



October 28, 2015

P.N. 215021.01

Mr. Tom Frederick  
Executive Director  
Rivanna Solid Waste Authority  
695 Moores Creek Lane,  
Charlottesville, Virginia 22902

**RE: Post Retrofit Ambient Air Monitoring – Inactive Ivy Landfill  
August 2015 Monitoring Event**

Dear Mr. Frederick:

Resource International, Ltd. (Resource) is pleased to submit to the Rivanna Solid Waste Authority (RSWA) this report of findings for the 2015 ambient air quality monitoring event along the western perimeter boundary of the Inactive Ivy Landfill. These activities were performed pursuant to a 2000 Settlement Agreement between the RSWA and former plaintiffs.

## **SAMPLE COLLECTION METHODOLOGY AND CONDITIONS**

Per the terms of the Settlement Agreement, four sample collection stations were set-up near the western property boundary of the inactive Ivy Landfill. The locations of the sample collection stations are depicted on Figure 1.

The ambient air samples were collected using Summa canisters. "Summa" canister is a genericized trademark applicable to stainless steel electropolished (or "summa" polished) passivated vessels used to collect a whole air sample. To use, the summa canister valve is opened and the canister is left in a designated area for a period of time to allow the surrounding air to fill the canister and achieve a representative sample. By use of a flow controller, which is calibrated in the laboratory prior to field mobilization, the canister can be filled over an extended period (generally between 4 to 8 hours, depending on local conditions such as temperature and barometric pressure). Sample collection is monitored visually by observation of a pressure gauge, and once filled no more air can enter or exit the Summa canister. The valve is closed before the canister is sent to a laboratory for analysis.

Ambient air samples A2 through A4 were collected on August 25, 2015. A fourth ambient air sample (A1) was collected on September 1, 2015, after it was determined that the Summa canister used at location A1 on August 25 had a faulty valve. During ambient air monitoring, weather conditions were sunny with temperatures ranging from the upper 60s at the beginning of the monitoring period to the low 80s at the completion of the monitoring period. Weather conditions during the sampling events are summarized below:

Parameter	August 25, 2015	September 1, 2015
Temperature	63-85°F	63-90°F
Precipitation	0.00"	0.00"
Average Wind Speed	3.2	1.5
Wind Direction	S	NE
Relative Humidity	58	69
Skies	Clear	Clear

Weather conditions reported by National Weather Service Station in Charlottesville, Virginia

## SAMPLE ANALYSIS

The Summa canisters were delivered to Air, Water & Soil Laboratories, Inc. (AWS) under chain-of-custody. AWS is accredited under VELAP #43370. Each sample was analyzed using USEPA Modified Method TO-15 for the target list of compounds prescribed in the Settlement Agreement, shown below.

Compound Tested	Detection Limit	Risk Screening Level*
Naphthalene	1.0 µg/m <sup>3</sup>	830 µg/m <sup>3</sup>
1,4-dichlorobenzene	1.2 µg/m <sup>3</sup>	0.26 µg/m <sup>3**</sup>
Chloromethane	0.41 µg/m <sup>3</sup>	94 µg/m <sup>3</sup>
Vinyl chloride	0.51 µg/m <sup>3</sup>	0.17 µg/m <sup>3**</sup>
Chloroethane	0.53 µg/m <sup>3</sup>	10,000 µg/m <sup>3</sup>
1,1-dichloroethane	0.79 µg/m <sup>3</sup>	1.8 µg/m <sup>3</sup>
cis-1,2-Dichloroethene	0.79 µg/m <sup>3</sup>	na
Benzene	0.64 µg/m <sup>3</sup>	0.36 µg/m <sup>3**</sup>
Toluene	0.75 µg/m <sup>3</sup>	5200 µg/m <sup>3</sup>
Tetrachloroethene	1.4 µg/m <sup>3</sup>	11 µg/m <sup>3</sup>
Ethylbenzene	0.87 µg/m <sup>3</sup>	1.1 µg/m <sup>3</sup>
m&p-Xylene	1.7 µg/m <sup>3</sup>	100 µg/m <sup>3</sup>
o-Xylene	0.87 µg/m <sup>3</sup>	100 µg/m <sup>3</sup>
1,2,4-trimethylbenzene	0.98 µg/m <sup>3</sup>	7.3 µg/m <sup>3</sup>
p-isopropyl toluene (cymene)	µg/m <sup>3</sup>	na
1,1-dichloroethene	0.79 µg/m <sup>3</sup>	210 µg/m <sup>3</sup>
Dichloromethane (methylene chloride)	3.5 µg/m <sup>3</sup>	100 µg/m <sup>3</sup>
1,1,1-trichloroethane	1.1 µg/m <sup>3</sup>	5200 µg/m <sup>3</sup>
Trichloroethylene	1.1 µg/m <sup>3</sup>	0.48 µg/m <sup>3**</sup>
Dichlorodifluoromethane (Freon -2)	2.5 µg/m <sup>3</sup>	100 µg/m <sup>3</sup>

\*USEPA Regional Screening Level (June 2015) for Residential Air

As seen in the above table, the best available laboratory reporting limit is higher than the USEPA Regional Screening Level for 1,4-dichlorobenzene; vinyl chloride; benzene; and trichloroethylene (note, none of these compounds were detected during this sample event). The Virginia Department of Environmental Quality accepts the laboratory detection limit in place of a risk screening level when this occurs.

The Certificate of Analysis for the 2015 sample event is attached. The following compounds were detected in the samples:

Sample ID	Parameter	Result $\mu\text{g}/\text{m}^3$
A1	Chloromethane	0.81
A2	Chloromethane	1.0
A3	Chloromethane	1.1
A4	Chloromethane	1.1

$\mu\text{g}/\text{m}^3$  – micrograms per cubic meter

## DISCUSSION OF RESULTS

According to the USA EPA Air Toxics database, chloromethane is an organic compound that occurs both naturally and as a manufactured product. Manufactured chloromethane was once commonly used as a refrigerant before being replaced by freon and is still utilized in production of silicones.

The Agency for Toxic Substances and Disease Registry (ATSDR) states that chloromethane “also occurs naturally, and most of the chloromethane that is released to the environment (estimated at up to 99%) comes from natural sources. Chloromethane is always present in the air at very low levels. Most of the naturally occurring chloromethane comes from chemical reactions that occur in the oceans or from chemical reactions that occur when materials like grass, wood, charcoal, and coal are burned. It is also released to the air as a product of some plants or from rotting wood.”

## RISK EVALUATION

### *Risk Based Screening Levels – General Public*

The 2000 Settlement Agreement references the use of USPA Region III Risk Based Concentrations (RBC) for residential air as the appropriate comparative standard for the ambient air monitoring program at the landfill. However, in 2008, the USA Region III RBCs were replaced by the USEPA Regional Screening Levels (RSLs). Accordingly, the results obtained during this sampling event were compared to the latest USEPA RSL Table (June 2015). RSLs do not represent regulatory air quality standards or permit compliance requirements for the inactive Iyy Landfill. Rather, comparison of on-site data to RSL represents a risk screening tool. RSLs are derived by the USEPA to be protective of cancerous as well as non-cancer health habits due to chronic inhalation exposure modeled as 24 hours/day for 350 days/year over a lifetime.

The RSL for chloromethane in residential air is  $94 \mu\text{g}/\text{m}^3$ . The highest concentration of chloromethane found during ambient air monitoring is  $1.1 \mu\text{g}/\text{m}^3$  (samples A3 and A4).

### *Risk Based Screening Levels – On-Site Workers*

The Occupational Safety and Health Administration (OSHA) has derived permissible exposure limits (PEL) for workplace air. OSHA PELs used in this comparison are time-weighted average (TWA) concentrations for a conventional 8-hour workday and 40 hour workweek to which most workers may be repeatedly exposed. The OSHA PEL for chloromethane is 100 ppm. The conversion factor from

ppm to  $\mu\text{g}/\text{m}^3$  is  $1 \text{ ppm} = 2070 \mu\text{g}/\text{m}^3$ ; therefore, the OSHA PEL for chloromethane is  $207,000 \mu\text{g}/\text{m}^3$ . The highest concentration of chloromethane found during ambient air monitoring is  $1.1 \mu\text{g}/\text{m}^3$  (samples A3 and A4).

## SUMMARY AND CONCLUSION

2015 Ambient air monitoring at the inactive Ivy Landfill identified one compound, chloromethane, in each of the four samples collected. The detected chloromethane may be attributable to the landfill or occur naturally, or both. Comparison of detected chloromethane levels to USEPA RSL indicates ambient air concentrations of chloromethane are an order of magnitude below applicable risk based standards for residential air. Comparison of detected chloromethane levels to the OSHA PEL indicates ambient air concentrations of chloromethane are five orders of magnitude below applicable risk based standards for worker protection.

It is therefore reasonable to conclude that health risk to the general public or to on-site workers has not been identified during this ambient air monitoring event.

Resource appreciates this opportunity to be of service to the RSWA. Please do not hesitate to contact me if you have questions or comments.

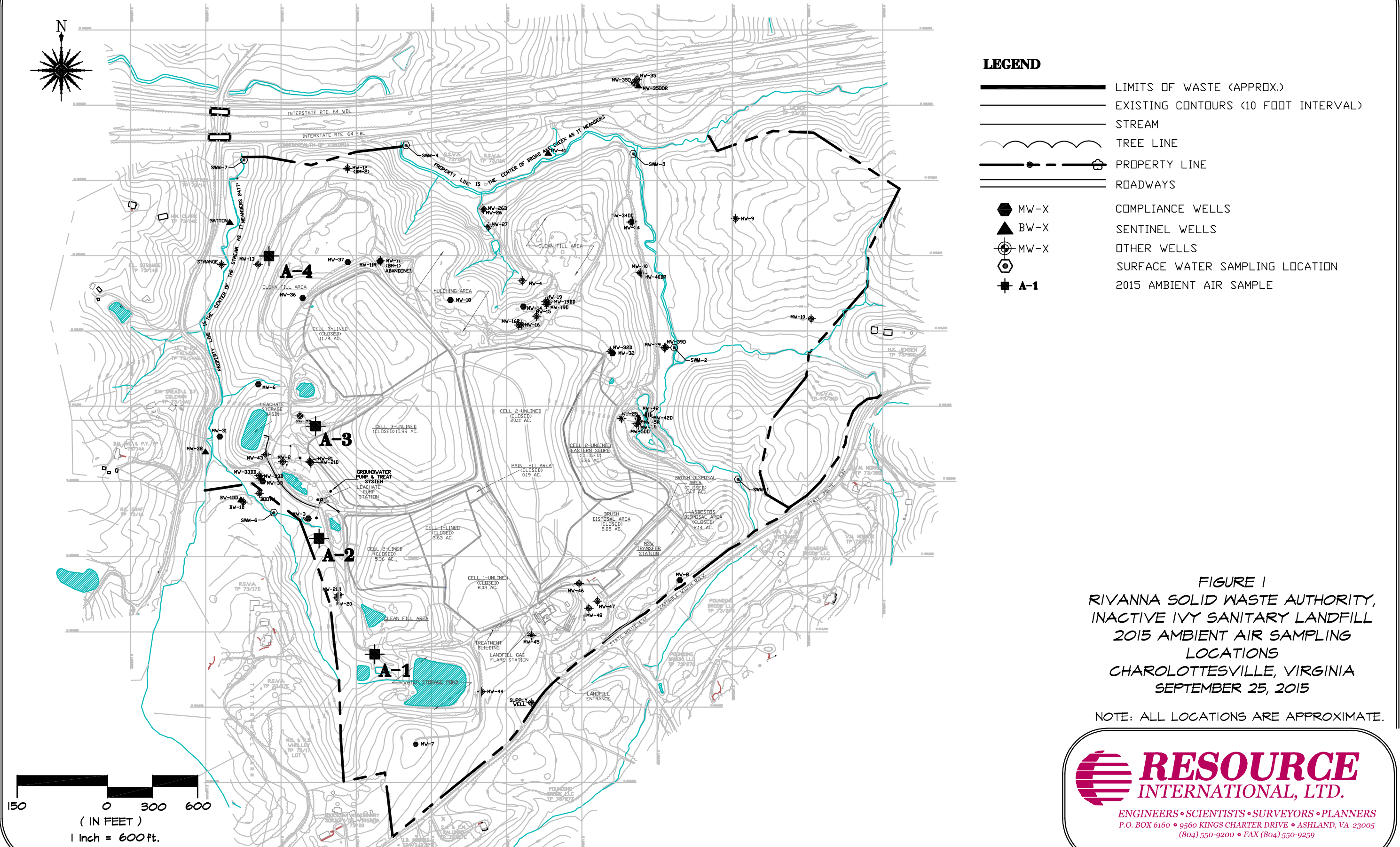
Sincerely,

A handwritten signature in blue ink, appearing to read "Anthony W. Creech".

Anthony W. Creech, P.G.  
Section Manager, Groundwater and Geology

/aw

Attachments – Sample Location Map  
Laboratory Certificate of Analysis







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## Certificate of Analysis

### *Final Report*

Laboratory Order ID 15H0551

Client Name: Resource International, Ltd.  
P.O. Box 6160  
Ashland, VA 23005

Date Received: August 26, 2015 13:40  
Date Issued: September 15, 2015 12:01  
Project Number: 215021.01  
Purchase Order:

Submitted To: Anthony Creech

Client Site I.D.: Rivanna

Enclosed are the results of analyses for samples received by the laboratory on 08/26/2015 13:40. If you have any questions concerning this report, please feel free to contact the laboratory.

Sincerely,

Mandy Mishra  
Quality Assurance Manager

#### End Notes:

The test results listed in this report relate only to the samples submitted to the laboratory and as received by the Laboratory.

Unless otherwise noted, the test results for solid materials are calculated on a wet weight basis. Analyses for pH, dissolved oxygen, temperature, residual chlorine and sulfite that are performed in the laboratory do not meet NELAC requirements due to extremely short holding times. These analyses should be performed in the field. The results of field analyses performed by the Sampler included in the Certificate of Analysis are done so at the client's request and are not included in the laboratory's fields of certification nor have they been audited for adherence to a reference method or procedure.

The signature on the final report certifies that these results conform to all applicable NELAC standards unless otherwise specified. For a complete list of the Laboratory's NELAC certified parameters please contact customer service.

This report shall not be reproduced except in full without the expressed and written approval of an authorized





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## Certificate of Analysis

### *Final Report*

Laboratory Order ID 15H0551

Client Name: Resource International, Ltd. Date Received: August 26, 2015 13:40  
P.O. Box 6160 Date Issued: September 15, 2015 12:01  
Ashland, VA 23005 Project Number: 215021.01  
Submitted To: Anthony Creech Purchase Order:  
Client Site I.D.: Rivanna

### ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
A4	15H0551-01	Air	08/25/2015 15:27	08/26/2015 13:40
A3	15H0551-02	Air	08/25/2015 15:13	08/26/2015 13:40
A2	15H0551-03	Air	08/25/2015 14:10	08/26/2015 13:40
A1	15H0551-04	Air	09/01/2015 15:36	08/26/2015 13:40

This Certificate of Analysis is being reissued on September 15, 2015 to amend the reported compound list per client request.



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## Certificate of Analysis

Final Report

Laboratory Order ID 15H0551

Client Name: Resource International, Ltd.  
P.O. Box 6160  
Ashland, VA 23005

Date Received: August 26, 2015 13:40  
Date Issued: September 15, 2015 12:01

Submitted To: Anthony Creech

Project Number: 215021.01

Client Site I.D.: Rivanna

Purchase Order:

### ANALYTICAL RESULTS

Project Location:

Sample Description/Location:

Field Sample #: A4

Sub Description/Location:

Sample ID: 15H0551-01

Sample Matrix: Air

Sampled: 8/25/2015 15:27

Flow Controller ID: 2660

Sample Type: Air

### EPA TO-15

Analyte	ppbv		Flag/Qual	Dilution	Prep Factor	Date/Time	
	Results	RL				Analyzed	Analyst
p-Cymene not observed	NA			1	1	9/9/15 14:48	MM
1,1,1-Trichloroethane	ND	0.20	ND	1.1	1	9/3/15 15:30	RJW
1,1-Dichloroethane	ND	0.20	ND	0.81	1	9/3/15 15:30	RJW
1,1-Dichloroethylene	ND	0.20	ND	0.79	1	9/3/15 15:30	RJW
1,2,4-Trimethylbenzene	ND	0.20	ND	0.98	1	9/3/15 15:30	RJW
1,4-Dichlorobenzene	ND	0.20	ND	1.2	1	9/3/15 15:30	RJW
Benzene	ND	0.20	ND	0.64	1	9/3/15 15:30	RJW
Chloroethane	ND	0.20	ND	0.53	1	9/3/15 15:30	RJW
Chloromethane	0.52	0.20	1.1	0.41	1	9/3/15 15:30	RJW
cis-1,2-Dichloroethylene	ND	0.20	ND	0.79	1	9/3/15 15:30	RJW
Dichlorodifluoromethane	ND	0.50	ND	2.5	1	9/3/15 15:30	RJW
Ethylbenzene	ND	0.20	ND	0.87	1	9/3/15 15:30	RJW
m+p-Xylenes	ND	0.40	ND	1.7	1	9/3/15 15:30	RJW
Methylene chloride	ND	1.00	ND	3.5	1	9/3/15 15:30	RJW
Naphthalene	ND	0.20	ND	1.0	1	9/3/15 15:30	RJW
o-Xylene	ND	0.20	ND	0.87	1	9/3/15 15:30	RJW
Tetrachloroethylene (PCE)	ND	0.20	ND	1.4	1	9/3/15 15:30	RJW
Toluene	ND	0.20	ND	0.75	1	9/3/15 15:30	RJW
Trichloroethylene	ND	0.20	ND	1.1	1	9/3/15 15:30	RJW
Vinyl chloride	ND	0.20	ND	0.51	1	9/3/15 15:30	RJW

Surrogates	% Recovery	% REC Limits	
4-Bromofluorobenzene	98.6	80-120	9/3/15 15:30





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## Certificate of Analysis

Final Report

Laboratory Order ID 15H0551

Client Name: Resource International, Ltd.  
P.O. Box 6160  
Ashland, VA 23005

Date Received: August 26, 2015 13:40  
Date Issued: September 15, 2015 12:01

Submitted To: Anthony Creech

Project Number: 215021.01

Client Site I.D.: Rivanna

Purchase Order:

### ANALYTICAL RESULTS

Project Location:

Sample Description/Location:

Field Sample #: A3

Sub Description/Location:

Sample ID: 15H0551-02

Sample Matrix: Air

Sampled: 8/25/2015 15:13

Flow Controller ID: 2664

Sample Type: Air

### EPA TO-15

Analyte	ppbv		Flag/Qual	Dilution	Prep Factor	Date/Time	
	Results	RL				Analyzed	Analyst
p-Cymene not observed	NA			1	1	9/9/15 14:48	MM
1,1,1-Trichloroethane	ND	0.20	ND	1.1	1	9/3/15 16:13	RJW
1,1-Dichloroethane	ND	0.20	ND	0.81	1	9/3/15 16:13	RJW
1,1-Dichloroethylene	ND	0.20	ND	0.79	1	9/3/15 16:13	RJW
1,2,4-Trimethylbenzene	ND	0.20	ND	0.98	1	9/3/15 16:13	RJW
1,4-Dichlorobenzene	ND	0.20	ND	1.2	1	9/3/15 16:13	RJW
Benzene	ND	0.20	ND	0.64	1	9/3/15 16:13	RJW
Chloroethane	ND	0.20	ND	0.53	1	9/3/15 16:13	RJW
Chloromethane	0.52	0.20	1.1	0.41	1	9/3/15 16:13	RJW
cis-1,2-Dichloroethylene	ND	0.20	ND	0.79	1	9/3/15 16:13	RJW
Dichlorodifluoromethane	ND	0.50	ND	2.5	1	9/3/15 16:13	RJW
Ethylbenzene	ND	0.20	ND	0.87	1	9/3/15 16:13	RJW
m+p-Xylenes	ND	0.40	ND	1.7	1	9/3/15 16:13	RJW
Methylene chloride	ND	1.00	ND	3.5	1	9/3/15 16:13	RJW
Naphthalene	ND	0.20	ND	1.0	1	9/3/15 16:13	RJW
o-Xylene	ND	0.20	ND	0.87	1	9/3/15 16:13	RJW
Tetrachloroethylene (PCE)	ND	0.20	ND	1.4	1	9/3/15 16:13	RJW
Toluene	ND	0.20	ND	0.75	1	9/3/15 16:13	RJW
Trichloroethylene	ND	0.20	ND	1.1	1	9/3/15 16:13	RJW
Vinyl chloride	ND	0.20	ND	0.51	1	9/3/15 16:13	RJW

Surrogates	% Recovery	% REC Limits	
4-Bromofluorobenzene	97.0	80-120	9/3/15 16:13



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## Certificate of Analysis

Final Report

Laboratory Order ID 15H0551

Client Name: Resource International, Ltd.  
P.O. Box 6160  
Ashland, VA 23005

Date Received: August 26, 2015 13:40  
Date Issued: September 15, 2015 12:01

Submitted To: Anthony Creech

Project Number: 215021.01

Client Site I.D.: Rivanna

Purchase Order:

### ANALYTICAL RESULTS

Project Location:

Sample Description/Location:

Field Sample #: A2

Sub Description/Location:

Sample ID: 15H0551-03

Sample Matrix: Air

Sampled: 8/25/2015 14:10

Flow Controller ID: 2677

Sample Type: Air

### EPA TO-15

Analyte	ppbv		Flag/Qual	Dilution	Prep Factor	Date/Time	
	Results	RL				Analyzed	Analyst
p-Cymene not observed	NA			1	1	9/9/15 14:48	MM
1,1,1-Trichloroethane	ND	0.20	ND	1.1	1	9/3/15 17:42	RJW
1,1-Dichloroethane	ND	0.20	ND	0.81	1	9/3/15 17:42	RJW
1,1-Dichloroethylene	ND	0.20	ND	0.79	1	9/3/15 17:42	RJW
1,2,4-Trimethylbenzene	ND	0.20	ND	0.98	1	9/3/15 17:42	RJW
1,4-Dichlorobenzene	ND	0.20	ND	1.2	1	9/3/15 17:42	RJW
Benzene	ND	0.20	ND	0.64	1	9/3/15 17:42	RJW
Chloroethane	ND	0.20	ND	0.53	1	9/3/15 17:42	RJW
Chloromethane	0.50	0.20	1.0	0.41	1	9/3/15 17:42	RJW
cis-1,2-Dichloroethylene	ND	0.20	ND	0.79	1	9/3/15 17:42	RJW
Dichlorodifluoromethane	ND	0.50	ND	2.5	1	9/3/15 17:42	RJW
Ethylbenzene	ND	0.20	ND	0.87	1	9/3/15 17:42	RJW
m+p-Xylenes	ND	0.40	ND	1.7	1	9/3/15 17:42	RJW
Methylene chloride	ND	1.00	ND	3.5	1	9/3/15 17:42	RJW
Naphthalene	ND	0.20	ND	1.0	1	9/3/15 17:42	RJW
o-Xylene	ND	0.20	ND	0.87	1	9/3/15 17:42	RJW
Tetrachloroethylene (PCE)	ND	0.20	ND	1.4	1	9/3/15 17:42	RJW
Toluene	ND	0.20	ND	0.75	1	9/3/15 17:42	RJW
Trichloroethylene	ND	0.20	ND	1.1	1	9/3/15 17:42	RJW
Vinyl chloride	ND	0.20	ND	0.51	1	9/3/15 17:42	RJW

Surrogates	% Recovery	% REC Limits	
4-Bromofluorobenzene	101	80-120	9/3/15 17:42



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## Certificate of Analysis

Final Report

Laboratory Order ID 15H0551

Client Name: Resource International, Ltd.  
P.O. Box 6160  
Ashland, VA 23005

Date Received: August 26, 2015 13:40  
Date Issued: September 15, 2015 12:01

Submitted To: Anthony Creech

Project Number: 215021.01

Client Site I.D.: Rivanna

Purchase Order:

### ANALYTICAL RESULTS

Project Location:

Sample Description/Location:

Field Sample #: A1

Sub Description/Location:

Sample ID: 15H0551-04

Sample Matrix: Air

Sampled: 9/1/2015 15:36

Flow Controller ID: 02709

Sample Type:

### EPA TO-15

Analyte	ppbv		Flag/Qual	Dilution	Prep Factor	Date/Time	
	Results	RL				Analyzed	Analyst
p-Cymene not observed	NA			1	1	9/9/15 14:48	MM
1,1,1-Trichloroethane	ND	0.20	ND	1.1	1	9/3/15 17:00	RJW
1,1-Dichloroethane	ND	0.20	ND	0.81	1	9/3/15 17:00	RJW
1,1-Dichloroethylene	ND	0.20	ND	0.79	1	9/3/15 17:00	RJW
1,2,4-Trimethylbenzene	ND	0.20	ND	0.98	1	9/3/15 17:00	RJW
1,4-Dichlorobenzene	ND	0.20	ND	1.2	1	9/3/15 17:00	RJW
Benzene	ND	0.20	ND	0.64	1	9/3/15 17:00	RJW
Chloroethane	ND	0.20	ND	0.53	1	9/3/15 17:00	RJW
Chloromethane	0.39	0.20	0.81	0.41	1	9/3/15 17:00	RJW
cis-1,2-Dichloroethylene	ND	0.20	ND	0.79	1	9/3/15 17:00	RJW
Dichlorodifluoromethane	ND	0.50	ND	2.5	1	9/3/15 17:00	RJW
Ethylbenzene	ND	0.20	ND	0.87	1	9/3/15 17:00	RJW
m+p-Xylenes	ND	0.40	ND	1.7	1	9/3/15 17:00	RJW
Methylene chloride	ND	1.00	ND	3.5	1	9/3/15 17:00	RJW
Naphthalene	ND	0.20	ND	1.0	1	9/3/15 17:00	RJW
o-Xylene	ND	0.20	ND	0.87	1	9/3/15 17:00	RJW
Tetrachloroethylene (PCE)	ND	0.20	ND	1.4	1	9/3/15 17:00	RJW
Toluene	ND	0.20	ND	0.75	1	9/3/15 17:00	RJW
Trichloroethylene	ND	0.20	ND	1.1	1	9/3/15 17:00	RJW
Vinyl chloride	ND	0.20	ND	0.51	1	9/3/15 17:00	RJW

Surrogates	% Recovery	% REC Limits	
4-Bromofluorobenzene	99.2	80-120	9/3/15 17:00



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## Certificate of Analysis

Final Report

Laboratory Order ID 15H0551

Client Name: Resource International, Ltd.  
P.O. Box 6160  
Ashland, VA 23005

Date Received: August 26, 2015 13:40  
Date Issued: September 15, 2015 12:01

Submitted To: Anthony Creech

Project Number: 215021.01

Client Site I.D.: Rivanna

Purchase Order:

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### Summary of Analytical QC Batches

QC Batch ID	Method	Sample List
	AWS	15H0551-01,15H0551-02,15H0551-03,15H0551-04
BYI0160	EPA TO-15	15H0551-01,15H0551-02,15H0551-03,15H0551-04



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### Volatile Organic Compounds by GCMS - Quality Control

#### Air Water and Soil Laboratories, Inc.

Analyte	Reporting		Spike	Source	%REC		RPD		Qual
	Result	Limit			%REC	Limits	RPD	Limit	

#### Batch BYI0160 - No Prep VOC

##### Blank (BYI0160-BLK1)

Prepared: 09/09/2015 Analyzed: 09/03/2015

1,1,1-Trichloroethane	<0.20 ppbv	0.20	ppbv
1,1,1,2-Tetrachloroethane	<0.20 ppbv	0.20	ppbv
1,1,2,2-Tetrachloroethane	<0.20 ppbv	0.20	ppbv
1,1,2-Trichloro-1,2,2-trifluoroethane	<0.20 ppbv	0.20	ppbv
1,1,2-Trichloroethane	<0.20 ppbv	0.20	ppbv
1,1-Dichloroethane	<0.20 ppbv	0.20	ppbv
1,1-Dichloroethylene	<0.20 ppbv	0.20	ppbv
1,2,4-Trimethylbenzene	<0.20 ppbv	0.20	ppbv
1,2-Dibromoethane (EDB)	<0.20 ppbv	0.20	ppbv
1,2-Dichlorobenzene	<0.20 ppbv	0.20	ppbv
1,2-Dichloroethane	<0.20 ppbv	0.20	ppbv
1,2-Dichloropropane	<0.20 ppbv	0.20	ppbv
1,2-Dichlorotetrafluoroethane	<0.20 ppbv	0.20	ppbv
1,3,5-Trimethylbenzene	<0.20 ppbv	0.20	ppbv
1,3-Butadiene	<0.20 ppbv	0.20	ppbv
1,3-Dichlorobenzene	<0.20 ppbv	0.20	ppbv
1,4-Dichlorobenzene	<0.20 ppbv	0.20	ppbv
1,4-Dioxane	<0.20 ppbv	0.20	ppbv
2-Butanone (MEK)	<0.20 ppbv	0.20	ppbv
4-Methyl-2-pentanone (MIBK)	<0.20 ppbv	0.20	ppbv
Acrolein	<0.20 ppbv	0.20	ppbv
Allyl chloride	<0.20 ppbv	0.20	ppbv
Benzene	<0.20 ppbv	0.20	ppbv
Benzyl Chloride	<0.20 ppbv	0.20	ppbv
Bromodichloromethane	<0.20 ppbv	0.20	ppbv
Bromoform	<0.20 ppbv	0.20	ppbv
Bromomethane	<0.20 ppbv	0.20	ppbv
Carbon Disulfide	<0.50 ppbv	0.50	ppbv
Carbon Tetrachloride	<0.20 ppbv	0.20	ppbv
Chlorobenzene	<0.20 ppbv	0.20	ppbv
Chloroethane	<0.20 ppbv	0.20	ppbv
Chloroform	<0.20 ppbv	0.20	ppbv
Chloromethane	<0.20 ppbv	0.20	ppbv
cis-1,2-Dichloroethylene	<0.20 ppbv	0.20	ppbv



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## Certificate of Analysis

Final Report

Laboratory Order ID 15H0551

Client Name: Resource International, Ltd.  
P.O. Box 6160  
Ashland, VA 23005

Date Received: August 26, 2015 13:40  
Date Issued: September 15, 2015 12:01

Submitted To: Anthony Creech

Project Number: 215021.01

Client Site I.D.: Rivanna

Purchase Order:

### Volatile Organic Compounds by GCMS - Quality Control

#### Air Water and Soil Laboratories, Inc.

Analyte	Reporting		Spike	Source	%REC		RPD		Qual
	Result	Limit	Units	Level	Result	%REC	Limits	RPD	
Batch BYI0160 - No Prep VOC									
Blank (BYI0160-BLK1)			Prepared: 09/09/2015 Analyzed: 09/03/2015						
cis-1,3-Dichloropropene	<0.20 ppbv	0.20	ppbv						
Cyclohexane	<0.20 ppbv	0.20	ppbv						
Dichlorodifluoromethane	<0.50 ppbv	0.50	ppbv						
Ethyl acetate	<0.20 ppbv	0.20	ppbv						
Ethylbenzene	<0.20 ppbv	0.20	ppbv						
Heptane	<0.20 ppbv	0.20	ppbv						
Hexane	<0.20 ppbv	0.20	ppbv						
Isopropylbenzene	<0.20 ppbv	0.20	ppbv						
m+p-Xylenes	<0.40 ppbv	0.40	ppbv						
Methyl methacrylate	<0.20 ppbv	0.20	ppbv						
Methylene chloride	<1.00 ppbv	1.00	ppbv						
Methyl-t-butyl ether (MTBE)	<0.20 ppbv	0.20	ppbv						
Naphthalene	<0.20 ppbv	0.20	ppbv						
o-Xylene	<0.20 ppbv	0.20	ppbv						
Propylene	<0.20 ppbv	0.20	ppbv						
Styrene	<0.20 ppbv	0.20	ppbv						
TBA	<0.50 ppbv	0.50	ppbv						
Tetrachloroethylene (PCE)	<0.20 ppbv	0.20	ppbv						
Tetrahydrofuran	<0.20 ppbv	0.20	ppbv						
Toluene	<0.20 ppbv	0.20	ppbv						
trans-1,2-Dichloroethylene	<0.20 ppbv	0.20	ppbv						
trans-1,3-Dichloropropene	<0.20 ppbv	0.20	ppbv						
Trichloroethylene	<0.20 ppbv	0.20	ppbv						
Trichlorofluoromethane	<0.20 ppbv	0.20	ppbv						
Vinyl acetate	<0.20 ppbv	0.20	ppbv						
Vinyl bromide	<0.20 ppbv	0.20	ppbv						
Vinyl chloride	<0.20 ppbv	0.20	ppbv						
Xylenes, Total	<0.60 ppbv	0.60	ppbv						
Surr: 4-Bromofluorobenzene	4.84		ppbv	5.00		96.8	80-120		





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## Certificate of Analysis

Final Report

Laboratory Order ID 15H0551

Client Name: Resource International, Ltd.  
P.O. Box 6160  
Ashland, VA 23005

Date Received: August 26, 2015 13:40  
Date Issued: September 15, 2015 12:01

Submitted To: Anthony Creech

Project Number: 215021.01

Client Site I.D.: Rivanna

Purchase Order:

### Volatile Organic Compounds by GCMS - Quality Control

#### Air Water and Soil Laboratories, Inc.

Analyte	Reporting		Spike	Source	%REC		RPD		Qual
	Result	Limit			%REC	Limits	RPD	Limit	

#### Batch BYI0160 - No Prep VOC

##### LCS (BYI0160-BS1)

Prepared & Analyzed: 09/03/2015

1,1,1-Trichloroethane	5.31 ppbv	0.2	ppbv	5.00	106	70-130			
1,1,1,2-Tetrachloroethane	4.07 ppbv	0.2	ppbv	5.00	81.4	70-130			
1,1,2,2-Tetrachloroethane	5.02 ppbv	0.2	ppbv	5.00	100	70-130			
1,1,2-Trichloro-1,2,2-trifluoroethane	5.07 ppbv	0.2	ppbv	5.00	101	70-130			
1,1,2-Trichloroethane	4.87 ppbv	0.2	ppbv	5.00	97.4	70-130			
1,1-Dichloroethane	4.97 ppbv	0.2	ppbv	5.00	99.4	70-130			
1,1-Dichloroethylene	4.97 ppbv	0.2	ppbv	5.00	99.4	70-130			
1,2,4-Trimethylbenzene	5.04 ppbv	0.2	ppbv	5.00	101	70-130			
1,2-Dibromoethane (EDB)	5.12 ppbv	0.2	ppbv	5.00	102	70-130			
1,2-Dichlorobenzene	5.13 ppbv	0.2	ppbv	5.00	103	70-130			
1,2-Dichloroethane	5.24 ppbv	0.2	ppbv	5.00	105	70-130			
1,2-Dichloropropane	4.92 ppbv	0.2	ppbv	5.00	98.4	70-130			
1,2-Dichlorotetrafluoroethane	4.72 ppbv	0.2	ppbv	5.00	94.4	70-130			
1,3,5-Trimethylbenzene	5.05 ppbv	0.2	ppbv	5.00	101	70-130			
1,3-Butadiene	4.93 ppbv	0.2	ppbv	5.00	98.6	70-130			
1,3-Dichlorobenzene	5.19 ppbv	0.2	ppbv	5.00	104	70-130			
1,4-Dichlorobenzene	5.22 ppbv	0.2	ppbv	5.00	104	70-130			
1,4-Dioxane	5.23 ppbv	0.2	ppbv	5.00	105	70-130			
2-Butanone (MEK)	4.83 ppbv	0.2	ppbv	5.00	96.6	70-130			
4-Methyl-2-pentanone (MIBK)	5.11 ppbv	0.2	ppbv	5.00	102	70-130			
Acrolein	5.42 ppbv	0.2	ppbv	5.00	108	70-130			
Allyl chloride	5.04 ppbv	0.2	ppbv	5.00	101	70-130			
Benzene	4.96 ppbv	0.2	ppbv	5.00	99.2	70-130			
Benzyl Chloride	5.22 ppbv	0.2	ppbv	5.00	104	70-130			
Bromodichloromethane	5.36 ppbv	0.2	ppbv	5.00	107	70-130			
Bromoform	5.46 ppbv	0.2	ppbv	5.00	109	70-130			
Bromomethane	4.66 ppbv	0.2	ppbv	5.00	93.2	70-130			
Carbon Disulfide	4.72 ppbv	0.5	ppbv	5.00	94.4	70-130			
Carbon Tetrachloride	5.45 ppbv	0.2	ppbv	5.00	109	70-130			
Chlorobenzene	4.95 ppbv	0.2	ppbv	5.00	99.0	70-130			
Chloroethane	4.58 ppbv	0.2	ppbv	5.00	91.6	70-130			
Chloroform	5.15 ppbv	0.2	ppbv	5.00	103	70-130			
Chloromethane	4.81 ppbv	0.2	ppbv	5.00	96.2	70-130			
cis-1,2-Dichloroethylene	4.98 ppbv	0.2	ppbv	5.00	99.6	70-130			
cis-1,3-Dichloropropene	5.16 ppbv	0.2	ppbv	5.00	103	70-130			
Cyclohexane	4.86 ppbv	0.2	ppbv	5.00	97.2	70-130			



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## Certificate of Analysis

Final Report

Laboratory Order ID 15H0551

Client Name: Resource International, Ltd.  
P.O. Box 6160  
Ashland, VA 23005

Date Received: August 26, 2015 13:40  
Date Issued: September 15, 2015 12:01

Submitted To: Anthony Creech

Project Number: 215021.01

Client Site I.D.: Rivanna

Purchase Order:

### Volatile Organic Compounds by GCMS - Quality Control

#### Air Water and Soil Laboratories, Inc.

Analyte	Reporting		Spike	Source	%REC		RPD		Qual
	Result	Limit			%REC	Limits	RPD	Limit	

#### Batch BYI0160 - No Prep VOC

##### LCS (BYI0160-BS1)

Prepared & Analyzed: 09/03/2015

Dichlorodifluoromethane	5.24 ppbv	0.5	ppbv	5.00	105	70-130			
Ethyl acetate	4.78 ppbv	0.2	ppbv	5.00	95.6	70-130			
Ethylbenzene	5.01 ppbv	0.2	ppbv	5.00	100	70-130			
Heptane	5.37 ppbv	0.2	ppbv	5.00	107	70-130			
Hexane	4.98 ppbv	0.2	ppbv	5.00	99.6	70-130			
Isopropylbenzene	5.12 ppbv	0.2	ppbv	5.00	102	70-130			
m+p-Xylenes	10.2 ppbv	0.4	ppbv	10.0	102	70-130			
Methyl methacrylate	4.94 ppbv	0.2	ppbv	5.00	98.8	70-130			
Methylene chloride	4.89 ppbv	1	ppbv	5.00	97.8	70-130			
Methyl-t-butyl ether (MTBE)	4.88 ppbv	0.2	ppbv	5.00	97.6	70-130			
Naphthalene	0.90 ppbv	0.2	ppbv	1.25	72.0	60-140			
o-Xylene	4.98 ppbv	0.2	ppbv	5.00	99.6	70-130			
Propylene	5.20 ppbv	0.2	ppbv	5.00	104	70-130			
Styrene	5.16 ppbv	0.2	ppbv	5.00	103	70-130			
TBA	4.90 ppbv	0.5	ppbv	5.00	98.0	70-130			
Tetrachloroethylene (PCE)	5.01 ppbv	0.2	ppbv	5.00	100	70-130			
Tetrahydrofuran	5.79 ppbv	0.2	ppbv	5.00	116	70-130			
Toluene	5.07 ppbv	0.2	ppbv	5.00	101	70-130			
trans-1,2-Dichloroethylene	5.01 ppbv	0.2	ppbv	5.00	100	70-130			
trans-1,3-Dichloropropene	5.02 ppbv	0.2	ppbv	5.00	100	70-130			
Trichloroethylene	5.59 ppbv	0.2	ppbv	5.00	112	70-130			
Trichlorofluoromethane	5.00 ppbv	0.2	ppbv	5.00	100	70-130			
Vinyl acetate	5.28 ppbv	0.2	ppbv	5.00	106	70-130			
Vinyl bromide	5.14 ppbv	0.2	ppbv	5.00	103	70-130			
Vinyl chloride	4.69 ppbv	0.2	ppbv	5.00	93.8	70-130			
Xylenes, Total	15.2 ppbv	0.60	ppbv			70-130			
Surr: 4-Bromofluorobenzene	5.11		ppbv	5.00	102	70-130			



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## Certificate of Analysis

Final Report

Laboratory Order ID 15H0551

Client Name: Resource International, Ltd.  
P.O. Box 6160  
Ashland, VA 23005

Date Received: August 26, 2015 13:40  
Date Issued: September 15, 2015 12:01

Submitted To: Anthony Creech

Project Number: 215021.01

Client Site I.D.: Rivanna

Purchase Order:

### Volatile Organic Compounds by GCMS - Quality Control

#### Air Water and Soil Laboratories, Inc.

Analyte	Reporting			Spike Level	Source Result	%REC		RPD		Qual
	Result	Limit	Units			%REC	Limits	RPD	Limit	
Batch BYI0160 - No Prep VOC										
LCS Dup (BYI0160-BSD1)					Prepared & Analyzed: 09/03/2015					
1,1,1-Trichloroethane	5.24 ppbv	0.2	ppbv	5.00		105	70-130	1.33	25	
1,1,1,2-Tetrachloroethane	4.14 ppbv	0.2	ppbv	5.00		82.8	70-130	1.71	25	
1,1,2,2-Tetrachloroethane	5.10 ppbv	0.2	ppbv	5.00		102	70-130	1.58	25	
1,1,2-Trichloro-1,2,2-trifluoroethane	5.11 ppbv	0.2	ppbv	5.00		102	70-130	0.786	25	
1,1,2-Trichloroethane	4.83 ppbv	0.2	ppbv	5.00		96.6	70-130	0.825	25	
1,1-Dichloroethane	4.97 ppbv	0.2	ppbv	5.00		99.4	70-130	0.00	25	
1,1-Dichloroethylene	4.97 ppbv	0.2	ppbv	5.00		99.4	70-130	0.00	25	
1,2,4-Trimethylbenzene	5.12 ppbv	0.2	ppbv	5.00		102	70-130	1.57	25	
1,2-Dibromoethane (EDB)	5.25 ppbv	0.2	ppbv	5.00		105	70-130	2.51	25	
1,2-Dichlorobenzene	5.24 ppbv	0.2	ppbv	5.00		105	70-130	2.12	25	
1,2-Dichloroethane	5.20 ppbv	0.2	ppbv	5.00		104	70-130	0.766	25	
1,2-Dichloropropane	4.94 ppbv	0.2	ppbv	5.00		98.8	70-130	0.406	25	
1,2-Dichlorotetrafluoroethane	4.83 ppbv	0.2	ppbv	5.00		96.6	70-130	2.30	25	
1,3,5-Trimethylbenzene	5.22 ppbv	0.2	ppbv	5.00		104	70-130	3.31	25	
1,3-Butadiene	4.79 ppbv	0.2	ppbv	5.00		95.8	70-130	2.88	25	
1,3-Dichlorobenzene	5.20 ppbv	0.2	ppbv	5.00		104	70-130	0.192	25	
1,4-Dichlorobenzene	5.36 ppbv	0.2	ppbv	5.00		107	70-130	2.65	25	
1,4-Dioxane	5.41 ppbv	0.2	ppbv	5.00		108	70-130	3.38	25	
2-Butanone (MEK)	4.85 ppbv	0.2	ppbv	5.00		97.0	70-130	0.413	25	
4-Methyl-2-pentanone (MIBK)	5.06 ppbv	0.2	ppbv	5.00		101	70-130	0.983	25	
Acrolein	5.49 ppbv	0.2	ppbv	5.00		110	70-130	1.28	25	
Allyl chloride	5.16 ppbv	0.2	ppbv	5.00		103	70-130	2.35	25	
Benzene	4.93 ppbv	0.2	ppbv	5.00		98.6	70-130	0.607	25	
Benzyl Chloride	5.40 ppbv	0.2	ppbv	5.00		108	70-130	3.39	25	
Bromodichloromethane	5.25 ppbv	0.2	ppbv	5.00		105	70-130	2.07	25	
Bromoform	5.51 ppbv	0.2	ppbv	5.00		110	70-130	0.912	25	
Bromomethane	4.69 ppbv	0.2	ppbv	5.00		93.8	70-130	0.642	25	
Carbon Disulfide	4.80 ppbv	0.5	ppbv	5.00		96.0	70-130	1.68	25	
Carbon Tetrachloride	5.33 ppbv	0.2	ppbv	5.00		107	70-130	2.23	25	
Chlorobenzene	5.04 ppbv	0.2	ppbv	5.00		101	70-130	1.80	25	
Chloroethane	4.60 ppbv	0.2	ppbv	5.00		92.0	70-130	0.436	25	
Chloroform	5.20 ppbv	0.2	ppbv	5.00		104	70-130	0.966	25	
Chloromethane	4.82 ppbv	0.2	ppbv	5.00		96.4	70-130	0.208	25	
cis-1,2-Dichloroethylene	4.97 ppbv	0.2	ppbv	5.00		99.4	70-130	0.201	25	
cis-1,3-Dichloropropene	5.09 ppbv	0.2	ppbv	5.00		102	70-130	1.37	25	
Cyclohexane	4.81 ppbv	0.2	ppbv	5.00		96.2	70-130	1.03	25	



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## Certificate of Analysis

Final Report

Laboratory Order ID 15H0551

Client Name: Resource International, Ltd.  
P.O. Box 6160  
Ashland, VA 23005

Date Received: August 26, 2015 13:40  
Date Issued: September 15, 2015 12:01

Submitted To: Anthony Creech

Project Number: 215021.01

Client Site I.D.: Rivanna

Purchase Order:

### Volatile Organic Compounds by GCMS - Quality Control

#### Air Water and Soil Laboratories, Inc.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	Limits	RPD	RPD Limit	Qual
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#### Batch BYI0160 - No Prep VOC

##### LCS Dup (BYI0160-BSD1)

Prepared & Analyzed: 09/03/2015

Dichlorodifluoromethane	5.24 ppbv	0.5	ppbv	5.00	105	70-130	0.00	25		
Ethyl acetate	5.09 ppbv	0.2	ppbv	5.00	102	70-130	6.28	25		
Ethylbenzene	5.08 ppbv	0.2	ppbv	5.00	102	70-130	1.39	25		
Heptane	5.31 ppbv	0.2	ppbv	5.00	106	70-130	1.12	25		
Hexane	5.05 ppbv	0.2	ppbv	5.00	101	70-130	1.40	25		
Isopropylbenzene	5.30 ppbv	0.2	ppbv	5.00	106	70-130	3.45	25		
m+p-Xylenes	10.3 ppbv	0.4	ppbv	10.0	103	70-130	1.36	25		
Methyl methacrylate	4.96 ppbv	0.2	ppbv	5.00	99.2	70-130	0.404	25		
Methylene chloride	4.80 ppbv	1	ppbv	5.00	96.0	70-130	1.86	25		
Methyl-t-butyl ether (MTBE)	4.91 ppbv	0.2	ppbv	5.00	98.2	70-130	0.613	25		
Naphthalene	0.96 ppbv	0.2	ppbv	1.25	76.8	60-140	6.45	25		
o-Xylene	5.11 ppbv	0.2	ppbv	5.00	102	70-130	2.58	25		
Propylene	5.21 ppbv	0.2	ppbv	5.00	104	70-130	0.192	25		
Styrene	5.28 ppbv	0.2	ppbv	5.00	106	70-130	2.30	25		
TBA	4.98 ppbv	0.5	ppbv	5.00	99.6	70-130	1.62	25		
Tetrachloroethylene (PCE)	5.10 ppbv	0.2	ppbv	5.00	102	70-130	1.78	25		
Tetrahydrofuran	5.68 ppbv	0.2	ppbv	5.00	114	70-130	1.92	25		
Toluene	5.00 ppbv	0.2	ppbv	5.00	100	70-130	1.39	25		
trans-1,2-Dichloroethylene	5.00 ppbv	0.2	ppbv	5.00	100	70-130	0.200	25		
trans-1,3-Dichloropropene	4.95 ppbv	0.2	ppbv	5.00	99.0	70-130	1.40	25		
Trichloroethylene	5.57 ppbv	0.2	ppbv	5.00	111	70-130	0.358	25		
Trichlorofluoromethane	5.00 ppbv	0.2	ppbv	5.00	100	70-130	0.00	25		
Vinyl acetate	5.28 ppbv	0.2	ppbv	5.00	106	70-130	0.00	25		
Vinyl bromide	5.19 ppbv	0.2	ppbv	5.00	104	70-130	0.968	25		
Vinyl chloride	4.75 ppbv	0.2	ppbv	5.00	95.0	70-130	1.27	25		
Xylenes, Total	15.4 ppbv	0.60	ppbv			70-130	1.76	25		
Surr: 4-Bromofluorobenzene	5.23		ppbv	5.00	105	70-130				



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## Certificate of Analysis

Final Report

Laboratory Order ID 15H0551

Client Name: Resource International, Ltd.  
P.O. Box 6160  
Ashland, VA 23005

Date Received: August 26, 2015 13:40  
Date Issued: September 15, 2015 12:01

Submitted To: Anthony Creech

Project Number: 215021.01

Client Site I.D.: Rivanna

Purchase Order:

### Certified Analyses included in this Report

Analyte	Certifications
<b>EPA TO-15 in Air</b>	
1,1,1-Trichloroethane	VELAP
1,1-Dichloroethane	VELAP
1,1-Dichloroethylene	VELAP
1,2,4-Trimethylbenzene	VELAP
1,4-Dichlorobenzene	VELAP
Benzene	VELAP
Chloroethane	VELAP
Chloromethane	VELAP
cis-1,2-Dichloroethylene	VELAP
Dichlorodifluoromethane	VELAP
Ethylbenzene	VELAP
m+p-Xylenes	VELAP
Methylene chloride	VELAP
Naphthalene	VELAP
o-Xylene	VELAP
Tetrachloroethylene (PCE)	VELAP
Toluene	VELAP
Trichloroethylene	VELAP
Vinyl chloride	VELAP

Code	Description	Cert Number	Expires
MdDOE	Maryland DE Drinking Water	341	12/31/2015
NC	North Carolina DENR	495	12/31/2015
PADEP	NELAC-Pennsylvania	001	10/31/2015
VELAP Certificate #4337	NELAC-Virginia Certificate #7958	460021	06/15/2016
WVDEP	West Virginia DEP	350	11/30/2015



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## Certificate of Analysis

Final Report

Laboratory Order ID 15H0551

Client Name: Resource International, Ltd.  
P.O. Box 6160  
Ashland, VA 23005

Date Received: August 26, 2015 13:40  
Date Issued: September 15, 2015 12:01

Submitted To: Anthony Creech

Project Number: 215021.01

Client Site I.D.: Rivanna

Purchase Order:

### Qualifiers and Definitions

TextValue NA

RPD Relative Percent Difference

Qual Qualifiers

-RE Denotes sample was re-analyzed



## AIR ANALYSIS CHAIN OF CUSTODY

1 1

COMPANY NAME: <u>Resource Int'l. Ltd</u>	INVOICE TO:	PROJECT NAME/Quote #: <u>Clean Source Batch</u>
CONTACT: <u>Anthony Creech &amp; Ashley Elliott</u>	INVOICE CONTACT: <u>A. Creech &amp; A. Elliott</u>	SITE NAME: <u>Rivanna</u>
ADDRESS:	INVOICE ADDRESS:	PROJECT NUMBER: <u>215021.01</u>
PHONE #:	INVOICE PHONE #:	P.O. #:
FAX #:	EMAIL: <u>aelliott@resourceintl.com</u>	

SAMPLER NAME (PRINT): <u>Ashley Elliott</u>	SAMPLER SIGNATURE: <u>A. Elliott</u>	Turn Around Time: <u>NORMAL</u> Day(s)
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Matrix Codes: AA=Indoor/Ambient Air SG=Soil Gas LV=Landfill/Vent Gas OT=Other

CLIENT SAMPLE I.D.		Regulator Info		Canister Information					Sampling Start Information				Sampling Stop Information				Matrix (See Codes)	ANALYSIS		
		Flow Controller ID	Cal Flow (mL/min)	Canister ID	Size (L)	Cleaning Batch ID	Outgoing Canister Pressure (in Hg)/ Temp (°F)	LAB USE	Barometric Pres. (in Hg):			Barometric Pres. (in Hg):								
								ONLY Receiving Canister Pressure (in Hg)/ Temp	Start Date	Start Time (24hr clock)	Initial Canister Pressure (in Hg)	Starting Sample Temp °F	Stop Date	Stop Time (24hr clock)	Final Canister Pressure (in Hg)	Ending Sample Temp °F				
1)	A4	#2660	8HR	#18318	6	150817-01	-30	4" <sub>kgw</sub>	8/25/15	0850	-18 -30	64	8/25/15	1527	2	85	AA	✓		
2)	A3	#2664	8HR	#18324	6	150817-01	-30	4" <sub>kgw</sub>	8/25/15	0839	-30	64	8/25/15	15:13	0	85	AA	✓		
3)	A2	#2677	8HR	#H2770	6	150817-02	-30	2" <sub>kgw</sub>	8/25/15	0832	-29	64	8/25/15	14:10	0	84	AA	✓		
4)	A1	#2700	8HR	#18325	6	150817-02	-30	re-sample		8/25/15	0829	-18	64	8/25/15	14:05	0	84	AA	✓	

RELINQUISHED: <u>A. Elliott</u>	DATE / TIME: <u>8/26/15 11:40</u>	RECEIVED: <u>[Signature]</u>	DATE / TIME: <u>20 Aug 2015 1340</u>	QC Data Package	LAB USE ONLY
RELINQUISHED:	DATE / TIME:	RECEIVED:	DATE / TIME:	Level I <input type="checkbox"/>	<b>RIL</b> <b>Rivanna (TO-15)</b> <b>Recd: 08/26/2015 Due: 09/02/2015</b> <small>v130325002</small>
RELINQUISHED:	DATE / TIME:	RECEIVED:	DATE / TIME:	Level II <input type="checkbox"/>	
RELINQUISHED:	DATE / TIME:	RECEIVED:	DATE / TIME:	Level III <input type="checkbox"/>	
RELINQUISHED:	DATE / TIME:	RECEIVED:	DATE / TIME:	Level IV <input type="checkbox"/>	





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### Sample Conditions Checklist

Opened by: (Initials)

*BR*

Lab ID No.:

15H0551

Date Cooler Opened:

*8/27/15*

1. How were samples received?

Fed Ex ☐  
UPS ☐  
Courier ☐  
Walk In ☒

**YES NO N/A**

2. Were custody seals used?

☐ ☒ ☐

3. If yes, are custody seals unbroken and intact at the date and time of arrival?

☐ ☐ ☒

4. Are the custody papers filled out completely and correctly?

☒ ☐ ☐

5. Do all bottle labels agree with custody papers?

☒ ☐ ☐

7. Is the temperature blank or representative sample within acceptable limits?  
(above freezing to 6°C)

☐ ☐ ☒

8. If NO, are the samples just taken and received on ice?

☐ ☐ ☒

9. Are all samples within holding time for requested laboratory tests?

☒ ☐ ☐

10. Is a sufficient amount of sample provided to perform the tests indicated?

☒ ☐ ☐

11. Are all samples in proper containers for the analyses requested?

☒ ☐ ☐

12. Are all samples appropriately preserved for the analyses requested?

☒ ☐ ☐

13. Are all volatile organic containers free of headspace?

☐ ☐ ☒

14. Are all TOX containers free of headspace?

☐ ☐ ☒

15. Is Trip blank provided with each VOC sample set? Circle applicable method:  
(Document if trip blank is not received with the sample set)

☐ ☐ ☒

EPA 8011

EPA 504

EPA 8260

EPA 624

RSK-175

EPA 8015 (GRO)

EPA 8021

EPA 524

\*GRO Wisconsin DNR (water and/or methanol trip blank must be provided)

\* See preservation log for Wisconsin soil DRO.

#### COMMENTS

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#### FOR LAB USE ONLY:

CrVI preserved date/time: \_\_\_\_\_

Buffer Sol'n ID: \_\_\_\_\_

Analyst initials: \_\_\_\_\_

1N NaOH ID: \_\_\_\_\_ or

5N NaOH ID: \_\_\_\_\_

THIS DOCUMENT IS UNCONTROLLED WHEN PRINTED  
F1302 Sample Condition 6\_0.xls



## AIR ANALYSIS CHAIN OF CUSTODY

1 1

COMPANY NAME: <u>Resource Intl. Ltd.</u>	INVOICE TO:	PROJECT NAME/Quote #: <u>Clean Source Batch - Regu</u>
CONTACT: <u>Ashley Elliott</u>	INVOICE CONTACT: <u>Ashley Elliott</u>	SITE NAME: <u>Ruanna</u>
ADDRESS:	INVOICE ADDRESS:	PROJECT NUMBER: <u>215022.01</u>
PHONE #:	INVOICE PHONE #:	P.O. #:
FAX #:	EMAIL: <u>ae Elliott@resourceintl.com</u>	

SAMPLER NAME (PRINT): <u>Ashley Elliott</u>	SAMPLER SIGNATURE: <u>A Elliott</u>	Turn Around Time: <u>Normal</u> Day(s)
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Matrix Codes: AA=Indoor/Ambient Air SG=Soil Gas LV=Landfill/Vent Gas OT=Other

CLIENT SAMPLE I.D.		Regulator Info		Canister Information				Sampling Start Information				Sampling Stop Information				Matrix (See Codes)	ANALYSIS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
		Flow Controller ID	Cal Flow (mL/min)	Canister ID	Size (L)	Cleaning Batch ID	Outgoing Canister Pressure (in Hg)/ Temp (°F)	LAB USE ONLY Receiving Canister Pressure (in Hg)/ Temp	Barometric Pres. (in Hg): 30.01		Barometric Pres. (in Hg): 30.03 29.97		Initial Canister Pressure (in Hg)	Starting Sample Temp °F	Stop Date						Stop Time (24hr clock)	Final Canister Pressure (in Hg)	Ending Sample Temp °F																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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1)	A1	Serial #: 02709	8HR	B172 #48322	6	150727-01	-30	-7.11 Regu	9/1/15	0843	-30	71	9/1/15	1536	-5	91	AA	✓																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																															</

RELINQUISHED: <u>A Elliott</u>	DATE / TIME: <u>9/2/15 0934</u>	RECEIVED: <u>B. Smith</u>	DATE / TIME: <u>9/2/15 934</u>	QC Data Package	LAB USE ONLY
RELINQUISHED:	DATE / TIME:	RECEIVED:	DATE / TIME:	Level I <input type="checkbox"/>	
RELINQUISHED:	DATE / TIME:	RECEIVED:	DATE / TIME:	Level II <input type="checkbox"/>	
RELINQUISHED:	DATE / TIME:	RECEIVED:	DATE / TIME:	Level III <input type="checkbox"/>	
RELINQUISHED:	DATE / TIME:	RECEIVED:	DATE / TIME:	Level IV <input type="checkbox"/>	

**RIL**  
**RSWA Inactive Ivy Landfill (TO15)**  
**Recd: 08/26/2015 Due: 09/09/2015**

15H0551

15H0551

v130325002





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### Sample Conditions Checklist

Opened by: (Initials)

Lab ID No.:

Date Cooler Opened:

15H0551

RIL

RSWA Inactive Ivy Landfill (TO15)

Recd: 08/26/2015 Due: 09/09/2015

v130325002

1. How were samples received?

Fed Ex ☐  
UPS ☐  
Courier ☐  
Walk In ☒

2. Were custody seals used?

3. If yes, are custody seals unbroken and intact at the date and time of arrival?

4. Are the custody papers filled out completely and correctly?

5. Do all bottle labels agree with custody papers?

7. Is the temperature blank or representative sample within acceptable limits?  
(above freezing to 6°C)

8. If NO, are the samples just taken and received on ice?

9. Are all samples within holding time for requested laboratory tests?

10. Is a sufficient amount of sample provided to perform the tests indicated?

11. Are all samples in proper containers for the analyses requested?

12. Are all samples appropriately preserved for the analyses requested?

13. Are all volatile organic containers free of headspace?

14. Are all TOX containers free of headspace?

15. Is Trip blank provided with each VOC sample set? Circle applicable method:  
(Document if trip blank is not received with the sample set)

YES NO N/A

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EPA 8011

EPA 504

EPA 8260

EPA 624

RSK-175

EPA 8015 (GRO)

EPA 8021

EPA 524

\*GRO Wisconsin DNR (water and/or methanol trip blank must be provided)

\* See preservation log for Wisconsin soil DRO.

#### COMMENTS

Per Ashley Elliott, sample to be logged under LID 1540551; LID to be due 9/9/15 (JTV) 9/2/15

#### FOR LAB USE ONLY:

CrVI preserved date/time: \_\_\_\_\_

Buffer Sol'n ID: \_\_\_\_\_

1N NaOH ID: \_\_\_\_\_ or

Analyst initials: \_\_\_\_\_

5N NaOH ID: \_\_\_\_\_

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