

December 30, 2013

Ms. Delonda Alexander State of North Carolina Department of Environment and Natural Resources Division of Waste Management, Superfund Section 1646 Mail Service Center Raleigh, North Carolina 27699-1646

# RE: Post-Remediation Soil Sampling Report Williams Cleaners (aka Hangers Cleaners) 6845 Market Street Wilmington, New Hanover County, North Carolina ATC Project No. 45.34341.6505 DSCA Site Identification No. 65-0005

Dear Ms. Alexander:

ATC Associates of North Carolina, P.C. (ATC) has prepared this report to document postremediation soil sampling conducted at the site, as authorized in State Lead Authorization for Work (SLAW) No. 021 dated July 23, 2013. This report documents background information, field activities, laboratory results, and conclusions based on the investigation results.

# **1.0 BACKGROUND INFORMATION**

Hangers Cleaners (formerly Williams Cleaners) was developed with the present-day building structure in 1983. Prior to 1983 the property was undeveloped. Tetrachloroethylene (PCE) was reportedly utilized as a drycleaning solvent from 1983 through 1997. In 1997, drycleaning operations on site were discontinued until 2001. During the period 1997 through 2001, the facility was used as a drop-off location only. In 2001 new petroleum-based drycleaning equipment was installed. Since 2001 (through present day) the facility has used petroleum-based drycleaning solvent. The name of the drycleaner changed from Williams Cleaners to Hangers Cleaners at an unknown date and is commonly known by both names.

A release of drycleaning solvents was first discovered in October 2001 during an Environmental Site Assessment (ESA) conducted at the site. Subsequent assessment activities indicated a plume of impacted soil and groundwater confined to the site property. To address contamination at the site, ATC installed an air sparge/soil vapor extraction (AS/SVE) system which operated from March 18, 2009 through June 14, 2010. Based on groundwater analytical results, the system successfully remediated groundwater to below applicable remediation goals.

This report documents soil sampling performed to evaluate current contaminant concentrations in soil post-remediation.

## 2.0 SOIL SAMPLING

## 2.1 Field Activities

Prior to initiation of soil sampling, a private utility locator was contracted to mark subsurface utilities in the vicinity of the proposed boring. The North Carolina One Call Service was also contacted to mark subsurface utilities. On October 3, 2013, soil boring SB-9 was advanced at the location shown on the attached *Figure 1*. Boring SB-9 was placed adjacent to former soil boring SB-2A which was advanced during previous assessment activities. The soil sample collected from SB-2A indicated the highest historical concentration of PCE at 140 milligrams per kilogram (mg/kg). Note that the initial scope of work included the collection of soil samples from three borings locations; however, due to problematic surface cover and equipment malfunctions, ATC was only able to collect samples from one boring.

At the soil boring location, a hammer drill was used to drill through the concrete floor slab inside the building. The approximate floor slab thickness was eight inches. A hand auger was then used to advance a boring to five feet below ground surface (bgs). Soil samples were collected from 0-2.5 feet bgs and 2.5-5 bgs. The hand auger was decontaminated between collection of soil samples. Subsequent to soil sampling, bentonite chips were used to backfill the boring and a concrete patch capped the boring as to match surrounding surface cover.

The soil samples were collected in laboratory-supplied glass containers and shipped in an icepacked cooler via overnight delivery to Accutest Laboratories in Scott Louisiana, a North Carolina certified laboratory, for analysis of volatile organics by EPA Method 8260.

## 2.2 Laboratory Analytical Results

The results of the laboratory analyses indicated PCE in the 2.5-5 foot interval at a concentration exceeding Tier I Risk-Based Screening Level (RBSL), but substantially lower than the preremediation concentration. PCE was also detected in the 0-2.5 foot interval, but at a concentration less than the Tier I RBSL. Concentrations of benzene, ethylbenzene, toluene, and acetone were also detected at concentrations less than Tier I RBSLs. A summary of the laboratory analytical results is provided in in *Table 1*. The laboratory analytical report is provided in *Appendix A*.

## 3.0 CONCLUSIONS

ATC has conducted soil sampling at the site to determine if the former AS/SVE system has successfully reduced soil contaminant concentrations at the site. Pre- and post-remediation system soil analytical results indicate that PCE concentrations have been reduced from 140 mg/kg to 0.054 mg/kg in the area of maximum contaminant concentrations. ATC recommends completion of a Tier 2 risk assessment to evaluate whether the site is eligible for risk-based closure.

ATC appreciates the opportunity to assist with this project. If you have questions or require additional information, please to contact us at (919) 871-0999.

## Sincerely, ATC Associates of North Carolina, P.C.

asky Wit

Ashley M. Winkelman, P.G. Project Manager

Jankellon

Genna K. Olson, P.G. Program Manager

Attachments:

- 1. Figure 1 Soil Quality Map
- 2. Table 1 Analytical Data for Soil
- 3. Appendix A Laboratory Analytical Report

FIGURE



TABLE

## Table 1: Analytical Data for Soil

DSCA ID No.:

ample ID	epth eet bgs]	ampling Date (mm/dd/yy)	Benzene	cis-1,2-Dichloroethylene	Ethylbenzene	Methyl tert-butyl ether (MTBE)	Naphthalene	Tetrachloroethylene	Toluene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride	Xylenes (total)	Acetone					
Š	ДE	Ň										Įmg	g/kg]				1		<b></b>
H-4	5	02/26/08	< 0.011	0.011	< 0.011	NA	NA	3.4	< 0.011	< 0.011	0.14	< 0.011	< 0.032	NA					<b> </b>
H-5	5	02/26/08	< 0.010	< 0.010	< 0.010	NA	NA	1.3	< 0.010	< 0.010	0.063	< 0.010	< 0.031	NA					
H-6	3	02/26/08	< 0.011	< 0.011	< 0.011	NA	NA	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.033	NA					
H-6	5	02/26/08	< 0.012	< 0.012	< 0.012	NA	NA	< 0.012	< 0.012	< 0.012	< 0.012	< 0.012	< 0.036	NA					
H-1	5	02/27/08	< 0.011	< 0.011	< 0.011	NA	NA	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.033	NA					
H-2	5	02/27/08	< 0.011	< 0.011	< 0.011	NA	NA	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.034	NA					
H-3	5	02/27/08	< 0.010	< 0.010	< 0.010	NA	NA	0.021	< 0.010	< 0.010	< 0.010	< 0.010	< 0.031	NA					
SB-1A	5	11/10/03	< 0.092	< 0.092	< 0.092	< 0.092	< 0.092	41	< 0.092	< 0.092	0.46E	< 0.092	<0.272	<0.23					
SB-2A	5	11/10/03	< 0.0034	< 0.0034	< 0.0034	< 0.0034	< 0.0034	140	< 0.0034	< 0.0034	0.55E	< 0.0034	<10.3	< 0.023					
SB-1B	2	06/15/05	< 0.010	< 0.010	< 0.010	NA	NA	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.020	NA					
SB-1B	9	06/15/05	< 0.010	< 0.010	< 0.010	NA	NA	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.020	NA					
SB-2B	2	06/15/05	< 0.010	< 0.010	< 0.010	NA	NA	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.020	NA					
SB-2B	9	06/15/05	< 0.010	< 0.010	< 0.010	NA	NA	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.020	NA					
SB-3	2	06/15/05	< 0.010	< 0.010	< 0.010	NA	NA	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.020	NA					
SB-3	9	06/15/05	< 0.010	< 0.010	< 0.010	NA	NA	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.020	NA					
SB-4	2	06/15/08	< 0.010	< 0.010	< 0.010	NA	NA	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.020	NA					
SB-4	4	06/15/08	< 0.010	< 0.010	< 0.010	NA	NA	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.020	NA					
SB-4	6	06/15/08	< 0.010	0.029	< 0.010	NA	NA	0.054	< 0.010	< 0.010	0.032	< 0.010	< 0.020	NA					
SB-4	9	06/15/08	< 0.010	< 0.010	< 0.010	NA	NA	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.020	NA					
SB-5	2	06/15/05	< 0.010	< 0.010	< 0.010	NA	NA	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.020	NA					
SB-5	6	06/15/05	< 0.010	< 0.010	< 0.010	NA	NA	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.020	NA					
SB-6	2	06/17/05	<1.0	<1.0	<1.0	NA	NA	57	<1.0	<1.0	<1.0	<1.0	<2.0	NA					
SB-6	4	06/17/05	<1.0	<1.0	<1.0	NA	NA	28	<1.0	<1.0	<1.0	<1.0	<2.0	NA					
SB-6	6	06/17/05	<1.0	<1.0	<1.0	NA	NA	14	<1.0	<1.0	<1.0	<1.0	<2.0	NA					
SB-6	8	06/17/05	< 0.010	0.061	< 0.010	NA	NA	1.5	< 0.010	< 0.010	0.56	< 0.010	< 0.020	NA					
SB-7	2	06/20/05	< 0.010	< 0.010	< 0.010	NA	NA	0.024	< 0.010	< 0.010	< 0.010	< 0.010	< 0.020	NA					
SB-7	4	06/20/05	< 0.010	< 0.010	< 0.010	NA	NA	0.73	< 0.010	< 0.010	< 0.010	< 0.010	< 0.020	NA					
B																			L

ADT 1

## Table 1: Analytical Data for Soil

# DSCA ID No.:

ample ID	lepth ieet bgs]	ampling Date (mm/dd/yy)	Benzene	cis-1,2-Dichloroethylene	Ethylbenzene	Methyl tert-butyl ether (MTBE)	Naphthalene	Tetrachloroethylene	Toluene	trans-1,2-Dichloroethylene	Trichloroethylene	Vinyl chloride	Z Xylenes (total)	Acetone				
S		S										liiig	/ĸgj					
SB-7	6	06/20/05	< 0.010	< 0.010	< 0.010	NA	NA	0.03	< 0.010	< 0.010	< 0.010	< 0.010	< 0.020	NA				<u> </u>
SB-7	8	06/20/05	< 0.010	0.031	< 0.010	NA	NA	0.21	< 0.010	< 0.010	0.079	< 0.010	< 0.020	NA				1
SB-8	2	06/20/05	< 0.010	< 0.010	< 0.010	NA	NA	0.31	< 0.010	< 0.010	< 0.010	< 0.010	< 0.020	NA				
SB-8	4	06/20/05	< 0.010	< 0.010	< 0.010	NA	NA	10	< 0.010	< 0.010	< 0.010	< 0.010	< 0.020	NA				
SB-8	6	06/20/05	< 0.010	< 0.010	< 0.010	NA	NA	0.14	< 0.010	< 0.010	< 0.010	< 0.010	< 0.020	NA				
SB-8	8	06/20/05	< 0.010	< 0.010	< 0.010	NA	NA	0.14	< 0.010	< 0.010	< 0.010	< 0.010	< 0.020	NA				
SB-9	0-2.5	10/03/13	0.0013J	< 0.0052	0.0013J	< 0.0052	< 0.0052	0.0088	0.0013J	< 0.0052	< 0.0052	< 0.010	< 0.0052	0.14				
SB-9	2.5-5	10/03/13	< 0.0059	< 0.0059	< 0.0059	< 0.0059	< 0.0059	0.054	< 0.0059	< 0.0059	< 0.0059	< 0.012	< 0.0059	< 0.12				
	Tier 1 RBSLs		0.0342	1.1	51	0.18	1.6	0.023	29	1.5	0.067	0.00079	36	42				

ADT 1

**APPENDIX A** 

LABORATORY ANALYTICAL REPORT



# Case Narrative for: ATC ASSOCIATES, INC.

# Certificate of Analysis Number:

# L0035307

Report To:	Project Name: 45.34341.6505
ATC ASSOCIATES, INC.	Site: WILLIAMS CLEANERS
ASHLEY WINKELMAN	Site Address:
2725 EAST MILBROOK RD SUITE 121	WILMINGTON NC
RALEIGH	PO Number:
NC	State: North Carolina
27604-	State Cert. No.: 487
ph: (919) 871-0999 fax: (919) 871-0335	Date Reported: 10/18/2013

Matrix spike (MS) and matrix spike duplicate (MSD) samples are chosen and tested at random from an analytical batch of "like" matrix to check for possible matrix effect. The MS and MSD will provide site specific matrix data for those samples spiked by the laboratory and may be applicable to other samples of similar matrix from the site. Since the MS and MSD are chosen at random from an analytical batch, the sample chosen for spike purposes may or may not have been a sample submitted in this sample delivery group.

The validity of the analytical procedures for which data is reported in this analytical report is determined by the Laboratory Control Sample (LCS) and the Method Blank (MB). The Laboratory Control Sample (LCS) and the Method Blank (MB) are processed with the samples and the MS/MSD to ensure method criteria are achieved throughout the entire analytical process. If insufficient sample is supplied for MS/MSD, a Laboratory Control Sample (LCS) are reported with the analytical batch and serve as the batch quality control (QC).

Results are reported on a Wet Weight Basis unless otherwise noted in the sample unit field as -dry.

The collection of samples using encores, terracores or other field collection devices may result in inconsistent initial sample weights for the parent sample and MS/MSD samples.

The MS/MSD recovery and precision data are calculated based on detected spike concentrations that are adjusted for initial sample weights. As a result of the variability between initial sample weights, the calculated RPD may have increased bias.

Any other exceptions associated with this report will be footnoted in the analytical result page(s) or the quality control summary page(s).

Please do not hesitate to contact us if you have any questions or comments pertaining to this data report. Please reference the above Certificate of Analysis Number.

This report shall not be reproduced except in full, without the written approval of the laboratory. The reported results are only representative of the samples submitted for testing.

Accutest Gulf Coast is pleased to be of service to you. We anticipate working with you in fulfilling all your current and future analytical needs.

elth & Fryc

Ralph E. Frye Project Manager

Accutest Gulf Coast Lafayette Laboratory Manager

Ron Benjamin

Accutest Gulf Coast Lafayette QA Officer

Phil Worby Test results meet all requirements of NELAC, unless specified in the narrative.

Version 2.2 - Modified May 16, 2012

Date

10/18/2013



# ATC ASSOCIATES, INC.

## Certificate of Analysis Number:

L0035307

<u>Report To:</u>	ATC ASSOCIATES, INC. ASHLEY WINKELMAN 2725 EAST MILBROOK F	RD SUITE 121	<u>Project Name:</u> <u>Site:</u> <u>Site Address:</u>	45.34341.6505 WILLIAMS CLEANERS	
	RALEIGH		PO Number:	WILMINGTON	NC
	27604-	form (040) 074 000F	<u>State:</u>	North Carolina	
	pn: (919) 8/1-0999	Tax: (919) 8/1-0335	State Cert. No .:	487	
<u>Fax To:</u>			Date Reported:	10/18/2013	

Client Sample ID	Lab Sample ID	Matrix	Date Collected	Date Received	COC ID	HOLD
SB-9 0-2.5`	L0035307-01	Soil	10/03/2013 17:45	10/8/2013 9:45:00 AM		
SB-9 2.5-5`	L0035307-02	Soil	10/03/2013 18:00	10/8/2013 9:45:00 AM		

alth & Fryc

Ralph E. Frye Project Manager

Accutest Gulf Coast Lafayette Laboratory Manager

Ser 0 ~1

Ron Benjamin

Accutest Gulf Coast Lafayette QA Officer

Phil Worby

Version 2.2 - Modified May 16, 2012

Date

10/18/2013



500 AMBASSADOR CAFFERY PARKWAY

SCOTT, LA 70583

(337) 237-4775

L0035307-01

Client Sample ID:SB-9 0-2.5

Collected: 10/03/2013 17:45 Lab Sample ID:

		Site: WILLIAMS CLEANERS									
Analyses/Method	Result	QUAL	MDL	Rep.Limit	Dil. Fa	ctor Date Analyzed	Analyst	Seq. #			
PERCENT MOISTURE					MCL	D2216 Units	: wt%				
Percent Moisture	11		0.1	0.1	1	10/13/13 9:00	AVB	5249588			

Ralph & Frye Ralph E. Frye

Project Manager

Qualifiers:

ND/U - Not Detected at the Reporting Limit J - Estimated value between MDL and PQL

- \* Surrogate Recovery Outside Advisable QC Limits
- E Concentrations exceeding Calibration range of Instrument
- B Analyte Detected In The Associated Method Blank

>MCL - Result Over Maximum Contamination Limit (MCL) D - Surrogate Recovery Unreportable due to Dilution

MI - Matrix Interference

TNTC - Too numerous to count

10/18/2013 9:35:09 AM



500 AMBASSADOR CAFFERY PARKWAY

SCOTT, LA 70583

(337) 237-4775

Client Sample ID:SB-9 0-2.5`

Collected: 10/03/2013 17:45 Lab Sample ID: L0035307-01

			S	ite: WILLI	AMS CLEAN	ERS		
Analyses/Method	Result	QUAL	MDL	Rep.Limit	Dil. Fac	ctor Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS MET	<b>FHOD 8260B</b>				MCL	SW8260B Units	: ug/Kg-d	ry
1,1,1-Trichloroethane	ND		0.72	5.2	1	10/14/13 14:06	SNV	5250289
1,1,2,2-Tetrachloroethane	ND		0.34	5.2	1	10/14/13 14:06	SNV	5250289
1,1,2-Trichloroethane	ND		0.36	5.2	1	10/14/13 14:06	SNV	5250289
1,1-Dichloroethane	ND		0.47	5.2	1	10/14/13 14:06	SNV	5250289
1,1-Dichloroethene	ND		0.63	5.2	1	10/14/13 14:06	SNV	5250289
1,2-Dibromoethane	ND		0.87	5.2	1	10/14/13 14:06	SNV	5250289
1,2-Dichloroethane	ND		0.89	5.2	1	10/14/13 14:06	SNV	5250289
2-Hexanone	ND		2.3	10	1	10/14/13 14:06	SNV	5250289
4-Methyl-2-pentanone	ND		1.3	10	1	10/14/13 14:06	SNV	5250289
Acetone	140		5.8	100	1	10/14/13 14:06	SNV	5250289
Benzene	1.3	J	0.79	5.2	1	10/14/13 14:06	SNV	5250289
Bromochloromethane	ND		0.96	5.2	1	10/14/13 14:06	SNV	5250289
Bromoform	ND		0.47	5.2	1	10/14/13 14:06	SNV	5250289
Bromomethane	ND		2.9	10	1	10/14/13 14:06	SNV	5250289
Carbon disulfide	ND		0.81	5.2	1	10/14/13 14:06	SNV	5250289
Carbon tetrachloride	ND		0.63	5.2	1	10/14/13 14:06	SNV	5250289
Chlorobenzene	ND		0.56	5.2	1	10/14/13 14:06	SNV	5250289
Chloroethane	ND		0.98	10	1	10/14/13 14:06	SNV	5250289
Chloroform	ND		0.84	5.2	1	10/14/13 14:06	SNV	5250289
Chloromethane	ND		2.6	5.2	1	10/14/13 14:06	SNV	5250289
cis-1,3-Dichloropropene	ND		0.55	5.2	1	10/14/13 14:06	SNV	5250289
Dibromochloromethane	ND		0.38	5.2	1	10/14/13 14:06	SNV	5250289
Diisopropyl ether	ND		0.53	5.2	1	10/14/13 14:06	SNV	5250289
Ethylbenzene	1.3	J	0.92	5.2	1	10/14/13 14:06	SNV	5250289
Methyl tert-butyl ether	ND		0.53	5.2	1	10/14/13 14:06	SNV	5250289
Methylene chloride	ND		0.13	10	1	10/14/13 14:06	SNV	5250289
Naphthalene	ND		0.95	5.2	1	10/14/13 14:06	SNV	5250289
Styrene	ND		0.65	5.2	1	10/14/13 14:06	SNV	5250289
Tetrachloroethene	8.8		0.58	5.2	1	10/14/13 14:06	SNV	5250289
Toluene	1.3	J	0.57	5.2	1	10/14/13 14:06	SNV	5250289
trans-1,3-Dichloropropene	ND		0.48	5.2	1	10/14/13 14:06	SNV	5250289
Trichloroethene	ND		0.69	5.2	1	10/14/13 14:06	SNV	5250289
Trichlorofluoromethane	ND		0.29	5.2	1	10/14/13 14:06	SNV	5250289
Vinyl acetate	ND		0.76	10	1	10/14/13 14:06	SNV	5250289
Vinyl chloride	ND		1	10	1	10/14/13 14:06	SNV	5250289

Ralph & Fryc Ralph E. Frye

Project Manager

- Qualifiers: ND/U Not Detected at the Reporting Limit
  - J Estimated value between MDL and PQL
  - \* Surrogate Recovery Outside Advisable QC Limits
  - E Concentrations exceeding Calibration range of Instrument
  - B Analyte Detected In The Associated Method Blank
- >MCL Result Over Maximum Contamination Limit (MCL)
- D Surrogate Recovery Unreportable due to Dilution
- MI Matrix Interference
- TNTC Too numerous to count

10/18/2013 9:35:12 AM



500 AMBASSADOR CAFFERY PARKWAY

SCOTT, LA 70583

(337) 237-4775

Client Sample ID:SB-9 0-2.5`

Collected: 10/03/2013 17:45 Lab Sample ID: L0035307-01

				Site:	WILLI	AMS CLEA	NERS		
Analyses/Method	Result	QUAL	MDL	R	ep.Limit	Dil. Fa	actor Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS METH	IOD 8260B					MCL	SW8260B Units	: ug/Kg-d	ry
cis-1,2-Dichloroethene	ND		0.92		5.2	1	10/14/13 14:06	SNV	5250289
m,p-Xylene	ND		1.8		5.2	1	10/14/13 14:06	SNV	5250289
o-Xylene	ND		0.58		5.2	1	10/14/13 14:06	SNV	5250289
trans-1,2-Dichloroethene	ND		0.92		5.2	1	10/14/13 14:06	SNV	5250289
Xylenes,Total	ND		0.58		5.2	1	10/14/13 14:06	SNV	5250289
Surr: 1,2-Dichloroethane-d4	120		0	%	59-143	1	10/14/13 14:06	SNV	5250289
Surr: 4-Bromofluorobenzene	87.7		0	%	38-183	1	10/14/13 14:06	SNV	5250289
Surr: Toluene-d8	101		0	%	52-159	1	10/14/13 14:06	SNV	5250289

Prep Method	Prep Date	Prep Initials	Prep Factor
SW 5035	10/03/2013 17:45	Field	0.93

Ralph & Frys

Ralph E. Frye Project Manager

Qualifiers:

ND/U - Not Detected at the Reporting Limit J - Estimated value between MDL and PQL

- \* Surrogate Recovery Outside Advisable QC Limits
- E Concentrations exceeding Calibration range of Instrument
- B Analyte Detected In The Associated Method Blank

>MCL - Result Over Maximum Contamination Limit (MCL) D - Surrogate Recovery Unreportable due to Dilution

- MI Matrix Interference
- TNTC Too numerous to count

10/18/2013 9:35:13 AM



500 AMBASSADOR CAFFERY PARKWAY

SCOTT, LA 70583

L0035307-02

(337) 237-4775

Client Sample ID:SB-9 2.5-5

Collected: 10/03/2013 18:00 Lab Sample ID:

			5	Site: WILLIA	AMS CLEAN	NERS		
Analyses/Method	Result	QUAL	MDL	Rep.Limit	Dil. Fa	actor Date Analyzed	Analyst	Seq. #
PERCENT MOISTURE					MCL	D2216 Units	: wt%	
Percent Moisture	20		0.1	0.1	1	10/13/13 9:00	AVB	5249589

Ralph & Frye Ralph E. Frye

Project Manager

Qualifiers:

ND/U - Not Detected at the Reporting Limit J - Estimated value between MDL and PQL

- \* Surrogate Recovery Outside Advisable QC Limits
- E Concentrations exceeding Calibration range of Instrument
- B Analyte Detected In The Associated Method Blank

>MCL - Result Over Maximum Contamination Limit (MCL) D - Surrogate Recovery Unreportable due to Dilution

- MI Matrix Interference
- TNTC Too numerous to count

10/18/2013 9:35:15 AM



500 AMBASSADOR CAFFERY PARKWAY

SCOTT, LA 70583

(337) 237-4775

Client Sample ID:SB-9 2.5-5`

Collected: 10/03/2013 18:00 Lab Sample ID: L0035307-02

		ç	Site: WILLI	AMS CLEAN	ERS		
Analyses/Method	Result	QUAL MDL	Rep.Limit	Dil. Fa	ctor Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS MET	THOD 8260B			MCL	SW8260B Units	: ug/Kg-d	ry
1,1,1-Trichloroethane	ND	0.81	5.9	1	10/12/13 2:56	SNV	5248839
1,1,2,2-Tetrachloroethane	ND	0.38	5.9	1	10/12/13 2:56	SNV	5248839
1,1,2-Trichloroethane	ND	0.41	5.9	1	10/12/13 2:56	SNV	5248839
1,1-Dichloroethane	ND	0.54	5.9	1	10/12/13 2:56	SNV	5248839
1,1-Dichloroethene	ND	0.72	5.9	1	10/12/13 2:56	SNV	5248839
1,2-Dibromoethane	ND	0.99	5.9	1	10/12/13 2:56	SNV	5248839
1,2-Dichloroethane	ND	1	5.9	1	10/12/13 2:56	SNV	5248839
2-Hexanone	ND	2.6	12	1	10/12/13 2:56	SNV	5248839
4-Methyl-2-pentanone	ND	1.4	12	1	10/12/13 2:56	SNV	5248839
Acetone	ND	6.6	120	1	10/12/13 2:56	SNV	5248839
Benzene	ND	0.9	5.9	1	10/12/13 2:56	SNV	5248839
Bromochloromethane	ND	1.1	5.9	1	10/12/13 2:56	SNV	5248839
Bromoform	ND	0.53	5.9	1	10/12/13 2:56	SNV	5248839
Bromomethane	ND	3.3	12	1	10/12/13 2:56	SNV	5248839
Carbon disulfide	ND	0.92	5.9	1	10/12/13 2:56	SNV	5248839
Carbon tetrachloride	ND	0.72	5.9	1	10/12/13 2:56	SNV	5248839
Chlorobenzene	ND	0.63	5.9	1	10/12/13 2:56	SNV	5248839
Chloroethane	ND	1.1	12	1	10/12/13 2:56	SNV	5248839
Chloroform	ND	0.95	5.9	1	10/12/13 2:56	SNV	5248839
Chloromethane	ND	3	5.9	1	10/12/13 2:56	SNV	5248839
cis-1,3-Dichloropropene	ND	0.62	5.9	1	10/12/13 2:56	SNV	5248839
Dibromochloromethane	ND	0.44	5.9	1	10/12/13 2:56	SNV	5248839
Diisopropyl ether	ND	0.6	5.9	1	10/12/13 2:56	SNV	5248839
Ethylbenzene	ND	1	5.9	1	10/12/13 2:56	SNV	5248839
Methyl tert-butyl ether	ND	0.6	5.9	1	10/12/13 2:56	SNV	5248839
Methylene chloride	ND	0.14	12	1	10/12/13 2:56	SNV	5248839
Naphthalene	ND	1.1	5.9	1	10/12/13 2:56	SNV	5248839
Styrene	ND	0.73	5.9	1	10/12/13 2:56	SNV	5248839
Tetrachloroethene	54	0.65	5.9	1	10/12/13 2:56	SNV	5248839
Toluene	ND	0.65	5.9	1	10/12/13 2:56	SNV	5248839
trans-1,3-Dichloropropene	ND	0.54	5.9	1	10/12/13 2:56	SNV	5248839
Trichloroethene	ND	0.78	5.9	1	10/12/13 2:56	SNV	5248839
Trichlorofluoromethane	ND	0.32	5.9	1	10/12/13 2:56	SNV	5248839
Vinyl acetate	ND	0.86	12	1	10/12/13 2:56	SNV	5248839
Vinyl chloride	ND	1.1	12	1	10/12/13 2:56	SNV	5248839

Ralph & Fryc Ralph E. Frye

Project Manager

- Qualifiers: ND/U Not Detected at the Reporting Limit
  - J Estimated value between MDL and PQL
  - \* Surrogate Recovery Outside Advisable QC Limits
  - E Concentrations exceeding Calibration range of Instrument
  - B Analyte Detected In The Associated Method Blank
- >MCL Result Over Maximum Contamination Limit (MCL)
- D Surrogate Recovery Unreportable due to Dilution
- MI Matrix Interference
- TNTC Too numerous to count

10/18/2013 9:35:17 AM



500 AMBASSADOR CAFFERY PARKWAY

SCOTT, LA 70583

(337) 237-4775

Client Sample ID:SB-9 2.5-5`

Collected: 10/03/2013 18:00 Lab Sample ID: L0035307-02

				Site:	WILLI	AMS CLEAN	IERS		
Analyses/Method	Result	QUAL	MDL	R	ep.Limit	Dil. Fa	ctor Date Analyzed	Analyst	Seq. #
VOLATILE ORGANICS METH	IOD 8260B					MCL	SW8260B Units	: ug/Kg-d	ry
cis-1,2-Dichloroethene	ND		1		5.9	1	10/12/13 2:56	SNV	5248839
m,p-Xylene	ND		2		5.9	1	10/12/13 2:56	SNV	5248839
o-Xylene	ND		0.66		5.9	1	10/12/13 2:56	SNV	5248839
trans-1,2-Dichloroethene	ND		1		5.9	1	10/12/13 2:56	SNV	5248839
Xylenes,Total	ND		0.66		5.9	1	10/12/13 2:56	SNV	5248839
Surr: 1,2-Dichloroethane-d4	112		0	%	59-143	1	10/12/13 2:56	SNV	5248839
Surr: 4-Bromofluorobenzene	98.7		0	%	38-183	1	10/12/13 2:56	SNV	5248839
Surr: Toluene-d8	102		0	%	52-159	1	10/12/13 2:56	SNV	5248839

Prep Method	Prep Date	Prep Initials	Prep Factor
SW 5035	10/03/2013 18:00	Field	0.94

Ralph & Frys

Ralph E. Frye Project Manager

Qualifiers:

ND/U - Not Detected at the Reporting Limit J - Estimated value between MDL and PQL

- \* Surrogate Recovery Outside Advisable QC Limits
- E Concentrations exceeding Calibration range of Instrument
- B Analyte Detected In The Associated Method Blank

>MCL - Result Over Maximum Contamination Limit (MCL) D - Surrogate Recovery Unreportable due to Dilution

- MI Matrix Interference
- TNTC Too numerous to count

10/18/2013 9:35:18 AM

**Quality Control Documentation** 

Version 2.1 - Modified February 11, 2011

10/18/2013 9:35:19 AM



#### **Quality Control Report**

## ATC ASSOCIATES, INC.

45.34341.6505

Analysis:	PERCENT MOISTURE	WorkOrder:	L0035307
Method:	D2216	Lab Batch ID:	R320338

#### Samples in Analytical Batch:

Lab Sample ID	Client Sample ID
L0035307-01A	SB-9 0-2.5`
L0035307-02A	SB-9 2.5-5`

Qualifiers: ND/U - Not Detected at the Reporting Limit

- E Estimated Value exceeds calibration curve
- J Estimated value between MDL and PQL

B - Analyte Detected In The Associated Method Blank

MI - Matrix Interference

- D Recovery Unreportable due to Dilution
- \* Recovery Outside Advisable QC Limits

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

10/18/2013 9:35:28 AM



## **Quality Control Report**

#### ATC ASSOCIATES, INC.

45.34341.6505

Analysis: Method:	Volatile Organics Me SW8260B	thod 8260	В				WorkOrder: Lab Batch ID:	L0035307 R320298
	Meth	od Blank				Samples in Analyti	cal Batch:	
RunID:	HB_131011B-5248823	Ur	nits:	ug/Kg		l ab Sample ID	Client Sam	nle ID
Analysis Data:	10/11/2012 10:26	٨٣	olvet	SNIV/		1 0025207 02A	SP 0 2 5 5	
	10/11/2013 19.20	- AI	alyst.			L0033307-02A	30-92.0-0	
Preparation Date:	10/11/2013 19:26	Prep B	y:	Method: S	N 5035			
	Analvte	Result	Qual	Rep Limit	MDL			
1 1 1-Trichloroetha	ne	ND		5.0	0.69			
1 1 2 2-Tetrachloro	ethane			5.0	0.00			
1 1 2-Trichloroetha	ne	ND		5.0	0.34			
1 1-Dichloroethane				5.0	0.04			
1 1-Dichloroethene				5.0	0.45			
1.2 Dibromoothano		ND		5.0	0.01			
1.2-Diblomoethane	•	ND		5.0	0.84			
2 Hovenono		ND		10	0.80			
4 Mothyl 2 pontano	200	ND		10	2.2			
4-ivietriyi-z-peritario	lite	ND E O		10	1.2			
Acelone		5.9 ND	J	5.0	0.76			
Bramashlaramatha		ND		5.0	0.70			
Bromotorm	ne	ND		5.0	0.92			
Bromomothono		ND		5.0	0.43			
Bromometnane Corbon disulfido		ND		10	2.8			
Carbon disulide		ND		5.0	0.78			
Carbon tetrachiono	e	ND		5.0	0.61			
Chloropenzene		ND		5.0	0.54			
Chloroethane		ND		10	0.94			
Chloroform		ND		5.0	0.81			
		ND		5.0	2.5			
CIS-1,3-DICNIOROPRO	pene	ND		5.0	0.53			
Dibromochiorometr	hane	ND		5.0	0.37			
Dilsopropyi etner		ND		5.0	0.51			
Etnyibenzene		ND		5.0	0.88			
Methyl tert-butyl eth	ier	ND 0.00		5.0	0.51			
Methylene chioride		0.22	J	10	0.12			
Naphthalene		ND		5.0	0.92			
Styrene		ND		5.0	0.62			
Tetrachioroethene		ND		5.0	0.56			
Toluene	*****	ND		5.0	0.55			
trans-1,3-Dichlorop	ropene	ND		5.0	0.46			
Trichloroethene		ND		5.0	0.66			
I richiorofiuorometr	lane	ND		5.0	0.28			
Vinyi acetate		ND		10	0.73			
vinyi chioride		ND		10	0.96			
cis-1,2-Dichloroeth	ene	ND		5.0	0.89			
m,p-Xylene		ND		5.0	1.7			
o-Xylene		ND		5.0	0.56			
trans-1,2-Dichloroe	thene	ND		5.0	0.89			
Xylenes,Total		ND		5.0	0.56			
Surr: 1,2-Dichlor	oethane-d4	109.6		59-143	0			
Qualifiers: ND	/U - Not Detected at the	Reporting L	imit			MI - Matrix Interfere	ence	

Qualifiers: ND/U - Not Detected at the Reporting Limit

E - Estimated Value exceeds calibration curve

J - Estimated value between MDL and PQL

B - Analyte Detected In The Associated Method Blank

D - Recovery Unreportable due to Dilution

\* - Recovery Outside Advisable QC Limits

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

10/18/2013 9:35:31 AM



## Quality Control Report

#### ATC ASSOCIATES, INC.

45.34341.6505

Analysis: Method:	alysis: Volatile Organics Method 8260B thod: SW8260B							WorkOrder: Lab Batch ID:			L0035307 R320298	
	Me	thod Blank	<u>(</u>									
RunID:	HB_131011B-5248823	ι	Units: ug/Kg									
Analysis Date:	10/11/2013 19:26		Analyst:	SNV								
Preparation Date	10/11/2013 19:26	, Pren	Rv:	Method: SV	V5035							
r reparation Date.	10/11/2013 13:20	Пер	Dy.	Wethou. Ov	10000							
	Analyte	Result	Qual	Rep Limit	MDL							
Surr: 4-Bromoflu	iorobenzene	103.	7	38-183	0							
Surr: Toluene-d8	3	100.	9	52-159	0							
	<u>Labora</u> RunID:	tory Contr	ol Sample 3_131011B	e/Laboratory -5248821	<mark>Control Sar</mark> Units: ι	<b>nple Duplica</b> ıg/Kg	te (LCS/LCS	<u>D)</u>				
	Analysis Da	te: 10	)/11/2013	18:17	Analyst: S	SNV						
	Preparation	Date: 10	)/11/2013	18:17	Prep By:	Method:	SW5035					
Ai	nalyte	LCS	LCS	LCS	LCSD	LCSD	LCSD	RPD	RPD	Lower	Upper	
		Spike Added	Result	Percent Recovery	Spike Added	Result	Percent Recovery		Limit	Limit	Limit	
1,1,1-Trichloroetha	ne	50.0	50.5	101	50.0	52.5	105	4.0	17	52	153	
1,1,2,2-Tetrachloro	bethane	50.0	50.8	102	50.0	50.6	101	0.4	16	55	141	
1,1,2-Trichloroetha	ne	50.0	50.5	101	50.0	49.6	99.1	1.9	15	55	144	
1,1-Dichloroethane	)	50.0	47.9	95.8	50.0	49.9	99.7	4.1	18	53	148	
1,1-Dichloroethene	•	50.0	46.5	93.1	50.0	48.4	96.8	3.9	21	49	153	
1,2-Dibromoethane	9	50.0	52.9	106	50.0	53.4	107	0.9	12	55	145	
1,2-Dichloroethane	•	50.0	47.8	95.5	50.0	48.9	97.9	2.4	17	55	144	
2-nexanone	200	125	124	99.2	125	126	101	1.4	21	45 E0	148	
	שווכ	120	124	90.9	120	120	95.2	3.4	21	30 20	151	
Renzene		50.0	46.0	92.1 Q1 Q	50.0	46.6	30.2 Q3 3	1 5	17	67	135	
Bromochlorometha	ne	50.0	47.0	93.9	50.0	47.2	94.5	0.6	17	50	147	
Bromoform		50.0	40.3	80.5	50.0	41.7	83.4	3.5	15	49	145	
Bromomethane		50.0	42.5	85.0	50.0	41.7	83.5	1.7	24	40	170	
Carbon disulfide		50.0	48.2	96.4	50.0	49.8	99.6	3.3	19	48	153	
Carbon tetrachlorid	le	50.0	53.1	106	50.0	53.6	107	1.0	17	50	152	
Chlorobenzene		50.0	49.4	98.7	50.0	49.1	98.2	0.5	15	57	144	
Chloroethane		50.0	49.9	99.9	50.0	49.6	99.2	0.7	25	38	176	

Qualifiers: ND/U - Not Detected at the Reporting Limit

E - Estimated Value exceeds calibration curve

J - Estimated value between MDL and PQL

B - Analyte Detected In The Associated Method Blank

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

. . .

D - Recovery Unreportable due to Dilution

\* - Recovery Outside Advisable QC Limits

**MI** - Matrix Interference

10/18/2013 9:35:32 AM



#### **Quality Control Report**

## ATC ASSOCIATES, INC.

					4	5.34341.6505						
Analysis:	Volatile	Organics M	lethod 826	60B					WorkOrder:	I	L00353	)7
Method:	SW8260	)B							Lab Batch ID	): I	R32029	В
		Labora	tory Conti	rol Sample	e/Laboratory	Control Sar	nple Duplica	te (LCS/LC	<u>SD)</u>			
		RunID:	н	B_131011B	-5248821	Units: เ	ıg/Kg					
		Analysis Da	te: 1	0/11/2013	18:17	Analyst: S	SNV					
		Preparation	Date: 1	0/11/2013	18:17	Prep By:	Method	SW5035				
	Analyte		LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
Chloroform			50.0	47.8	95.5	50.0	48.8	97.6	2.1	18	53	147
Chloromethane			50.0	49.5	99.0	50.0	50.0	100	1.0	58	39	152
cis-1,3-Dichloro	propene		50.0	50.7	101	50.0	51.5	103	1.5	16	54	148
Dibromochloron	nethane		50.0	48.6	97.3	50.0	48.8	97.5	0.3	15	54	146
Diisopropyl ethe	er		50.0	48.9	97.8	50.0	49.9	99.8	2.0	15	46	154
Ethylbenzene			50.0	49.8	99.6	50.0	49.7	99.4	0.2	16	69	136
Methyl tert-butyl	lether		50.0	51.4	103	50.0	51.3	103	0.2	53	61	142
Methylene chlor	ide		50.0	47.6	95.2	50.0	51.1	102	2. 7.1	16	51	142
Naphthalene			50.0	51.2	102	50.0	51.2	102	0.1	24	58	147
Styrene			50.0	52.2	104	50.0	51.7	103	1.0	15	56	145
Tetrachloroethe	ne		50.0	52.1	104	50.0	50.3	101	3.5	17	54	156
Toluene			50.0	46.6	93.3	50.0	46.3	92.5	0.8	16	71	135
trans-1,3-Dichlo	propropene		50.0	53.6	107	50.0	53.7	107	0.1	15	53	151
Trichloroethene			50.0	46.8	93.7	50.0	46.6	93.2	0.4	16	56	151
Trichlorofluorom	nethane		50.0	45.7	91.3	50.0	47.1	94.3	3.2	19	36	171
Vinyl acetate			50.0	52.3	105	50.0	51.0	102	2.6	31	23	188
Vinyl chloride			50.0	46.8	93.6	50.0	48.4	96.8	3.4	20	42	155
cis-1,2-Dichloro	ethene		50.0	46.5	93.0	50.0	47.3	94.7	1.8	18	52	147
m,p-Xylene			100	102	102	100	98.4	98.4	3.6	16	70	140
o-Xylene			50.0	50.6	101	50.0	50.3	101	0.7	15	70	132
trans-1,2-Dichlo	proethene		50.0	48.5	97.0	50.0	49.4	98.8	1.8	21	51	152
Xylenes,Total			150.0	152.6	101.7	150.0	148.7	99.09	2.6	16	69	138
Surr: 1,2-Dic	hloroethane-d	4	50.0	48.1	96.1	50.0	50.4	101	4.8	30	59	143
Surr: 4-Brom	ofluorobenzer	ne	50.0	51.0	102	50.0	51.2	102	0.4	30	38	183
Surr: Toluene	e-d8		50.0	50.1	100	50.0	49.0	98.0	2.2	30	52	159

Qualifiers: ND/U - Not Detected at the Reporting Limit

> E - Estimated Value exceeds calibration curve J - Estimated value between MDL and PQL

**MI** - Matrix Interference

D - Recovery Unreportable due to Dilution

\* - Recovery Outside Advisable QC Limits

B - Analyte Detected In The Associated Method Blank

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

10/18/2013 9:35:33 AM



#### **Quality Control Report**

#### ATC ASSOCIATES, INC.

45.34341.6505

Analysis: Method:	Volatile Organics Me SW8260B	ethod 8260	В				WorkOrder: Lab Batch ID:	L0035307 R320362				
	Meth	od Blank				Samples in Analytical Batch:						
RunID:	HB_131014A-5250284	U	nits:	ua/Ka		Lob Somplo ID	Client Som					
Analusia Data	40/44/0040404044	۸.										
Analysis Date:	10/14/2013 12:14	AI	halyst:	SINV		L0035307-01A	SB-9 0-2.5					
Preparation Date:	10/14/2013 12:14	Prep B	y:	Method: S	W5035							
	Analvte	Result	Qual	Rep Limit	MDL							
1 1 1-Trichloroetha		ND		5.0	0.69							
1,1,1-Thermological	othana	ND		5.0	0.09							
1,1,2,2-1 ettachioro		ND		5.0	0.32							
1,1,2-THCHIOIOEIIIa		ND		5.0	0.34							
1,1-Dichloroethane		ND		5.0	0.45							
1,1-Dichioroethene		ND		5.0	0.01							
1,2-Dipromoethane	3	ND		5.0	0.84							
1,2-Dichloroethane		ND		5.0	0.00							
2-Hexanone		ND		10	2.2							
4-ivietnyi-2-pentano	one	ND		10	1.2							
Acetone		ND		100	5.6							
Benzene		ND		5.0	0.76							
Bromochlorometha	ine	ND		5.0	0.92							
Bromotorm		ND		5.0	0.45							
Bromomethane		ND		10	2.8							
Carbon disulfide		ND		5.0	0.78							
Carbon tetrachlorid	le	ND		5.0	0.61							
Chlorobenzene		ND		5.0	0.54							
Chloroethane		ND		10	0.94							
Chloroform		ND		5.0	0.81							
Chloromethane		ND		5.0	2.5							
cis-1,3-Dichloropro	pene	ND		5.0	0.53							
Dibromochlorometh	hane	ND		5.0	0.37							
Diisopropyl ether		ND		5.0	0.51							
Ethylbenzene		ND		5.0	0.88							
Methyl tert-butyl eth	ner	ND		5.0	0.51							
Methylene chloride		ND		10	0.12							
Naphthalene		ND		5.0	0.92							
Styrene		ND		5.0	0.62							
Tetrachloroethene		ND		5.0	0.56							
Toluene		ND		5.0	0.55							
trans-1,3-Dichlorop	propene	ND		5.0	0.46							
Trichloroethene		ND		5.0	0.66							
Trichlorofluorometh	nane	ND		5.0	0.28							
Vinyl acetate		ND		10	0.73							
Vinyl chloride		ND		10	0.96							
cis-1,2-Dichloroeth	ene	ND		5.0	0.89							
m,p-Xylene		ND		5.0	1.7							
o-Xylene		ND		5.0	0.56							
trans-1,2-Dichloroe	ethene	ND		5.0	0.89							
Xylenes,Total		ND		5.0	0.56							
Surr: 1,2-Dichlor	oethane-d4	113.6		59-143	0							
Qualifiers: ND	/U - Not Detected at the	Reporting	_imit	<u>_</u>		MI - Matrix Interfere	ence					

E - Estimated Value exceeds calibration curve

J - Estimated value between MDL and PQL

B - Analyte Detected In The Associated Method Blank

D - Recovery Unreportable due to Dilution

\* - Recovery Outside Advisable QC Limits

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

10/18/2013 9:35:35 AM



## **Quality Control Report**

#### ATC ASSOCIATES, INC.

45.34341.6505

Analysis: Method:	ysis: Volatile Organics Method 8260B nod: SW8260B										L0035307 R320362	
	Met	thod Blank	<u>.</u>									
RunID:	HB_131014A-5250284	l	Jnits:	ua/Ka								
Analysis Data:	10/14/2012 12:14			SNIV								
Propagation Date:	10/14/2013 12:14	Prop	111aiyst. D <i>ur</i>	Mothod: SV	NE025							
rieparation Date.	10/14/2013 12:14	Fieb	Бу.	Weillou. 3v	v 5055							
	Analvte	Result	Qual	Rep Limit	MDL							
Surr: 4-Bromoflu	uorobenzene	101.4	4	38-183	0							
Surr: Toluene-d8	8	102.	5	52-159	0							
	RunID: Analysis Da	HE te: 10	3_131014A )/14/2013	A-5250282 11:05	Units: Analyst:	ug/Kg SNV		<u>0)</u>				
	Preparation	Date: 10	/14/2013	11:05	Prep By:	Method	: SW5035					
Analyte		LCS	LCS	LCS	LCSD	LCSD	LCSD	RPD	RPD	Lower	Upper	
		Spike Added	Result	Percent Recovery	Spike Added	Result	Percent Recovery		Limit	Limit	Limit	
1,1,1-Trichloroetha	ane	50.0	55.2	110	50.0	54.1	108	2.0	17	52	153	
1,1,2,2-Tetrachloro	pethane	50.0	52.5	105	50.0	50.9	102	3.1	16	55	141	
1,1,2-Trichloroetha	ane	50.0	53.5	107	50.0	50.6	101	5.6	15	55	144	
1,1-Dichloroethane	9	50.0	54.3	109	50.0	52.2	104	4.0	18	53	148	
1,1-Dichloroethene	e	50.0	52.6	105	50.0	49.7	99.5	5.6	21	49	153	
1,2-Dibromoethane	e	50.0	54.5	109	50.0	52.6	105	3.4	12	55	145	
1,2-Dichloroethane	e	50.0	53.0	106	50.0	49.3	98.7	7.1	17	55	144	
2-Hexanone		125	126	101	125	122	97.9	2.9	21	45	148	
4-Methyl-2-pentanc	one	125	130	104	125	122	97.9	6.1	21	50	151	
Acetone		125	122	97.8	125	110	88.3	10.2	22	40	153	
Benzene		50.0	53.4	107	50.0	49.8	99.6	6.9	17	67	135	
Bromochlorometha	ane	50.0	52.7	105	50.0	51.7	103	2.1	17	50	147	
Bromoform		50.0	44.4	88.8	50.0	41.4	82.8	7.0	15	49	145	
Bromomethane		50.0	50.8	102	50.0	48.4	96.9	4.7	24	40	170	
Carbon disulfide		50.0	54.6	109	50.0	54.1	108	1.0	19	48	153	
Carbon tetrachloric	de	50.0	57.9	116	50.0	56.0	112	3.4	17	50	152	
Chlorobenzene		50.0	55.4	111	50.0	51.1	102	8.2	15	57	144	
Chloroethane		50.0	51.2	102	50.0	51.7	103	1.0	25	38	176	

Qualifiers: ND/U - Not Detected at the Reporting Limit

E - Estimated Value exceeds calibration curve

J - Estimated value between MDL and PQL

B - Analyte Detected In The Associated Method Blank

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

**MI** - Matrix Interference

D - Recovery Unreportable due to Dilution

\* - Recovery Outside Advisable QC Limits

TNTC - Too numerous to count

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

10/18/2013 9:35:36 AM



#### **Quality Control Report**

## ATC ASSOCIATES, INC.

					4	5.34341.6505						
Analysis:	Volatile	Organics N	lethod 826	60B					WorkOrder:	I	L00353	07
Method:	SW826	0B							Lab Batch ID	):	R32036	2
		Labora	tory Conti	rol Sample	/Laboratory	Control Sar	nple Duplica	te (LCS/LC	<u>SD)</u>			
		RunID:	н	B_131014A	-5250282	Units: ι	ıg/Kg					
		Analysis Da	ite: 1	0/14/2013	11:05	Analyst: S	SNV					
		Preparation	Date: 1	0/14/2013	11:05	Prep By:	Method:	SW5035				
	Analyte		LCS Spike Added	LCS Result	LCS Percent Recovery	LCSD Spike Added	LCSD Result	LCSD Percent Recovery	RPD	RPD Limit	Lower Limit	Upper Limit
Chloroform			50.0	52.0	104	50.0	50.0	99.9	4.0	18	53	147
Chloromethane			50.0	50.4	101	50.0	50.6	101	0.3	58	39	152
cis-1,3-Dichloro	propene		50.0	58.3	117	50.0	53.5	107	8.4	16	54	148
Dibromochlorom	nethane		50.0	52.5	105	50.0	49.0	97.9	6.9	15	54	146
Diisopropyl ethe	er		50.0	55.9	112	50.0	52.3	105	6.7	15	46	154
Ethylbenzene			50.0	57.4	115	50.0	53.1	106	7.8	16	69	136
Methyl tert-butyl	ether		50.0	53.9	108	50.0	53.0	106	5 1.7	53	61	142
Methylene chlor	ide		50.0	56.0	112	50.0	51.7	103	8.1	16	51	142
Naphthalene			50.0	55.3	111	50.0	52.1	104	6.1	24	58	147
Styrene			50.0	58.5	117	50.0	54.3	109	7.5	15	56	145
Tetrachloroethe	ne		50.0	58.2	116	50.0	55.1	110	5.5	17	54	156
Toluene			50.0	52.7	105	50.0	49.2	98.4	6.8	16	71	135
trans-1,3-Dichlo	propropene		50.0	58.5	117	50.0	56.9	114	2.8	15	53	151
Trichloroethene			50.0	52.4	105	50.0	49.1	98.1	6.5	16	56	151
Trichlorofluorom	nethane		50.0	46.7	93.3	50.0	47.6	95.2	2.0	19	36	171
Vinyl acetate			50.0	65.1	130	50.0	61.4	123	5.8	31	23	188
Vinyl chloride			50.0	47.8	95.6	50.0	47.5	95.0	0.6	20	42	155
cis-1,2-Dichloro	ethene		50.0	52.0	104	50.0	51.2	102	1.6	18	52	147
m,p-Xylene			100	116	116	100	108	108	7.3	16	70	140
o-Xylene			50.0	57.8	116	50.0	53.9	108	7.0	15	70	132
trans-1,2-Dichlo	proethene		50.0	53.9	108	50.0	53.3	107	1.1	21	51	152
Xylenes,Total			150.0	173.8	116.0	150.0	161.9	108.0	7.2	16	69	138
Surr: 1,2-Dicl	hloroethane-d	14	50.0	47.8	95.5	50.0	48.5	97.0	1.5	30	59	143
Surr: 4-Brom	ofluorobenzei	ne	50.0	49.8	99.6	50.0	49.8	99.6	0.0	30	38	183
Surr: Toluene	e-d8		50.0	50.4	101	50.0	49.9	99.7	1.0	30	52	159

Qualifiers: ND/U - Not Detected at the Reporting Limit

> E - Estimated Value exceeds calibration curve J - Estimated value between MDL and PQL

**MI** - Matrix Interference

D - Recovery Unreportable due to Dilution

\* - Recovery Outside Advisable QC Limits

B - Analyte Detected In The Associated Method Blank

N/C - Not Calculated - Sample concentration is greater than 4 times the amount of spike added. Control limits do not apply.

TNTC - Too numerous to count

QC results presented on the QC Summary Report have been rounded. RPD and percent recovery values calculated by the SPL LIMS system are derived from QC data prior to the application of rounding rules.

10/18/2013 9:35:37 AM

Sample Receipt Checklist, Acronym Report And Chain of Custody

Version 2.1 - Modified February 11, 2011

10/18/2013 9:35:37 AM



## Sample Receipt Checklist

Workorder:L0035307Date and Time Received:10/8/2013 9:45:00 AMTemperature:4°C		Received By: Carrier name: Chilled by:	TMJ FedEx-Pri 1 Day AM Water Ice					
1. Shipping container/cooler in good condition?	Yes 🔽	No 🗌	Not Present					
2. Custody seals intact on shippping container/cooler?	Yes 🔽	No 🗌	Not Present					
3. Custody seals intact on sample bottles?	Yes	No 🗌	Not Present					
4. Chain of custody present?	Yes 🔽	No 🗌						
5. Chain of custody signed when relinquished and received?	Yes 🔽	No 🗌						
6. Chain of custody agrees with sample labels?	Yes 🔽	No 🗌						
7. Samples in proper container/bottle?	Yes 🔽	No 🗌						
8. Sample containers intact?	Yes 🔽	No 🗌						
9. Sufficient sample volume for indicated test?	Yes 🔽	No 🗌						
<b>10.</b> All samples received within holding time?	Yes 🔽	No 🗌						
11. Container/Temp Blank temperature in compliance?	Yes 🔽	No 🗌						
<b>12.</b> Water - VOA vials have zero headspace?	Yes	No 🗌 🛛 VOA	Vials Not Present					
13. Water - Preservation checked upon receipt (except VOA*)?	Yes	No 🗌	Not Applicable					
*VOA Preservation Checked After Sample Analysis								
Accutest Representative: Client Name Contacted:	Accutest Representative: Contact Date & Time: Client Name Contacted:							
Non Conformance Issues:								



# Report Acronyms For WorkOrder L0035307

## Usage: Report Header Or Footer

Abbreviation	Description
%	Percent
% Rcvry	Percent Recovery
COC	Chain Of Custody
COC ID	Chain Of Custody Identifier Or Number
Dil. Factor	Dilution Factor
MCL	Maximum Contaminant Limit
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PDS	Post Digestion Spike
PDSD	Post Digestion Spike Duplicate
Prep	Preparation
Qual	Data Qualifier
Rep. Limit	Reporting Limit
RPD	Relative Percent Difference
Smp	Sample

## Usage: Units

Abbreviation	Description
ug/kg	micrograms per kilogram
ug/kg-dry	micrograms per kilogram dry
wt%	weight percent

PAGE	Bostle Order Control #	Accuration 235300	ested Analyses Matrix Codes	DW - Drinkking Water	GW - Ground Water WW - Water	SW - Surface water SO - Solf	SL-Sudge SED-Sediment	LIQ - Other Liquid AIR - AIR	SOL - Other Solid WP - Wipe	FB-Field Blank EB-Ereidpment Blank			LAB USE ONLY								Comments / Special Instructions	SCA-Stex	1.6.60	(A) CM				Receipted by J. Dhver (RG)	he: Received By:	applicable On Ice Saya [ and V
LSR-F005.00	FED-EX Tracking #	Accutest Quote #	an bau Bad ne						970	) <i>/</i> /	2.8		исоне висоне висоне			>						ARP CAR		3		C Summary	iC & Surrogate Summary   ession, including courier delivery.	Date Tity	Date Tim	Preserved where
N OF CUSTODY	Accutest Gulf Coast	dot Lanery Fkwy, Scun, LA 2000 237-4775 FAX: 337-237-7838	www.accutest.com		ers		Company Name	Street Address		City State 4	Attention		2b JEOH JEOH Meget Mos S2O¢ MOS S2O¢ MOS S2O¢ CJ CJ S2 S2 S2 S2 S2 S2 S2 S2 S2 S2 S2 S2 S2	Matrix bounds H Z N H H Z L Z L Z							Data Deliverable Information	Commercial "A" (Level 1)	Commercial "B" (Level 2) Commercial "B" (Level 2) C	REDT1 (Level 3+4)	Commercial "C" Commercial "A" = Results Only	Commercial "B" # Results + Of	Commercial "C" = Flesults + Q	Himemed Device savit mile samples of the	1 108 12 Relinquished By:	11/1/1/ Ogy 4
CHAL		TEL.337-		Project Name:	Williams atan	Street Street	USYS INVALENT 31 State	WIIMINUTON NC	UN SUSH, 0.505	Client Purchase Order #	Project Manager	ASMIEU UNIVITELUNIV Collection		Date Time Samped By	10/3/13 1745 5	1013/13 1800 KS						Approved By (Accutest PM); / Date:						Sample Custody must be doc	713 100 1 PN	RC RULTINDIA
				Client / Reporting Information	ompany Name	1.1 key and the second se	NULLES & WALLEROUK KU	ZULTION NL ZTUDY	roject Contact <sup>J</sup> E-mail	NTW VINTENTALD	414-871-04444 ampier(s) Name(s)	Kristen Speight		Field ID / Point of Collection	CR-9 0-2.5	CA-9 2.5" 5'						Turmaround Time (Business days)	5 Day RUSH		age 2 Day RUSH	• 02	D Emergency & Rush T/A data available VIA Labitnk	Reinquished by Sampler,	101 Where's brack 101	Lalo (D) / VO Lalo interference



Page 21 of 21