/a	U
S12M000086			107-87-9	2-Pentanone	ug/L	n/a	<0.529	1.05	n/a	n/a	n/a	n/a	0.529	n/a	J
S12M000086			67-64-1	Acetone	ug/L	83.1	0.795	18.1	n/a	n/a	n/a	111	0.637	n/a	B
S12M000086			71-43-2	Benzene	ug/L	104	0.0286	0.0774	n/a	n/a	n/a	97.7	0.0181	n/a	BJ
S12M000086			75-27-4	Bromodichloromethane	ug/L	n/a	<0.0268	<0.0268	n/a	n/a	n/a	n/a	0.0268	n/a	U
S12M000086			75-25-2	Bromoform	ug/L	n/a	<0.0332	<0.0332	n/a	n/a	n/a	n/a	0.0332	n/a	U
S12M000086			74-83-9	Bromomethane	ug/L	n/a	<0.256	<0.256	n/a	n/a	n/a	n/a	0.256	n/a	U
S12M000086			75-15-0	Carbon disulfide	ug/L	n/a	<0.0234	0.465	n/a	n/a	n/a	n/a	0.0234	n/a	
S12M000086			56-23-5	Carbon tetrachloride	ug/L	n/a	<0.0532	<0.0532	n/a	n/a	n/a	n/a	0.0532	n/a	U
S12M000086			108-90-7	Chlorobenzene	ug/L	102	<0.0356	<0.0356	n/a	n/a	n/a	91.5	0.0356	n/a	U
S12M000086			75-00-3	Chloroethane	ug/L	n/a	<0.116	<0.116	n/a	n/a	n/a	n/a	0.116	n/a	U
S12M000086			67-66-3	Chloroform	ug/L	n/a	<0.0460	<0.0460	n/a	n/a	n/a	n/a	0.0460	n/a	U
S12M000086			74-87-3	Chloromethane	ug/L	n/a	<0.0306	<0.0306	n/a	n/a	n/a	n/a	0.0306	n/a	U
S12M000086			156-59-2	cis-Dichloroethylene	ug/L	n/a	<0.0647	<0.0647	n/a	n/a	n/a	n/a	0.0647	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Organic Estimated  
 X - Comment

U - < Det Limit  
 B - Inorganic Estimated

T - Organic Spike Outside Range

B - Organic Blank Contamination

Data Summary Report

Sample Group: 20120400

Customer Group or SDG Number: 222S20120400

Customer Sample ID: B2KNC0

Sample Portion: Resample #1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S12M000086			10061-01-5	cis-1,3-Dichloropropene	ug/L	n/a	<0.0556	<0.0556	n/a	n/a	n/a	n/a	0.0556	n/a	U
S12M000086			110-82-7	Cyclohexane	ug/L	n/a	<0.0354	<0.0354	n/a	n/a	n/a	n/a	0.0354	n/a	U
S12M000086			124-48-1	Dibromochloromethane	ug/L	n/a	<0.0250	0.0726	n/a	n/a	n/a	n/a	0.0250	n/a	J
S12M000086			75-71-8	Dichlorodifluoromethane	ug/L	n/a	<0.196	<0.196	n/a	n/a	n/a	n/a	0.196	n/a	U
S12M000086			60-29-7	Diethyl ether	ug/L	n/a	<0.0470	<0.0470	n/a	n/a	n/a	n/a	0.0470	n/a	U
S12M000086			141-78-6	Ethyl acetate	ug/L	n/a	<0.204	<0.204	n/a	n/a	n/a	n/a	0.204	n/a	U
S12M000086			100-41-4	Ethylbenzene	ug/L	n/a	<0.0371	0.180	n/a	n/a	n/a	n/a	0.0371	n/a	J
S12M000086			76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ug/L	n/a	<0.0440	<0.0440	n/a	n/a	n/a	n/a	0.0440	n/a	U
S12M000086			67-72-1	Hexachloroethane	ug/L	n/a	<0.123	<0.123	n/a	n/a	n/a	n/a	0.123	n/a	U
S12M000086			110-54-3	Hexane	ug/L	n/a	<0.0766	<0.0766	n/a	n/a	n/a	n/a	0.0766	n/a	U
S12M000086			98-82-8	Isopropyl Benzene	ug/L	n/a	<0.0332	0.393	n/a	n/a	n/a	n/a	0.0332	n/a	
S12M000086			106-42-3	Xylene (m & p)	ug/L	n/a	<0.0781	0.613	n/a	n/a	n/a	n/a	0.0781	n/a	J
S12M000086			79-20-9	Methyl Acetate	ug/L	n/a	<0.110	0.775	n/a	n/a	n/a	n/a	0.110	n/a	J
S12M000086			108-10-1	Hexone	ug/L	102	<0.503	<0.503	n/a	n/a	n/a	140	0.503	n/a	UT
S12M000086			108-87-2	Methylcyclohexane	ug/L	n/a	<0.0529	<0.0529	n/a	n/a	n/a	n/a	0.0529	n/a	U
S12M000086			75-09-2	Methylenechloride	ug/L	n/a	<0.0440	<0.0440	n/a	n/a	n/a	n/a	0.0440	n/a	U
S12M000086			71-36-3	1-Butanol	ug/L	99.7	<1.28	47.0	n/a	n/a	n/a	135	1.28	n/a	T
S12M000086			104-51-8	N-Butylbenzene	ug/L	n/a	<0.0956	<0.0956	n/a	n/a	n/a	n/a	0.0956	n/a	U
S12M000086			95-47-6	o-Xylene	ug/L	n/a	<0.0361	0.435	n/a	n/a	n/a	n/a	0.0361	n/a	
S12M000086			100-42-5	Styrene	ug/L	n/a	0.0532	0.118	n/a	n/a	n/a	n/a	0.0438	n/a	BJ
S12M000086			1634-04-4	tert-butyl methyl ether	ug/L	n/a	<0.0566	<0.0566	n/a	n/a	n/a	n/a	0.0566	n/a	U
S12M000086			127-18-4	Tetrachloroethene	ug/L	n/a	<0.0648	<0.0648	n/a	n/a	n/a	n/a	0.0648	n/a	U
S12M000086			109-99-9	Tetrahydrofuran	ug/L	n/a	<0.306	<0.306	n/a	n/a	n/a	n/a	0.306	n/a	U
S12M000086			108-88-3	Toluene	ug/L	96.7	0.153	0.346	n/a	n/a	n/a	97.3	0.0580	n/a	BJ
S12M000086			540-59-0	1,2-Dichloroethylene	ug/L	n/a	<0.0878	<0.0878	n/a	n/a	n/a	n/a	0.0878	n/a	U
S12M000086			THM	Total Trihalomethanes	ug/L	n/a	<0.0744	<0.0744	n/a	n/a	n/a	n/a	0.0744	n/a	U
S12M000086			1330-20-7	Xylenes (total)	ug/L	n/a	<0.104	1.05	n/a	n/a	n/a	n/a	0.104	n/a	
S12M000086			156-60-5	trans-Dichloroethylene	ug/L	n/a	<0.0836	<0.0836	n/a	n/a	n/a	n/a	0.0836	n/a	U
S12M000086			10061-02-6	trans-1,3-Dichloropropene	ug/L	n/a	<0.0657	<0.0657	n/a	n/a	n/a	n/a	0.0657	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Organic Estimated  
 X - Comment

U - < Det Limit  
 B - Inorganic Estimated

T - Organic Spike Outside Range

B - Organic Blank Contamination

Data Summary Report

Sample Group: 20120400

Customer Group or SDG Number: 222S20120400

Customer Sample ID: B2KNC0

Sample Portion: Resample #1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S12M000086			79-01-6	Trichloroethene	ug/L	101	<0.0420	<0.0420	n/a	n/a	n/a	92.4	0.0420	n/a	U
S12M000086			75-69-4	Trichlorofluoromethane	ug/L	n/a	<0.0509	<0.0509	n/a	n/a	n/a	n/a	0.0509	n/a	U
S12M000086			75-01-4	Vinyl chloride	ug/L	n/a	<0.0540	<0.0540	n/a	n/a	n/a	n/a	0.0540	n/a	U
S12M000087			7439-97-6	Mercury	ug/mL	113	<1.10E-05	6.52E-03	6.44E-03	6.48E-03	1.23	103	4.40E-04	n/a	
S12M000088			PH	pH	unitless	n/a	n/a	8.86	8.83	8.84	0.339	n/a	0.0100	n/a	
S12M000089	O		12674-11-2	Aroclor 1016	ug/L	n/a	<5.40	<7.56	n/a	n/a	n/a	n/a	7.56	n/a	U
S12M000089	O		11104-28-2	Aroclor 1221	ug/L	n/a	<1.01	<1.42	n/a	n/a	n/a	n/a	1.42	n/a	U
S12M000089	O		11141-16-5	Aroclor 1232	ug/L	n/a	<1.17	<1.64	n/a	n/a	n/a	n/a	1.64	n/a	U
S12M000089	O		53469-21-9	Aroclor 1242	ug/L	n/a	<1.80	<2.52	n/a	n/a	n/a	n/a	2.52	n/a	U
S12M000089	O		12672-29-6	Aroclor 1248	ug/L	n/a	<1.01	32.0	n/a	n/a	n/a	n/a	1.42	n/a	
S12M000089	O		11097-69-1	Aroclor 1254	ug/L	78.0	<0.371	<0.520	n/a	n/a	n/a	116	0.520	n/a	UX
S12M000089	O		11096-82-5	Aroclor 1260	ug/L	n/a	<4.09	<5.72	n/a	n/a	n/a	n/a	5.72	n/a	U
S12M000090	O		120-82-1	1,2,4-Trichlorobenzene	ug/L	49.3	<25.5	<35.7	n/a	n/a	n/a	47.7	35.7	n/a	U
S12M000090	O		95-50-1	1,2-Dichlorobenzene	ug/L	36.0	<71.1	<99.5	n/a	n/a	n/a	40.7	99.5	n/a	UXT
S12M000090	O		106-46-7	1,4-Dichlorobenzene	ug/L	31.8	<14.7	<20.5	n/a	n/a	n/a	36.4	20.5	n/a	U
S12M000090	O		120-83-2	2,4-Dichlorophenol	ug/L	94.6	<19.9	<27.8	n/a	n/a	n/a	81.6	27.8	n/a	U
S12M000090	O		121-14-2	2,4-Dinitrotoluene	ug/L	88.9	<13.5	<18.9	n/a	n/a	n/a	80.7	18.9	n/a	U
S12M000090	O		95-95-4	2,4,5-Trichlorophenol	ug/L	85.2	<16.3	<22.9	n/a	n/a	n/a	79.9	22.9	n/a	U
S12M000090	O		88-06-2	2,4,6-Trichlorophenol	ug/L	85.4	<17.2	<24.0	n/a	n/a	n/a	79.4	24.0	n/a	U
S12M000090	O		105-67-9	2,4-Dimethylphenol	ug/L	92.0	<32.2	<45.1	n/a	n/a	n/a	91.6	45.1	n/a	U
S12M000090	O		606-20-2	2,6-Dinitrotoluene	ug/L	82.0	<15.9	<22.2	n/a	n/a	n/a	77.9	22.2	n/a	U
S12M000090	O		111-76-2	2-Butoxyethanol	ug/L	97.7	<30.3	<42.4	n/a	n/a	n/a	78.9	42.4	n/a	U
S12M000090	O		91-58-7	2-Chloronaphthalene	ug/L	72.6	<31.1	<43.6	n/a	n/a	n/a	64.4	43.6	n/a	UT
S12M000090	O		91-57-6	2-Methylnaphthalene	ug/L	68.5	<32.4	<45.3	n/a	n/a	n/a	60.1	45.3	n/a	UXT
S12M000090	O		95-48-7	2-Methylphenol	ug/L	94.2	<20.6	<28.9	n/a	n/a	n/a	79.1	28.9	n/a	U
S12M000090	O		88-74-4	2-Nitroaniline	ug/L	93.6	<14.9	<20.8	n/a	n/a	n/a	81.0	20.8	n/a	U
S12M000090	O		88-75-5	2-Nitrophenol	ug/L	93.4	<22.4	<31.4	n/a	n/a	n/a	65.7	31.4	n/a	UT
S12M000090	O		108-39-4M	Cresol (m & p)	ug/L	96.1	<20.6	<28.9	n/a	n/a	n/a	86.0	28.9	n/a	U
S12M000090	O		99-09-2	3-Nitroaniline	ug/L	98.7	<34.8	<48.7	n/a	n/a	n/a	7.64	48.7	n/a	UT

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T - Organic Spike Outside Range

B - Organic Blank Contamination

Data Summary Report

Sample Group: 20120400

Customer Group or SDG Number: 222S20120400

Customer Sample ID: B2KNC0

Sample Portion: Resample #1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S12M000090		O	106-47-8	4-Chloroaniline	ug/L	98.9	<29.3	<41.1	n/a	n/a	n/a	4.18	41.1	n/a	UT
S12M000090		O	534-52-1	4,6-Dinitro-o-cresol	ug/L	85.7	<8.17	<11.4	n/a	n/a	n/a	74.5	11.4	n/a	U
S12M000090		O	7005-72-3	4-Chlorophenylphenyl ether	ug/L	80.0	<22.9	<32.0	n/a	n/a	n/a	78.0	32.0	n/a	U
S12M000090		O	83-32-9	Acenaphthene	ug/L	77.4	<25.2	<35.3	n/a	n/a	n/a	71.2	35.3	n/a	U
S12M000090		O	208-96-8	Acenaphthylene	ug/L	77.6	<25.7	<36.0	n/a	n/a	n/a	69.0	36.0	n/a	UT
S12M000090		O	120-12-7	Anthracene	ug/L	90.2	<19.0	<26.6	n/a	n/a	n/a	83.0	26.6	n/a	U
S12M000090		O	56-55-3	Benzo(a)anthracene	ug/L	87.2	<17.2	<24.1	n/a	n/a	n/a	83.6	24.1	n/a	U
S12M000090		O	205-99-2	Benzo(b)fluoranthene	ug/L	86.1	<16.5	<23.2	n/a	n/a	n/a	82.7	23.2	n/a	U
S12M000090		O	191-24-2	Benzo(ghi)perylene	ug/L	86.1	<15.4	<21.5	n/a	n/a	n/a	83.6	21.5	n/a	U
S12M000090		O	50-32-8	Benzo(a)pyrene	ug/L	82.6	<15.5	<21.7	n/a	n/a	n/a	79.4	21.7	n/a	U
S12M000090		O	111-44-4	Bis(2-chloroethyl) ether	ug/L	92.8	<25.7	<36.0	n/a	n/a	n/a	68.5	36.0	n/a	UT
S12M000090		O	111-91-1	Bis(2-Chloroethoxy)methane	ug/L	92.1	<21.9	<30.7	n/a	n/a	n/a	74.4	30.7	n/a	U
S12M000090		O	117-81-7	Bis(2-ethylhexyl) phthalate	ug/L	94.0	<51.2	<71.7	n/a	n/a	n/a	107	71.7	n/a	U
S12M000090		O	108-60-1	2,2-oxybis(1-Chloropropane)	ug/L	89.7	<30.4	<42.5	n/a	n/a	n/a	64.4	42.5	n/a	UT
S12M000090		O	207-08-9	Benzo(k)fluoranthene	ug/L	91.5	<15.8	<22.1	n/a	n/a	n/a	92.5	22.1	n/a	U
S12M000090		O	101-55-3	4-Bromophenylphenyl ether	ug/L	87.5	<19.9	<27.9	n/a	n/a	n/a	89.9	27.9	n/a	U
S12M000090		O	85-68-7	Butylbenzylphthalate	ug/L	90.1	<14.7	<20.6	n/a	n/a	n/a	89.2	20.6	n/a	U
S12M000090		O	59-50-7	4-Chloro-3-methylphenol	ug/L	98.5	<17.4	<24.3	n/a	n/a	n/a	94.3	24.3	n/a	UXT
S12M000090		O	95-57-8	2-Chlorophenol	ug/L	93.4	<23.9	<33.4	n/a	n/a	n/a	70.3	33.4	n/a	U
S12M000090		O	218-01-9	Chrysene	ug/L	88.8	<16.5	<23.1	n/a	n/a	n/a	87.9	23.1	n/a	U
S12M000090		O	53-70-3	Dibenz[a,h]anthracene	ug/L	88.7	<15.5	<21.7	n/a	n/a	n/a	90.2	21.7	n/a	U
S12M000090		O	132-64-9	Dibenzofuran	ug/L	78.7	<22.5	<31.6	n/a	n/a	n/a	74.7	31.6	n/a	U
S12M000090		O	84-74-2	Di-n-butylphthalate	ug/L	91.8	<14.9	<20.9	n/a	n/a	n/a	85.2	20.9	n/a	U
S12M000090		O	84-66-2	Diethylphthalate	ug/L	88.5	<12.7	<17.8	n/a	n/a	n/a	77.3	17.8	n/a	U
S12M000090		O	131-11-3	Dimethyl phthalate	ug/L	93.2	<12.1	<16.9	n/a	n/a	n/a	87.2	16.9	n/a	U
S12M000090		O	51-28-5	2,4-Dinitrophenol	ug/L	58.7	<5.60	<7.84	n/a	n/a	n/a	73.7	7.84	n/a	UX
S12M000090		O	117-84-0	Di-n-octylphthalate	ug/L	99.0	<17.0	<23.8	n/a	n/a	n/a	115	23.8	n/a	UT
S12M000090		O	122-39-4	Diphenylamine	ug/L	86.7	<58.2	<81.4	n/a	n/a	n/a	82.1	81.4	n/a	U
S12M000090		O	621-64-7	N-Nitroso-di-n-dipropylamine	ug/L	90.7	<23.9	<33.4	n/a	n/a	n/a	73.9	33.4	n/a	U

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T - Organic Spike Outside Range

B - Organic Blank Contamination

Data Summary Report

Sample Group: 20120400

Customer Group or SDG Number: 222S20120400

Customer Sample ID: B2KNC0

Sample Portion: Resample #1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S12M000090		O	86-73-7	Fluorene	ug/L	81.5	<21.9	<30.6	n/a	n/a	n/a	78.7	30.6	n/a	U
S12M000090		O	206-44-0	Fluoranthene	ug/L	92.8	<15.3	<21.4	n/a	n/a	n/a	79.0	21.4	n/a	U
S12M000090		O	118-74-1	Hexachlorobenzene	ug/L	89.5	<19.9	<27.8	n/a	n/a	n/a	90.1	27.8	n/a	U
S12M000090		O	87-68-3	Hexachlorobutadiene	ug/L	38.1	<14.0	<19.6	n/a	n/a	n/a	47.4	19.6	n/a	UXT
S12M000090		O	77-47-4	Hexachlorocyclopentadiene	ug/L	7.74	<49.5	<69.4	n/a	n/a	n/a	19.4	69.4	n/a	UXT
S12M000090		O	67-72-1	Hexachloroethane	ug/L	19.1	<9.51	<13.3	n/a	n/a	n/a	33.8	13.3	n/a	UXT
S12M000090		O	193-39-5	Indeno(1,2,3-cd)pyrene	ug/L	86.2	<14.9	<20.9	n/a	n/a	n/a	86.5	20.9	n/a	U
S12M000090		O	78-59-1	Isophorone	ug/L	91.3	<18.7	<26.2	n/a	n/a	n/a	77.9	26.2	n/a	U
S12M000090		O	108-95-2	Phenol	ug/L	93.2	<22.6	<31.6	n/a	n/a	n/a	78.1	31.6	n/a	U
S12M000090		O	91-20-3	Naphthalene	ug/L	63.1	<31.4	<44.0	n/a	n/a	n/a	57.1	44.0	n/a	UXT
S12M000090		O	98-95-3	Nitrobenzene	ug/L	88.9	<23.5	<32.9	n/a	n/a	n/a	65.4	32.9	n/a	UT
S12M000090		O	100-02-7	4-Nitrophenol	ug/L	107	<12.3	<17.3	n/a	n/a	n/a	90.7	17.3	n/a	U
S12M000090		O	100-01-6	4-Nitroaniline	ug/L	112	<18.1	<25.4	n/a	n/a	n/a	27.3	25.4	n/a	UT
S12M000090		O	87-86-5	Pentachlorophenol	ug/L	91.4	<8.17	<11.4	n/a	n/a	n/a	79.6	11.4	n/a	U
S12M000090		O	85-01-8	Phenanthrene	ug/L	89.1	<17.0	<23.8	n/a	n/a	n/a	85.3	23.8	n/a	U
S12M000090		O	129-00-0	Pyrene	ug/L	84.2	<15.8	<22.2	n/a	n/a	n/a	92.1	22.2	n/a	U
S12M000090		O	110-86-1	Pyridine	ug/L	85.0	<31.2	<43.7	n/a	n/a	n/a	78.9	43.7	n/a	U
S12M000090		O	126-73-8	Tributyl phosphate	ug/L	104	<6.37	<8.92	n/a	n/a	n/a	96.4	8.92	n/a	U
S12M000090		O	128-37-0	BHT	ug/L	60.3	<97.1	<136	n/a	n/a	n/a	78.9	136	n/a	UX
S12M000090		O	110-80-5	2-Ethoxyethanol	ug/L	83.0	<73.4	<103	n/a	n/a	n/a	62.2	103	n/a	UT
S12M000090		O	1319-77-3	Total Methylphenols	ug/L	95.2	<41.0	<57.4	n/a	n/a	n/a	82.6	57.4	n/a	U
S12M000090		O	108-94-1	Cyclohexanone	ug/L	95.6	<43.6	<61.1	n/a	n/a	n/a	70.2	61.1	n/a	U
S12M000090		O	59-89-2	N-Nitrosomorpholine	ug/L	91.3	<144	<202	n/a	n/a	n/a	77.6	202	n/a	U
S12M000090		O	78-83-1	Isobutanol	ug/L	51.3	<376	<526	n/a	n/a	n/a	36.4	526	n/a	UXT
S12M000090		O	71-36-3	1-Butanol	ug/L	65.0	<330	<463	n/a	n/a	n/a	52.8	463	n/a	UXT
S12M000090		O	62-75-9	N-Nitrosodimethylamine	ug/L	n/a	<68.6	<96.0	n/a	n/a	n/a	n/a	96.0	n/a	UT
S12M000095		B	7440-22-4	Silver	ug/mL	88.2	<5.00E-03	0.108	<0.0500	n/a	n/a	90.2	0.0500	n/a	B
S12M000095		B	7429-90-5	Aluminum	ug/mL	84.9	<0.0300	11.3	10.6	10.9	7.04	85.8	0.300	n/a	
S12M000095		B	7440-38-2	Arsenic	ug/mL	91.4	<0.0500	<0.500	<0.500	n/a	n/a	92.8	0.500	n/a	U

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Data Summary Report

Sample Group: 20120400

Customer Group or SDG Number: 222S20120400

Customer Sample ID: B2KNC0

Sample Portion: Resample #1

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S12M000095		B	7440-39-3	Barium	ug/mL	94.5	<3.00E-03	1.93	1.83	1.88	5.30	93.1	0.0300	n/a	
S12M000095		B	7440-41-7	Beryllium	ug/mL	93.7	<1.00E-03	<0.0100	<0.0100	n/a	n/a	91.0	0.0100	n/a	U
S12M000095		B	7440-43-9	Cadmium	ug/mL	91.3	<5.00E-03	0.152	0.123	0.138	21.4	90.0	0.0500	n/a	B
S12M000095		B	7440-48-4	Cobalt	ug/mL	91.2	<0.0100	0.258	0.298	0.278	14.4	90.3	0.100	n/a	B
S12M000095		B	7440-47-3	Chromium	ug/mL	91.1	<5.00E-03	2.96	2.84	2.90	4.30	89.5	0.0500	n/a	
S12M000095		B	7440-50-8	Copper	ug/mL	96.1	<5.00E-03	3.13	3.00	3.07	4.12	98.5	0.0500	n/a	
S12M000095		B	7439-96-5	Manganese	ug/mL	90.4	<3.00E-03	14.1	13.4	13.8	4.78	88.9	0.0300	n/a	X
S12M000095		B	7440-02-0	Nickel	ug/mL	91.4	<0.0200	0.985	0.916	0.950	7.22	90.0	0.200	n/a	B
S12M000095		B	7439-92-1	Lead	ug/mL	92.3	<0.0500	2.07	1.63	1.85	23.8	90.7	0.500	n/a	B
S12M000095		B	7440-36-0	Antimony	ug/mL	91.3	<0.0500	<0.500	<0.500	n/a	n/a	92.0	0.500	n/a	U
S12M000095		B	7782-49-2	Selenium	ug/mL	92.8	<0.100	<1.00	<1.00	n/a	n/a	94.3	1.00	n/a	U
S12M000095		B	7440-62-2	Vanadium	ug/mL	91.6	<5.00E-03	0.187	0.150	0.168	22.1	89.9	0.0500	n/a	B
S12M000095		B	7440-66-6	Zinc	ug/mL	90.4	<5.00E-03	66.2	63.7	64.9	3.95	88.4	0.0500	n/a	

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Data Summary Report

Sample Group: 20120400

Customer Group or SDG Number: 222S20120400

Customer Sample ID: B2KNC1

Sample Portion: Trip Blank

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S12M000091			71-55-6	1,1,1-Trichloroethane	ug/L	n/a	<0.0481	<0.0481	n/a	n/a	n/a	n/a	0.0481	n/a	U
S12M000091			79-34-5	1,1,2,2-Tetrachloroethane	ug/L	n/a	<0.0226	<0.0226	n/a	n/a	n/a	n/a	0.0226	n/a	U
S12M000091			79-00-5	1,1,2-Trichloroethane	ug/L	n/a	<0.0256	<0.0256	n/a	n/a	n/a	n/a	0.0256	n/a	U
S12M000091			75-34-3	1,1-Dichloroethane	ug/L	n/a	<0.0330	<0.0330	n/a	n/a	n/a	n/a	0.0330	n/a	U
S12M000091			75-35-4	1,1-Dichloroethene	ug/L	108	<0.191	<0.191	n/a	n/a	n/a	n/a	0.191	n/a	U
S12M000091			120-82-1	1,2,4-Trichlorobenzene	ug/L	n/a	<0.0629	<0.0629	n/a	n/a	n/a	n/a	0.0629	n/a	U
S12M000091			96-12-8	1,2-Dibromo-3-Chloropropane	ug/L	n/a	<0.415	<0.415	n/a	n/a	n/a	n/a	0.415	n/a	U
S12M000091			106-93-4	Ethylene Dibromide	ug/L	n/a	<0.0377	<0.0377	n/a	n/a	n/a	n/a	0.0377	n/a	U
S12M000091			95-50-1	1,2-Dichlorobenzene	ug/L	n/a	<0.0506	<0.0506	n/a	n/a	n/a	n/a	0.0506	n/a	U
S12M000091			107-06-2	1,2-Dichloroethane	ug/L	n/a	<0.0270	<0.0270	n/a	n/a	n/a	n/a	0.0270	n/a	U
S12M000091			78-87-5	1,2-Dichloropropane	ug/L	n/a	<0.0670	<0.0670	n/a	n/a	n/a	n/a	0.0670	n/a	U
S12M000091			541-73-1	1,3-Dichlorobenzene	ug/L	n/a	<0.0276	0.0431	n/a	n/a	n/a	n/a	0.0276	n/a	J
S12M000091			106-46-7	1,4-Dichlorobenzene	ug/L	n/a	<0.0541	<0.0541	n/a	n/a	n/a	n/a	0.0541	n/a	U
S12M000091			78-93-3	2-Butanone	ug/L	95.9	<0.509	<0.509	n/a	n/a	n/a	n/a	0.509	n/a	U
S12M000091			591-78-6	2-Hexanone	ug/L	98.0	<0.505	<0.505	n/a	n/a	n/a	n/a	0.505	n/a	U
S12M000091			79-46-9	2-Nitropropane	ug/L	n/a	<0.295	<0.295	n/a	n/a	n/a	n/a	0.295	n/a	U
S12M000091			107-87-9	2-Pentanone	ug/L	n/a	<0.529	<0.529	n/a	n/a	n/a	n/a	0.529	n/a	U
S12M000091			67-64-1	Acetone	ug/L	83.1	0.795	1.25	n/a	n/a	n/a	n/a	0.637	n/a	BJ
S12M000091			71-43-2	Benzene	ug/L	104	0.0286	0.0373	n/a	n/a	n/a	n/a	0.0181	n/a	BJ
S12M000091			75-27-4	Bromodichloromethane	ug/L	n/a	<0.0268	<0.0268	n/a	n/a	n/a	n/a	0.0268	n/a	U
S12M000091			75-25-2	Bromoform	ug/L	n/a	<0.0332	<0.0332	n/a	n/a	n/a	n/a	0.0332	n/a	U
S12M000091			74-83-9	Bromomethane	ug/L	n/a	<0.256	<0.256	n/a	n/a	n/a	n/a	0.256	n/a	U
S12M000091			75-15-0	Carbon disulfide	ug/L	n/a	<0.0234	<0.0234	n/a	n/a	n/a	n/a	0.0234	n/a	U
S12M000091			56-23-5	Carbon tetrachloride	ug/L	n/a	<0.0532	<0.0532	n/a	n/a	n/a	n/a	0.0532	n/a	U
S12M000091			108-90-7	Chlorobenzene	ug/L	102	<0.0356	<0.0356	n/a	n/a	n/a	n/a	0.0356	n/a	U
S12M000091			75-00-3	Chloroethane	ug/L	n/a	<0.116	<0.116	n/a	n/a	n/a	n/a	0.116	n/a	U
S12M000091			67-66-3	Chloroform	ug/L	n/a	<0.0460	<0.0460	n/a	n/a	n/a	n/a	0.0460	n/a	U
S12M000091			74-87-3	Chloromethane	ug/L	n/a	<0.0306	<0.0306	n/a	n/a	n/a	n/a	0.0306	n/a	U
S12M000091			156-59-2	cis-Dichloroethylene	ug/L	n/a	<0.0647	<0.0647	n/a	n/a	n/a	n/a	0.0647	n/a	U

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T - Organic Spike Outside Range

B - Organic Blank Contamination

Data Summary Report

Sample Group: 20120400

Customer Group or SDG Number: 222S20120400

Customer Sample ID: B2KNC1

Sample Portion: Trip Blank

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S12M000091			10061-01-5	cis-1,3-Dichloropropene	ug/L	n/a	<0.0556	<0.0556	n/a	n/a	n/a	n/a	0.0556	n/a	U
S12M000091			110-82-7	Cyclohexane	ug/L	n/a	<0.0354	<0.0354	n/a	n/a	n/a	n/a	0.0354	n/a	U
S12M000091			124-48-1	Dibromochloromethane	ug/L	n/a	<0.0250	<0.0250	n/a	n/a	n/a	n/a	0.0250	n/a	U
S12M000091			75-71-8	Dichlorodifluoromethane	ug/L	n/a	<0.196	<0.196	n/a	n/a	n/a	n/a	0.196	n/a	U
S12M000091			60-29-7	Diethyl ether	ug/L	n/a	<0.0470	<0.0470	n/a	n/a	n/a	n/a	0.0470	n/a	U
S12M000091			141-78-6	Ethyl acetate	ug/L	n/a	<0.204	<0.204	n/a	n/a	n/a	n/a	0.204	n/a	U
S12M000091			100-41-4	Ethylbenzene	ug/L	n/a	<0.0371	<0.0371	n/a	n/a	n/a	n/a	0.0371	n/a	U
S12M000091			76-13-1	1,1,2-Trichloro-1,2,2-trifluoroethane	ug/L	n/a	<0.0440	<0.0440	n/a	n/a	n/a	n/a	0.0440	n/a	U
S12M000091			67-72-1	Hexachloroethane	ug/L	n/a	<0.123	<0.123	n/a	n/a	n/a	n/a	0.123	n/a	U
S12M000091			110-54-3	Hexane	ug/L	n/a	<0.0766	<0.0766	n/a	n/a	n/a	n/a	0.0766	n/a	U
S12M000091			98-82-8	Isopropyl Benzene	ug/L	n/a	<0.0332	<0.0332	n/a	n/a	n/a	n/a	0.0332	n/a	U
S12M000091			106-42-3	Xylene (m & p)	ug/L	n/a	<0.0781	<0.0781	n/a	n/a	n/a	n/a	0.0781	n/a	U
S12M000091			79-20-9	Methyl Acetate	ug/L	n/a	<0.110	<0.110	n/a	n/a	n/a	n/a	0.110	n/a	U
S12M000091			108-10-1	Hexone	ug/L	102	<0.503	<0.503	n/a	n/a	n/a	n/a	0.503	n/a	U
S12M000091			108-87-2	Methylcyclohexane	ug/L	n/a	<0.0529	<0.0529	n/a	n/a	n/a	n/a	0.0529	n/a	U
S12M000091			75-09-2	Methylenechloride	ug/L	n/a	<0.0440	4.37	n/a	n/a	n/a	n/a	0.0440	n/a	
S12M000091			71-36-3	1-Butanol	ug/L	99.7	<1.28	<1.28	n/a	n/a	n/a	n/a	1.28	n/a	U
S12M000091			104-51-8	N-Butylbenzene	ug/L	n/a	<0.0956	<0.0956	n/a	n/a	n/a	n/a	0.0956	n/a	U
S12M000091			95-47-6	o-Xylene	ug/L	n/a	<0.0361	<0.0361	n/a	n/a	n/a	n/a	0.0361	n/a	U
S12M000091			100-42-5	Styrene	ug/L	n/a	0.0532	<0.0438	n/a	n/a	n/a	n/a	0.0438	n/a	U
S12M000091			1634-04-4	tert-butyl methyl ether	ug/L	n/a	<0.0566	<0.0566	n/a	n/a	n/a	n/a	0.0566	n/a	U
S12M000091			127-18-4	Tetrachloroethene	ug/L	n/a	<0.0648	<0.0648	n/a	n/a	n/a	n/a	0.0648	n/a	U
S12M000091			109-99-9	Tetrahydrofuran	ug/L	n/a	<0.306	<0.306	n/a	n/a	n/a	n/a	0.306	n/a	U
S12M000091			108-88-3	Toluene	ug/L	96.7	0.153	0.110	n/a	n/a	n/a	n/a	0.0580	n/a	BJ
S12M000091			540-59-0	1,2-Dichloroethylene	ug/L	n/a	<0.0878	<0.0878	n/a	n/a	n/a	n/a	0.0878	n/a	U
S12M000091			THM	Total Trihalomethanes	ug/L	n/a	<0.0744	<0.0744	n/a	n/a	n/a	n/a	0.0744	n/a	U
S12M000091			1330-20-7	Xylenes (total)	ug/L	n/a	<0.104	<0.104	n/a	n/a	n/a	n/a	0.104	n/a	U
S12M000091			156-60-5	trans-Dichloroethylene	ug/L	n/a	<0.0836	<0.0836	n/a	n/a	n/a	n/a	0.0836	n/a	U
S12M000091			10061-02-6	trans-1,3-Dichloropropene	ug/L	n/a	<0.0657	<0.0657	n/a	n/a	n/a	n/a	0.0657	n/a	U

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**Data Summary Report**

**Sample Group: 20120400**

**Customer Group or SDG Number: 222S20120400**

**Customer Sample ID: B2KNC1**

**Sample Portion: Trip Blank**

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S12M000091			79-01-6	Trichloroethene	ug/L	101	<0.0420	0.0493	n/a	n/a	n/a	n/a	0.0420	n/a	J
S12M000091			75-69-4	Trichlorofluoromethane	ug/L	n/a	<0.0509	<0.0509	n/a	n/a	n/a	n/a	0.0509	n/a	U
S12M000091			75-01-4	Vinyl chloride	ug/L	n/a	<0.0540	<0.0540	n/a	n/a	n/a	n/a	0.0540	n/a	U

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Data Summary Report

Sample Group: 20120400

Customer Group or SDG Number: 222S20120400

Customer Sample ID: B2KNC4

Sample Portion: Resample Composite

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S12M000092			7439-97-6	Mercury	ug/mL	113	<1.10E-05	9.20E-04	n/a	n/a	n/a	n/a	4.40E-04	n/a	
S12M000096		B	7440-22-4	Silver	ug/mL	88.2	<5.00E-03	<0.0500	n/a	n/a	n/a	n/a	0.0500	n/a	U
S12M000096		B	7429-90-5	Aluminum	ug/mL	84.9	<0.0300	1.25	n/a	n/a	n/a	n/a	0.300	n/a	B
S12M000096		B	7440-38-2	Arsenic	ug/mL	91.4	<0.0500	<0.500	n/a	n/a	n/a	n/a	0.500	n/a	U
S12M000096		B	7440-39-3	Barium	ug/mL	94.5	<3.00E-03	0.256	n/a	n/a	n/a	n/a	0.0300	n/a	B
S12M000096		B	7440-41-7	Beryllium	ug/mL	93.7	<1.00E-03	<0.0100	n/a	n/a	n/a	n/a	0.0100	n/a	U
S12M000096		B	7440-43-9	Cadmium	ug/mL	91.3	<5.00E-03	<0.0500	n/a	n/a	n/a	n/a	0.0500	n/a	U
S12M000096		B	7440-48-4	Cobalt	ug/mL	91.2	<0.0100	<0.100	n/a	n/a	n/a	n/a	0.100	n/a	U
S12M000096		B	7440-47-3	Chromium	ug/mL	91.1	<5.00E-03	0.380	n/a	n/a	n/a	n/a	0.0500	n/a	B
S12M000096		B	7440-50-8	Copper	ug/mL	96.1	<5.00E-03	0.428	n/a	n/a	n/a	n/a	0.0500	n/a	B
S12M000096		B	7439-96-5	Manganese	ug/mL	90.4	<3.00E-03	1.77	n/a	n/a	n/a	n/a	0.0300	n/a	
S12M000096		B	7440-02-0	Nickel	ug/mL	91.4	<0.0200	0.212	n/a	n/a	n/a	n/a	0.200	n/a	B
S12M000096		B	7439-92-1	Lead	ug/mL	92.3	<0.0500	<0.500	n/a	n/a	n/a	n/a	0.500	n/a	U
S12M000096		B	7440-36-0	Antimony	ug/mL	91.3	<0.0500	<0.500	n/a	n/a	n/a	n/a	0.500	n/a	U
S12M000096		B	7782-49-2	Selenium	ug/mL	92.8	<0.100	<1.00	n/a	n/a	n/a	n/a	1.00	n/a	U
S12M000096		B	7440-62-2	Vanadium	ug/mL	91.6	<5.00E-03	<0.0500	n/a	n/a	n/a	n/a	0.0500	n/a	U
S12M000096		B	7440-66-6	Zinc	ug/mL	90.4	<5.00E-03	4.26	n/a	n/a	n/a	n/a	0.0500	n/a	

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B - Organic Blank Contamination

Data Summary Report

Sample Group: 20120400

Customer Group or SDG Number: 222S20120400

Customer Sample ID: B2KNC5

Sample Portion: Resample #3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S12M000094		O	120-82-1	1,2,4-Trichlorobenzene	ug/L	49.3	<25.5	<35.7	n/a	n/a	n/a	n/a	35.7	n/a	U
S12M000094		O	95-50-1	1,2-Dichlorobenzene	ug/L	36.0	<71.1	<99.5	n/a	n/a	n/a	n/a	99.5	n/a	UX
S12M000094		O	106-46-7	1,4-Dichlorobenzene	ug/L	31.8	<14.7	<20.5	n/a	n/a	n/a	n/a	20.5	n/a	U
S12M000094		O	120-83-2	2,4-Dichlorophenol	ug/L	94.6	<19.9	<27.8	n/a	n/a	n/a	n/a	27.8	n/a	U
S12M000094		O	121-14-2	2,4-Dinitrotoluene	ug/L	88.9	<13.5	<18.9	n/a	n/a	n/a	n/a	18.9	n/a	U
S12M000094		O	95-95-4	2,4,5-Trichlorophenol	ug/L	85.2	<16.3	<22.9	n/a	n/a	n/a	n/a	22.9	n/a	U
S12M000094		O	88-06-2	2,4,6-Trichlorophenol	ug/L	85.4	<17.2	<24.0	n/a	n/a	n/a	n/a	24.0	n/a	U
S12M000094		O	105-67-9	2,4-Dimethylphenol	ug/L	92.0	<32.2	<45.1	n/a	n/a	n/a	n/a	45.1	n/a	U
S12M000094		O	606-20-2	2,6-Dinitrotoluene	ug/L	82.0	<15.9	<22.2	n/a	n/a	n/a	n/a	22.2	n/a	U
S12M000094		O	111-76-2	2-Butoxyethanol	ug/L	97.7	<30.3	<42.4	n/a	n/a	n/a	n/a	42.4	n/a	U
S12M000094		O	91-58-7	2-Chloronaphthalene	ug/L	72.6	<31.1	<43.6	n/a	n/a	n/a	n/a	43.6	n/a	U
S12M000094		O	91-57-6	2-Methylnaphthalene	ug/L	68.5	<32.4	<45.3	n/a	n/a	n/a	n/a	45.3	n/a	UX
S12M000094		O	95-48-7	2-Methylphenol	ug/L	94.2	<20.6	<28.9	n/a	n/a	n/a	n/a	28.9	n/a	U
S12M000094		O	88-74-4	2-Nitroaniline	ug/L	93.6	<14.9	<20.8	n/a	n/a	n/a	n/a	20.8	n/a	U
S12M000094		O	88-75-5	2-Nitrophenol	ug/L	93.4	<22.4	<31.4	n/a	n/a	n/a	n/a	31.4	n/a	U
S12M000094		O	108-39-4M	Cresol (m & p)	ug/L	96.1	<20.6	<28.9	n/a	n/a	n/a	n/a	28.9	n/a	U
S12M000094		O	99-09-2	3-Nitroaniline	ug/L	98.7	<34.8	<48.7	n/a	n/a	n/a	n/a	48.7	n/a	U
S12M000094		O	106-47-8	4-Chloroaniline	ug/L	98.9	<29.3	<41.1	n/a	n/a	n/a	n/a	41.1	n/a	U
S12M000094		O	534-52-1	4,6-Dinitro-o-cresol	ug/L	85.7	<8.17	<11.4	n/a	n/a	n/a	n/a	11.4	n/a	U
S12M000094		O	7005-72-3	4-Chlorophenylphenyl ether	ug/L	80.0	<22.9	<32.0	n/a	n/a	n/a	n/a	32.0	n/a	U
S12M000094		O	83-32-9	Acenaphthene	ug/L	77.4	<25.2	<35.3	n/a	n/a	n/a	n/a	35.3	n/a	U
S12M000094		O	208-96-8	Acenaphthylene	ug/L	77.6	<25.7	<36.0	n/a	n/a	n/a	n/a	36.0	n/a	U
S12M000094		O	120-12-7	Anthracene	ug/L	90.2	<19.0	<26.6	n/a	n/a	n/a	n/a	26.6	n/a	U
S12M000094		O	56-55-3	Benzo(a)anthracene	ug/L	87.2	<17.2	<24.1	n/a	n/a	n/a	n/a	24.1	n/a	U
S12M000094		O	205-99-2	Benzo(b)fluoranthene	ug/L	86.1	<16.5	<23.2	n/a	n/a	n/a	n/a	23.2	n/a	U
S12M000094		O	191-24-2	Benzo(ghi)perylene	ug/L	86.1	<15.4	<21.5	n/a	n/a	n/a	n/a	21.5	n/a	U
S12M000094		O	50-32-8	Benzo(a)pyrene	ug/L	82.6	<15.5	<21.7	n/a	n/a	n/a	n/a	21.7	n/a	U
S12M000094		O	111-44-4	Bis(2-chloroethyl) ether	ug/L	92.8	<25.7	<36.0	n/a	n/a	n/a	n/a	36.0	n/a	U
S12M000094		O	111-91-1	Bis(2-Chloroethoxy)methane	ug/L	92.1	<21.9	<30.7	n/a	n/a	n/a	n/a	30.7	n/a	U

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B - Organic Blank Contamination

Data Summary Report

Sample Group: 20120400

Customer Group or SDG Number: 222S20120400

Customer Sample ID: B2KNC5

Sample Portion: Resample #3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S12M000094		O	117-81-7	Bis(2-ethylhexyl) phthalate	ug/L	94.0	<51.2	<71.7	n/a	n/a	n/a	n/a	71.7	n/a	U
S12M000094		O	108-60-1	2,2-oxybis(1-Chloropropane)	ug/L	89.7	<30.4	<42.5	n/a	n/a	n/a	n/a	42.5	n/a	U
S12M000094		O	207-08-9	Benzo(k)fluoranthene	ug/L	91.5	<15.8	<22.1	n/a	n/a	n/a	n/a	22.1	n/a	U
S12M000094		O	101-55-3	4-Bromophenylphenyl ether	ug/L	87.5	<19.9	<27.9	n/a	n/a	n/a	n/a	27.9	n/a	U
S12M000094		O	85-68-7	Butylbenzylphthalate	ug/L	90.1	<14.7	<20.6	n/a	n/a	n/a	n/a	20.6	n/a	U
S12M000094		O	59-50-7	4-Chloro-3-methylphenol	ug/L	98.5	<17.4	<24.3	n/a	n/a	n/a	n/a	24.3	n/a	UX
S12M000094		O	95-57-8	2-Chlorophenol	ug/L	93.4	<23.9	<33.4	n/a	n/a	n/a	n/a	33.4	n/a	U
S12M000094		O	218-01-9	Chrysene	ug/L	88.8	<16.5	<23.1	n/a	n/a	n/a	n/a	23.1	n/a	U
S12M000094		O	53-70-3	Dibenz[a,h]anthracene	ug/L	88.7	<15.5	<21.7	n/a	n/a	n/a	n/a	21.7	n/a	U
S12M000094		O	132-64-9	Dibenzofuran	ug/L	78.7	<22.5	<31.6	n/a	n/a	n/a	n/a	31.6	n/a	U
S12M000094		O	84-74-2	Di-n-butylphthalate	ug/L	91.8	<14.9	<20.9	n/a	n/a	n/a	n/a	20.9	n/a	U
S12M000094		O	84-66-2	Diethylphthalate	ug/L	88.5	<12.7	<17.8	n/a	n/a	n/a	n/a	17.8	n/a	U
S12M000094		O	131-11-3	Dimethyl phthalate	ug/L	93.2	<12.1	<16.9	n/a	n/a	n/a	n/a	16.9	n/a	U
S12M000094		O	51-28-5	2,4-Dinitrophenol	ug/L	58.7	<5.60	<7.84	n/a	n/a	n/a	n/a	7.84	n/a	UX
S12M000094		O	117-84-0	Di-n-octylphthalate	ug/L	99.0	<17.0	<23.8	n/a	n/a	n/a	n/a	23.8	n/a	U
S12M000094		O	122-39-4	Diphenylamine	ug/L	86.7	<58.2	<81.4	n/a	n/a	n/a	n/a	81.4	n/a	U
S12M000094		O	621-64-7	N-Nitroso-di-n-dipropylamine	ug/L	90.7	<23.9	<33.4	n/a	n/a	n/a	n/a	33.4	n/a	U
S12M000094		O	86-73-7	Fluorene	ug/L	81.5	<21.9	<30.6	n/a	n/a	n/a	n/a	30.6	n/a	U
S12M000094		O	206-44-0	Fluoranthene	ug/L	92.8	<15.3	<21.4	n/a	n/a	n/a	n/a	21.4	n/a	U
S12M000094		O	118-74-1	Hexachlorobenzene	ug/L	89.5	<19.9	<27.8	n/a	n/a	n/a	n/a	27.8	n/a	U
S12M000094		O	87-68-3	Hexachlorobutadiene	ug/L	38.1	<14.0	<19.6	n/a	n/a	n/a	n/a	19.6	n/a	UX
S12M000094		O	77-47-4	Hexachlorocyclopentadiene	ug/L	7.74	<49.5	<69.4	n/a	n/a	n/a	n/a	69.4	n/a	UX
S12M000094		O	67-72-1	Hexachloroethane	ug/L	19.1	<9.51	<13.3	n/a	n/a	n/a	n/a	13.3	n/a	UX
S12M000094		O	193-39-5	Indeno(1,2,3-cd)pyrene	ug/L	86.2	<14.9	<20.9	n/a	n/a	n/a	n/a	20.9	n/a	U
S12M000094		O	78-59-1	Isophorone	ug/L	91.3	<18.7	<26.2	n/a	n/a	n/a	n/a	26.2	n/a	U
S12M000094		O	108-95-2	Phenol	ug/L	93.2	<22.6	<31.6	n/a	n/a	n/a	n/a	31.6	n/a	U
S12M000094		O	91-20-3	Naphthalene	ug/L	63.1	<31.4	<44.0	n/a	n/a	n/a	n/a	44.0	n/a	UX
S12M000094		O	98-95-3	Nitrobenzene	ug/L	88.9	<23.5	<32.9	n/a	n/a	n/a	n/a	32.9	n/a	U
S12M000094		O	100-02-7	4-Nitrophenol	ug/L	107	<12.3	<17.3	n/a	n/a	n/a	n/a	17.3	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Organic Estimated  
 X - Comment

U - < Det Limit  
 B - Inorganic Estimated

T - Organic Spike Outside Range

B - Organic Blank Contamination

Data Summary Report

Sample Group: 20120400

Customer Group or SDG Number: 222S20120400

Customer Sample ID: B2KNC5

Sample Portion: Resample #3

Sample#	R	A#	CAS #	Analyte	Unit	STD %	Blank	Result	Duplicate	Average	RPD %	Spk Rec %	Det Limit	Cnt Err %	Qual Flags
S12M000094		O	100-01-6	4-Nitroaniline	ug/L	112	<18.1	<25.4	n/a	n/a	n/a	n/a	25.4	n/a	U
S12M000094		O	87-86-5	Pentachlorophenol	ug/L	91.4	<8.17	<11.4	n/a	n/a	n/a	n/a	11.4	n/a	U
S12M000094		O	85-01-8	Phenanthrene	ug/L	89.1	<17.0	<23.8	n/a	n/a	n/a	n/a	23.8	n/a	U
S12M000094		O	129-00-0	Pyrene	ug/L	84.2	<15.8	<22.2	n/a	n/a	n/a	n/a	22.2	n/a	U
S12M000094		O	110-86-1	Pyridine	ug/L	85.0	<31.2	<43.7	n/a	n/a	n/a	n/a	43.7	n/a	U
S12M000094		O	126-73-8	Tributyl phosphate	ug/L	104	<6.37	<8.92	n/a	n/a	n/a	n/a	8.92	n/a	U
S12M000094		O	128-37-0	BHT	ug/L	60.3	<97.1	<136	n/a	n/a	n/a	n/a	136	n/a	UX
S12M000094		O	110-80-5	2-Ethoxyethanol	ug/L	83.0	<73.4	<103	n/a	n/a	n/a	n/a	103	n/a	U
S12M000094		O	1319-77-3	Total Methylphenols	ug/L	95.2	<41.0	<57.4	n/a	n/a	n/a	n/a	57.4	n/a	U
S12M000094		O	108-94-1	Cyclohexanone	ug/L	95.6	<43.6	<61.1	n/a	n/a	n/a	n/a	61.1	n/a	U
S12M000094		O	59-89-2	N-Nitrosomorpholine	ug/L	91.3	<144	<202	n/a	n/a	n/a	n/a	202	n/a	U
S12M000094		O	78-83-1	Isobutanol	ug/L	51.3	<376	<526	n/a	n/a	n/a	n/a	526	n/a	UX
S12M000094		O	71-36-3	1-Butanol	ug/L	65.0	<330	<463	n/a	n/a	n/a	n/a	463	n/a	UX
S12M000094		O	62-75-9	N-Nitrosodimethylamine	ug/L	n/a	<68.6	<96.0	n/a	n/a	n/a	n/a	96.0	n/a	U

NA = Not Analyzed, ND = Not Detected

J - Organic Estimated  
 X - Comment

U - < Det Limit  
 B - Inorganic Estimated

T - Organic Spike Outside Range

B - Organic Blank Contamination

Attachment 3

HOLDING TIME REPORT

Hold Time Report for 231ZDR-11 Box

Sample Group	Sample	Matrix	Method	Prep Method	Sample Date	Received Date	Prep Date	Analysis Date	Missed Holding Time?
20120400	S12M000088	LIQUID	pH - SW-846 9040C		03/08/12 12:43	03/08/12 14:45	N/A	03/12/12 09:00	Y
20120400	S12M000087	LIQUID	Hg - SW-846 7470A		03/08/12 12:43	03/08/12 14:45	N/A	03/22/12 08:35	N
20120400	S12M000092	LIQUID	Hg - SW-846 7470A		03/08/12 13:10	03/08/12 14:45	N/A	03/22/12 08:35	N
20120400	S12M000090	LIQUID	SVOA - SW-846 8270D	Liq-Liq Extraction - SW-846 3520C	03/08/12 12:43	03/08/12 14:45	03/19/12 14:30	03/22/12 15:04	N
20120400	S12M000094	LIQUID	SVOA - SW-846 8270D	Liq-Liq Extraction - SW-846 3520C	03/08/12 13:00	03/08/12 14:45	03/19/12 14:30	03/22/12 14:21	N
20120400	S12M000089	LIQUID	PCB - SW-846 8082A	Liq-Liq Extraction - SW-846 3520C	03/08/12 12:43	03/08/12 14:45	03/22/12 14:43	03/28/12 12:57	N
20120400	S12M000095	LIQUID	ICP - SW-846 6010C	Acid Digest - SW-846 3010A	03/08/12 12:43	03/08/12 14:45	03/28/12 09:00	03/29/12 10:09	N
20120400	S12M000096	LIQUID	ICP - SW-846 6010C	Acid Digest - SW-846 3010A	03/08/12 13:10	03/08/12 14:45	03/28/12 09:00	03/29/12 10:40	N

Attachment 4

ADDITIONAL QC RESULTS

**HG Analysis Matrix Spike/Matrix Spike Duplicate Summary for CHPRC RL13 231ZDR-11 Box**

Client Sample Id	Sample Id	Analyte	MS Recovery %	MSD Recovery %	Lower Limit	Upper Limit	RPD %	RPD Limit
B2KNC0	S12M000087	Mercury	103	97.4	75	125	5.52	20

**PCB 222S Analysis Matrix Spike/Matrix Spike Duplicate Summary for CHPRC RL13 231ZDR-11 Box**

Client Sample Id	Sample Id	Analyte	MS Recovery %	MSD Recovery %	Lower Limit	Upper Limit	RPD %	RPD Limit
B2KNC0	S12M000089	Aroclor-1254	116	83.8	31.18	123.03	32.3	30

## SVOA 222S #2 Analysis Matrix Spike/Matrix Spike Duplicate Summary for CHPRC RL13 231ZDR-11 Box

Client Sample Id	Sample Id	Analyte	MS Recovery %	MSD Recovery %	Lower Limit	Upper Limit	RPD %	RPD Limit
B2KNC0	S12M000090	1,2,4-Trichlorobenzene	47.7	47.1	24	79	1.27	30
		1,2-Dichlorobenzene	40.7	40.4	70	130	0.804	30
		1,4-Dichlorobenzene	36.4	37.2	22	135	2.31	30
		1-Butanol	52.8	51.1	70	130	3.11	30
		2,2-oxybis(1-Chloropropane)	64.4	65.3	70	130	1.44	30
		2,4,5-Trichlorophenol	79.9	93.2	70	130	15.3	30
		2,4,6-Trichlorophenol	79.4	96.1	70	130	19.1	30
		2,4-Dichlorophenol	81.6	94.2	70	130	14.4	30
		2,4-Dimethylphenol	91.6	98.8	70	130	7.63	30
		2,4-Dinitrophenol	73.7	95.9	70	130	26.2	30
		2,4-Dinitrotoluene	80.7	86.9	55	105	7.43	30
		2,6 bis-4Methylphenol	78.9	82.0	70	130	3.92	30
		2,6-Dinitrotoluene	77.9	86.2	70	130	10.1	30
		2-Butoxyethanol	78.9	83.8	70	130	6.03	30
		2-Chloronaphthalene	64.4	67.6	70	130	4.95	30
		2-Chlorophenol	70.3	78.8	40	106	11.4	30
		2-Ethoxyethanol	62.2	64.4	70	130	3.50	30
		2-Methylnaphthalene	60.1	61.7	70	130	2.63	30
		2-Methylphenol	79.1	86.6	70	130	9.05	30
		2-Nitroaniline	81.0	88.8	70	130	9.27	30
		2-Nitrophenol	65.7	81.1	70	130	20.9	30
		3 & 4 Methylphenol Total	86.0	92.3	70	130	7.07	30
		3-Nitroaniline	7.64	7.20	70	130	5.88	30
		4,6-Dinitro-2-methylphenol	74.5	92.2	70	130	21.3	30
		4-Bromophenyl-phenylether	89.9	90.3	70	130	0.428	30
		4-Chloro-3-methylphenol	94.3	104	50	97	9.82	30
		4-Chloroaniline	4.18	5.15	70	130	20.8	30
		4-Chlorophenyl-phenylether	78.0	80.7	70	130	3.33	30
		4-Nitroaniline	27.3	28.0	70	130	2.79	30
		4-Nitrophenol	90.7	106	46	97	15.2	30
		Acenaphthene	71.2	75.1	34	106	5.23	30
		Acenaphthylene	69.0	71.6	70	130	3.73	30
		Anthracene	83.0	85.1	70	130	2.54	30
		Benzo(a)anthracene	83.6	86.8	70	130	3.69	30
		Benzo(a)pyrene	79.4	84.0	70	130	5.61	30
		Benzo(b)fluoranthene	82.7	88.4	70	130	6.64	30
		Benzo(g,h,i)perylene	83.6	81.4	70	130	2.77	30
		Benzo(k)fluoranthene	92.5	101	70	130	8.59	30
		Butylbenzylphthalate	89.2	95.0	70	130	6.30	30
		Chrysene	87.9	90.1	70	130	2.51	30
		Cyclohexanone	70.2	74.0	70	130	5.19	30
		Di-n-butylphthalate	85.2	89.3	70	130	4.68	30
		Di-n-octylphthalate	115	138	70	130	18.0	30

## SVOA 222S #2 Analysis Matrix Spike/Matrix Spike Duplicate Summary for CHPRC RL13 231ZDR-11 Box

Client Sample Id	Sample Id	Analyte	MS Recovery %	MSD Recovery %	Lower Limit	Upper Limit	RPD %	RPD Limit
B2KNC0	S12M000090	Dibenz(a,h)anthracene	90.2	88.3	70	130	2.12	30
		Dibenzofuran	74.7	77.9	70	130	4.19	30
		Diethylphthalate	77.3	84.2	70	130	8.62	30
		Dimethylphthalate	87.2	94.8	70	130	8.41	30
		Diphenylamine	82.1	82.7	70	130	0.668	30
		Fluoranthene	79.0	85.5	70	130	7.88	30
		Fluorene	78.7	81.9	70	130	4.00	30
		Hexachlorobenzene	90.1	92.4	70	130	2.55	30
		Hexachlorobutadiene	47.4	45.0	70	130	5.11	30
		Hexachlorocyclopentadiene	19.4	23.1	70	130	17.5	30
		Hexachloroethane	33.8	35.4	70	130	4.62	30
		Indeno(1,2,3-cd)pyrene	86.5	84.4	70	130	2.52	30
		Isobutanol	36.4	36.2	70	130	0.380	30
		Isophorone	77.9	84.9	70	130	8.60	30
		N-Nitrosodipropylamine	73.9	77.9	44	99	5.29	30
		N-Nitrosomorpholine	77.6	83.3	70	130	7.20	30
		Naphthalene	57.1	57.5	70	130	0.829	30
		Nitrobenzene	65.4	70.6	70	130	7.61	30
		Pentachlorophenol	79.6	88.4	50	96	10.5	30
		Phenanthrene	85.3	86.8	70	130	1.74	30
		Phenol	78.1	84.3	41	107	7.66	30
		Pyrene	92.1	96.2	65	111	4.32	30
		Pyridine	78.9	82.9	70	130	4.84	30
		Tri-n-butylphosphate	96.4	97.8	70	130	1.39	30
		bis(2-Chloroethoxy)methane	74.4	80.0	70	130	7.17	30
		bis(2-Ethylhexyl)phthalate	107	114	70	130	5.74	30
		bis-(2-Chloroethyl) ether	68.5	70.9	70	130	3.45	30

## VOA-LIQ-NONTANK Analysis Matrix Spike/Matrix Spike Duplicate Summary for CHPRC RL13 231ZDR-11 Box

Client Sample Id	Sample Id	Analyte	MS Recovery %	MSD Recovery %	Lower Limit	Upper Limit	RPD %	RPD Limit
B2KNC0	S12M000086	1,1-Dichloroethene	103	117	62	136	13.0	30
		1-Butanol	135	144	66	121	6.13	30
		2-Butanone	118	127	67	127	6.82	30
		2-Hexanone	134	146	74	136	8.87	30
		4-Methyl-2-pentanone	140	152	73	136	8.01	30
		Acetone	111	107	43	146	3.10	30
		Benzene	97.7	111	73	121	12.3	30
		Chlorobenzene	91.5	103	77	121	11.5	30
		Toluene	97.3	109	76	125	11.0	30
		Trichloroethene	92.4	104	69	121	11.7	30

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name:

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: V120320ZDRN

	CLIENT SAMPLE NO.	SMC1 (DCE) #	SMC2 (TOL) #	SMC3 (BFB) #	OTHER	TOT OUT
	=====	=====	=====	=====	=====	=====
01	CCB	104	95	106		0
02	LCS	105	100	105		0
03	CCB	102	97	106		0
04	S12M000086	106	110	148*		1
05	S12M000086MS	106	105	128*		1
06	S12M000086MS	117	117	144*		1
07	S12M000091	102	92	102		0
08						
09						
10						
11						
12						
13						
14						
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27						
28						
29						
30						

QC LIMITS

SMC1 (DCE) = 1,2-Dichloroethane-d4 (77-120)  
 SMC2 (TOL) = Toluene-d8 (76-122)  
 SMC3 (BFB) = Bromofluorobenzene (72-126)

# Column to be used to flag recovery values

\* Values outside of contract required QC limits

D System Monitoring Compound diluted out

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: Contract:  
 Lab Code: Case No.: SAS No.: SDG No.: V120320ZDRN  
 Lab File ID (Standard): 12032003CCV Date Analyzed: 03/20/12  
 Instrument ID: NEELIX Time Analyzed: 0910  
 GC Column: RESTEK RTX-VMS ID: 0.25 (mm) Heated Purge: (Y/N) Y

	IS1 AREA #	RT #	IS2 (CBZ) AREA #	RT #	IS3 (DCB) AREA #	RT #
=====	=====	=====	=====	=====	=====	=====
12 HOUR STD	2541935	11.05	2316720	14.21	1477800	16.30
UPPER LIMIT	5083870	11.55	4633440	14.71	2955600	16.80
LOWER LIMIT	1270968	10.55	1158360	13.71	738900	15.80
=====	=====	=====	=====	=====	=====	=====
CLIENT SAMPLE NO.						
=====	=====	=====	=====	=====	=====	=====
01 CCB	2542432	11.05	2360254	14.21	1356778	16.30
02 LCS	2457267	11.05	2240948	14.20	1248829	16.30
03 CCB	2564451	11.06	2359573	14.21	1325827	16.30
04 S12M000086	1618107	11.05	1237497	14.20	392280*	16.30
05 S12M000086MS	1794200	11.05	1337877	14.20	430321*	16.30
06 S12M000086MS	1925353	11.05	1464648	14.20	476911*	16.30
07 S12M000091	1936507	11.05	1788799	14.20	994391	16.30
08						
09						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						

IS1 = Fluorobenzene  
 IS2 (CBZ) = Chlorobenzene-d5  
 IS3 (DCB) = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area  
 AREA LOWER LIMIT = - 50% of internal standard area  
 RT UPPER LIMIT = + 0.50 minutes of internal standard RT  
 RT LOWER LIMIT = - 0.50 minutes of internal standard RT

# Column used to flag values outside QC limits with an asterisk.  
 \* Values outside of QC limits.

Lab Name:

Contract:

Lab Code:

Case No.:

SAS No.:

SDG No.: ZDR-11BX

	CHG SAMPLE NO.	S1 (FBP) #	S2 (2FP) #	S3 (NBZ) #	S4 #	S5 (TBP) #	S6 (TPH) #	S7 #	S8 #	TOT OUT
01	BLANK	56	78	79	83	76	90			0
02	LCS	64	87	87	90	100	89			0
03	S12M000094	42	72	72	81	90	81			0
04	S12M000090	62	67	70	83	73	98			0
05	S12M000090MS	60	64	65	77	42*	110			1
06	S12M000090MS	62	69	75	82	59	115			0
07										
08										
09										
10										
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QC LIMITS

- S1 (FBP) = 2-Fluorobiphenyl (27- 91)
- S2 (2FP) = 2-Fluorophenol (38-109)
- S3 (NBZ) = Nitrobenzene-d5 (43-108)
- S4 = Phenol-d6 (39-115)
- S5 (TBP) = 2,4,6-Tribromophenol (48-112)
- S6 (TPH) = Terphenyl-d14 (58-119)

# Column to be used to flag recovery values  
 \* Values outside of contract required QC limits  
 D Surrogate diluted out

Lab Name: \_\_\_\_\_ Contract: \_\_\_\_\_  
 Lab Code: \_\_\_\_\_ Case No.: \_\_\_\_\_ SAS No.: \_\_\_\_\_ SDG No.: ZDR11  
 GC Column(1): RESTEK XTI-5 ID: 0.25 (mm)

	EPA SAMPLE NO.	S1 %REC #	TCX %REC #	S3 %REC #	S4 %REC #	S5 %REC #	S6 %REC #	TOT OUT
	=====	=====	=====	=====	=====	=====	=====	=====
01	BLANK	107	29					0
02	LCS	108	29					0
03	S12M000089	36	12*					1
04	S12M000089MS	37	14*					1
05	S12M000089MS	53	10*					1
06								
07								
08								
09								
10								
11								
12								
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ADVISORY  
 QC LIMITS

S1 = Decachlorobiphenyl (DC (19-145)  
 S2 (TCX) = Tetrachloro-m-Xylene (21-106)

# Column to be used to flag recovery values  
 \* Values outside of QC limits  
 D Surrogate diluted out

Attachment 5

CORRESPONDENCE

**From:** [Trent, Stephen J](#)  
**To:** [Ritenour, Gerald P](#)  
**Subject:** Laundry List of Changes for the 231ZDR-11 samples  
**Date:** Thursday, March 08, 2012 4:05:28 PM

---

JR,

Just to make sure we are on the same page, here's a list of the changes that we'll want the lab to follow up on relative to the 231ZDR-11 samples:

Metals Analysis: We'll want to change to from 6020 to 6010 method. No word yet on metals to report. At this point it will definitely be all RCRA metals plus a few others like Zn and Ni... Hg stays the same

SVOA and PCB analysis: Sample B2KNC0 should also have PCB by 8082 run on it. I believe the COC was hand-corrected for this change

pH: This is a new one... Project would like a lab pH run on at one of the unpreserved samples. Probably would need to be one of the SVOA bottles you received...

We'll follow up with formal documentation for these changes on Monday....

Steve

Attachment 6

RECEIPT PAPERWORK

APR 10, 2012

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY/SAMPLE ANALYSIS REQUEST			F12-015-005	PAGE 1 OF 1
COLLECTOR Dan Sparks / CHPRC		COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 509-373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 9H	DATA TURNAROUND 30 Days / 30 Days
SAMPLING LOCATION 231ZDR-11 resample FXR		PROJECT DESIGNATION 231ZDR-11 Sampling and Analysis - Other Liquid		SAF NO. F12-015	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO.		FIELD LOGBOOK NO. HNF-N-50719	ACTUAL SAMPLE DEPTH N/A	COA 302285JBAP	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO 222-S Lab Operations		OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soll SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)	PRESERVATION	HCl to pH <2/Cool~4C	
		HOLDING TIME	14 Days	
		TYPE OF CONTAINER	Gs*	
		NO. OF CONTAINER(S)	4	
		VOLUME	40mL	
SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TIE TO: B2KNC9		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2KNC1	OTHER LIQUID	3/8/12	1226	✓

Grp# 20120400  
Sample # S12M000091

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM Dan Sparks CHPRC	DATE/TIME MAR 08 2012 1445	RECEIVED BY/STORED IN R. H. STEELG RTS	DATE/TIME 3-8-12 1445	** The GKI for this work will be attached to the issued SAF. (1) VOA - 8260 (TCL); VOA - 8260 (Add-On) {1,1,2-Trichloro-1,2,2-trifluoroethane};	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	

APR 10, 2012

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST			F12-015-008	PAGE 1 OF 1
COLLECTOR DJ Sparks CHPRC		COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 509-373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE C02	DATA TURNAROUND 24 Hours / 24 Hours
SAMPLING LOCATION 231ZDR-11 Resample #3		PROJECT DESIGNATION 231ZDR-11 Sampling and Analysis - Other Liquid		SAF NO. F12-015	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO.		FIELD LOGBOOK NO. HNF -N-507-19.50	ACTUAL SAMPLE DEPTH N/A	COA 302285JBAP	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO 222-S Lab Operations		OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	<b>POSSIBLE SAMPLE HAZARDS/ REMARKS</b> Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)	PRESERVATION	Cool~4C	
		HOLDING TIME	14/40 Days	
		TYPE OF CONTAINER	aG	
		NO. OF CONTAINER(S)	1	
		VOLUME	500g	
<b>SPECIAL HANDLING AND/OR STORAGE</b>		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2KNC5	OTHER LIQUID	3/8/12	1300	✓

Grp # 20120400

Sample # S12m000093

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM DJ Sparks CHPRC	DATE/TIME MAR 08 2012 1445	RECEIVED BY/STORED IN R. Steele	DATE/TIME 3.8.12 1445	The GKI for this work will be attached to the issued SAF (1) Semi-VOA - 8270 (TCL); Semi-VOA - 8270 (Add-On) {3+4 Methylphenol (cresol, m+p)};	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
LABORATORY SECTION	RECEIVED BY	TITLE		DATE/TIME	
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY		DATE/TIME	

CH2MHill Plateau Remediation Company		CHAIN OF CUSTODY SAMPLE ANALYSIS REQUEST			F12-015-004	PAGE 1 OF 1	
COLLECTOR DJ Sparks CHPRC		COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 509-373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE 9H	DATA TURNAROUND 30 Days / 30 Days	
SAMPLING LOCATION 231ZDR-11 resample #1		PROJECT DESIGNATION 231ZDR-11 Sampling and Analysis - Other Liquid		SAF NO. F12-015	AIR QUALITY <input type="checkbox"/>		
ICE CHEST NO.		FIELD LOGBOOK NO. HNF-N-507-19.50	ACTUAL SAMPLE DEPTH N/A	COA 302285JBAP	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL	
SHIPPED TO 222-S Lab Operations		OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A			
MATRIX* A=Air DL=Drum Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	POSSIBLE SAMPLE HAZARDS/ REMARKS Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)	PRESERVATION	HCl to pH <2/Cool~4C	Cool~4C	HNO3 to pH <2/Cool~4C		
		HOLDING TIME	14 Days	14/40 Days	28 Days		
		TYPE OF CONTAINER	Gs*	aG	G/P		
		NO. OF CONTAINER(S)	4	1	1		
		VOLUME	40mL	1L	500mL		
SPECIAL HANDLING AND/OR STORAGE RADIOACTIVE TIE TO: B2KNB9		SAMPLE ANALYSIS	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	SEE ITEM (2) IN SPECIAL INSTRUCTIONS	SEE ITEM (3) IN SPECIAL INSTRUCTIONS		
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME				
B2KNC0	OTHER LIQUID	MAR 08 2012	1243	✓	✓	✓	

Grp # 20120400  
 1 - Siam000086  
 2 - Siam000088  
 3 - Siam000087

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS
RELINQUISHED BY/REMOVED FROM DJ Sparks CHPRC	DATE/TIME 3-8-12 1445	RECEIVED BY/STORED IN R. Steele	DATE/TIME 3-8-12 1445	** The GKI for this work will be attached to the issued SAF. (1) VOA - 8260 (TCL); VOA - 8260 (Add-On) {1,1,2-Trichloro-1,2,2-trifluoroethane}; (2) Semi-VOA - 8270 (TCL); Semi-VOA - 8270 (Add-On) {3+4 Methylphenol (cresol, m+p)}; PCB's - 8082 JMS 3/8/12 (3) 6020_METALS_ICPMS (TAL) {Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Selenium, Silver, Vanadium}; Mercury - 7470 - (CV); LOW ICPAES add Al, Zn, Ni, Add pH to SUOA bottle DPR 3-9-2012 per tele com
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME	

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

APR 10, 2012

CH2M Hill Plateau Remediation Company		CHAIN OF CUSTODY / SAMPLE ANALYSIS REQUEST			F12-015-007	PAGE 1 OF 1
COLLECTOR DJ Sparks CHPRC		COMPANY CONTACT TRENT, SJ	TELEPHONE NO. 509-373-5869	PROJECT COORDINATOR TRENT, SJ	PRICE CODE C02	DATA TURNAROUND 24 Hours / 24 Hours
SAMPLING LOCATION 231ZDR-11 Resample COMPOSITE		PROJECT DESIGNATION 231ZDR-11 Sampling and Analysis - Other Liquid		SAF NO. F12-015	AIR QUALITY <input type="checkbox"/>	
ICE CHEST NO.		FIELD LOGBOOK NO. HNF-N-507-19-50	ACTUAL SAMPLE DEPTH N/A	COA 302285JBAP	METHOD OF SHIPMENT GOVERNMENT VEHICLE	ORIGINAL
SHIPPED TO 222-S Lab Operations		OFFSITE PROPERTY NO. N/A		BILL OF LADING/AIR BILL NO. N/A		

MATRIX* A=Air DL=Drum L=Liquids DS=Drum Solids L=Liquid O=Oil S=Soil SE=Sediment T=Tissue V=Vegetation W=Water WI=Wipe X=Other	<b>POSSIBLE SAMPLE HAZARDS/ REMARKS</b> Contains Radioactive Material at concentrations that may or may not be regulated for transportation per 49 CFR / IATA Dangerous Goods Regulations but are not releasable per DOE Order 5400.5 (1990/1993)	PRESERVATION	HNO3 to pH <2/Cool~4C	
		HOLDING TIME	28 Days	
		TYPE OF CONTAINER	G/P	
		NO. OF CONTAINER(S)	1	
		VOLUME	500mL	
	<b>SPECIAL HANDLING AND/OR STORAGE</b>	<b>SAMPLE ANALYSIS</b>	SEE ITEM (1) IN SPECIAL INSTRUCTIONS	
SAMPLE NO.	MATRIX*	SAMPLE DATE	SAMPLE TIME	
B2KNC4	OTHER LIQUID	3/8/12	1310	✓

Grp # 20120400  
 Sample # S12m000092

CHAIN OF POSSESSION		SIGN/ PRINT NAMES		SPECIAL INSTRUCTIONS	
RELINQUISHED BY/REMOVED FROM DJ Sparks CHPRC	DATE/TIME MAR 08 2012 1445	RECEIVED BY/STORED IN RT Steele	DATE/TIME APR 3-9-12 1445	The GKI for this work will be attached to the issued SAF (1)6020_METALS_ICPMS (TAL) {Antimony, Arsenic, Barium, Beryllium, Cadmium, Chromium, Cobalt, Copper, Lead, Manganese, Selenium, Silver, Vanadium}; Mercury - 7470 - (CV); 6010 ICPAES Add: Al, Ni, Zn APR 3-9-12 pantele.com	
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		
RELINQUISHED BY/REMOVED FROM	DATE/TIME	RECEIVED BY/STORED IN	DATE/TIME		

LABORATORY SECTION	RECEIVED BY	TITLE	DATE/TIME
FINAL SAMPLE DISPOSITION	DISPOSAL METHOD	DISPOSED BY	DATE/TIME

<b>ATL</b>	<b>SAMPLE RECEIPT AND CHAIN OF CUSTODY VERIFICATION CHECKLIST</b>	LO-090-101 Rev <u>EE.0</u>
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Date Samples Received: 3.8.12 Group #: 20120400  
 Number of Samples: 4  
 Sample Custodian: RLTtah

**Sample Custodian to Complete:**

Action	Yes	No	N/A	Comments
RSA/ <del>COC</del> provided?	✓			
RSR provided?	✓			
Verify GKI is complete	✓	X		<input checked="" type="checkbox"/> In Project File <i>used received GKI DPR 3-9-12</i>
Check that outer custody seal is intact, if present	✓			
Record cooler temperature in centigrade, as appropriate		✓		<input checked="" type="checkbox"/> Check if no cooler and/or no ice <i>no temp blank</i>
Samples are intact and in good condition	✓			If No, provide comments on back
Verify that COC or RSA is accurate and complete, containing the following information:				
• Client name and client sample number	✓			
• Date and time of sampling	✓			
• Sampling location or origin	✓			
• Container type, size, and number	✓			
• <del>Preservatives</del> (if used) are noted on the <del>COC</del> /RSA and sample bottle	✓			<i>Could not verify due to packaging</i>
• Analysis request is clear	✓			
• Signature of persons relinquishing and receiving samples	✓			
• Date and/or time of sample custody exchange	✓			
Verify that <del>sample</del> numbers on containers match the <del>COC</del> and/or RSA	✓			
Samples stored <del>properly</del> (e.g., refrigeration)	✓			<i>2A Fridge</i>

Notify the PM immediately if any problems are noted. (Any "No" checked requires Project Manager resolution.)

**PM to Complete:**

Samples acceptable for release? no yes PM Initials RLT Date 3.8.12  
 If No, comment on communication and resolution: DPR 3-9-12

Other Comments: *Awaiting P.C. Approval / Alpha worksheet & Log in.*  
*RLTtah 3.8.12*  
*Alpha work sheet unnecessary LO.45ucci DPR 3-9-2012*

**GENERATOR KNOWLEDGE INFORMATION**

1. Chain of Custody Number \_\_\_\_\_ CACN/COA 302285/JBAP Customer Identification Number \_\_\_\_\_

2. List generator knowledge or description of process that produced sample. Or list description of sample source:  
 Radiologically contaminated liquid collected from the exterior of concrete container; 231ZDR-11, in the CWC expansion area. At this time there is not visible evidence that the box has been breached. This sample is to provide objective evidence that there is no release of hazardous substance that are potentially in the container. The container carries several waste codes due to the lack of information when the container was loaded. Waste codes were assigned to the container through the acceptable knowledge process, (AK) from the container's origin, 231Z. The actual inventory only indicates that contaminated equipment was loaded into the container.  
 MSDS Available?  No  Yes Hanford MSDS No. \_\_\_\_\_

3. List all waste codes and constituents associated with the waste or media that was sampled, regardless of CERCLA status.

a) Does the sample contain any of the following listed waste codes?  
**By checking "unknown" the customer understands that no knowledge is available following a careful search.**  
 List Federal Waste Code(s): \_\_\_\_\_ List Constituent(s): \_\_\_\_\_  
 P Codes: \_\_\_\_\_  Yes  No  Unknown  
 U Codes: \_\_\_\_\_  Yes  No  Unknown  
 K Codes: \_\_\_\_\_  Yes  No  Unknown  
 F Codes: \_\_\_\_\_  Yes  No  Unknown

b) List applicable characteristic waste codes, flash point, pH, constituents, and concentrations as appropriate.  
 D001:  FP <100°F  FP ≥100 <140°F  DOT Oxidizer  Yes  No  Unknown  
 D002:  pH ≤2  pH ≥12.5  Solid Corrosive (WSC2)  Yes  No  Unknown  
 D003:  Cyanide  Sulfide  Water Reactive  Other \_\_\_\_\_  Yes  No  Unknown  
 (i.e., peroxide former, explosive, air reactive)  
 D004-D043 (Identify applicable waste codes and concentrations): \_\_\_\_\_  Yes  No  Unknown  
 N/A

c) If characteristic, list any known underlying hazardous constituents (UHCs) reasonably expected to be present, and their concentrations that may be present above the LDR treatment standard (40 CFR 268.48):  
 N/A

d) List any known Land Disposal Restrictions (LDR) subcategories, if applicable (40 CFR 268.40):  
 N/A

e) List any applicable Washington State dangerous waste codes: (not required if federally regulated) (\*State mixture rule for ignitability)  
 WT01:  Yes  No  Unknown WP01:  Yes  No  Unknown  
 WT02:  Yes  No  Unknown WP02:  Yes  No  Unknown  
 W001:  Yes  No  Unknown WP03:  Yes  No  Unknown  
 List constituents and concentrations: \_\_\_\_\_ F003:\*  Yes  No  Unknown

4. Is this material TSCA regulated for PCBs?  Yes  No  Unknown  Analysis Requested  
 List concentration if applicable: N/A

If yes, what is the source of the PCBs? (see TSCA PCB Hanford Site User Guide, DOE/RL-2001-50)  
 PCB Liquid Waste  PCB Bulk Product Waste  PCB Transformer ≥500 ppm  Unknown  
 PCB Remediation Waste  PCB R&D Waste  PCB contaminated electrical equipment (capacitor/ballast) <500 ppm  
 PCB Spill Material  PCB Item  Other PCB Waste (list) potential hydraulic equip

5. Is this material TRU?  Yes  No  Unknown

**GENERATOR KNOWLEDGE INFORMATION (Continued)**

1. Chain of Custody Number \_\_\_\_\_ CACN/COA 302285/JBAP Customer Identification Number \_\_\_\_\_

**6. ACCURACY OF INFORMATION**

Based on my inquiry of those individuals immediately responsible for obtaining this information, that to the best of my knowledge, the information entered in this document is true, accurate, and complete.

Print & Sign DARIN CORRIEL  \_\_\_\_\_ Date 2/15/2012