GZA
GeoEnvironmental, Inc.

Engineers and
Scientists

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Via E-Mail and U.S. Mail

Mr. Joseph Martella
Rhode Island Department of Environmental Management
Office of Waste Management
235 Promenade Street
Providence, Rhode Island 02908

530 Broadway
Providence
Rhode Island
02909
401-421-4140
Fax 401-751-8613
http://www.gza.com

Re: Summary of Soil Gas Sampling – SG-105S
Former Tidewater Facility
Pawtucket, Rhode Island

Dear Mr. Martella:

On behalf of the Narragansett Electric Company d/b/a National Grid (National Grid), GZA GeoEnvironmental, Inc. (GZA) is pleased to provide the Rhode Island Department of Environmental Management (RIDEM) with a summary of the recent limited soil gas sampling completed at the Former Tidewater Manufactured Gas Plant (MGP) and Power Plant Site located in Pawtucket, Rhode Island (the Site).

This letter report is subject to the limitations included in Attachment A.

BACKGROUND

In early 2013, in response to public comments regarding the potential for vapor migration from the Tidewater Site towards neighboring properties, RIDEM requested that National Grid evaluate the quality of soil gas at the Tidewater Site. Between July and August 2013, GZA completed soil gas sampling and testing at the Site consistent with the RIDEM-approved May 2013 *Supplemental Site Investigation Work Plan (SSIWP)*. The results of this soil gas sampling and testing were submitted to RIDEM in an October 2013 *Site Investigation Report (SIR) Addendum.* Soil gas samples were collected from both interior and perimeter locations to assess the quality of soil gas at the Tidewater Site and near neighboring properties. The results indicated that potential migration of impacted soil gas from the Tidewater Site does not pose a risk to the neighboring properties and structures.

As described in the October 2013 *SIR Addendum*, benzene was detected in the shallow soil gas sample identified as SG-105S, collected at a depth of 5 feet below ground surface (bgs). As shown on Figure 1, SG-105S is located proximate to the perimeter of the Site, near the natural gas regulator station and is located at least 120 feet from an occupied building. At this location, benzene was detected in shallow soil gas at a concentration of 1,700 µg/m^3 during the July 2013 sampling event. This soil gas concentration is below the Connecticut Department of Energy and Environmental Protection (CTDEEP) residential criteria and above both the New Jersey Department of Environmental Protection (NJDEP) residential and industrial/commercial screening levels and the Massachusetts Department of Environmental Protection (MADEP) residential and industrial/commercial screening levels[1]. The concentration of benzene detected in the deeper (collected at 11 feet bgs) soil gas sample from SG-105D was well below the above-described regulatory screening levels and criteria. To confirm that soil gas was not migrating from SG-105S

[1] RIDEM has not established soil gas screening levels or criteria to evaluate the potential for vapor intrusion. Soil gas results were compared to criteria and/or screening values for nearby states, specifically to soil gas criteria published by the CTDEEP and to soil gas screening levels published by the NJDEP and the MADEP. For further details, please refer to GZA's October 2013 Soil Gas *SIR Addendum*.

toward the neighboring buildings, an additional probe (SG-114S) was installed as part of the August 2013 soil gas investigation. As shown on Figure 1, SG-114S is located approximately 75 feet to the south of SG-105S and at least 70 feet from an occupied building. The concentrations detected in the soil gas sample collected from 5 feet bgs at location SG-114S were well below regulatory screening levels and criteria from nearby states suggesting the detection of benzene at SG-105S was likely from a localized source. Our *October 2013 SIR Addendum* included a recommendation to conduct a soil and groundwater investigation in the vicinity the natural gas regulator station to further evaluate the benzene detected in soil gas at SG-105S.

A *SIR Addendum* was submitted to RIDEM in July 2014 which presented the results of the April 2014 soil and groundwater sampling in the vicinity of SG-105S and the natural gas regulator station. This focused investigation was conducted to assess the nature and extent of benzene in soil and groundwater proximate to SG-105S and was conducted in accordance with the RIDEM-approved February 7, 2014 *SSIWP* and February 28, 2014 *Addendum Letter to the SSIWP*. In summary, benzene was not detected in either soil or groundwater samples collected from the natural gas regulator station portion of the Site. No significant levels of any other volatile organic compounds (VOCs) were detected in either soil or groundwater. The results did not indicate the presence of soil or groundwater impacts in this area of the Site. The report attributed the benzene detected in soil gas to localized shallow soil impacts located either within the natural gas regulator station fence line or outside the fence on the Merry Street extension. Our July 2014 report recommended re-sampling soil gas from SG-105S during the next quarterly monitoring event in July 2014.

SAMPLING AND ANALYTICAL RESULTS

Soil gas from SG-105S was re-sampled on July 29, 2014 consistent with the RIDEM-approved May 2013 *SSIWP* prepared by GZA. A soil gas sample was collected from SG-105S using a 3-L summa canister equipped with a 15-minute flow controller. In addition, GZA collected one (1) ambient air sample near the gate on Merry Street. The ambient air sample was collected utilizing 3-L summa air canisters with an 8-hour flow controller. Samples were submitted to Contest Analytical Laboratory for VOC analysis via EPA Method TO-15. The soil gas sample was also submitted for helium analysis via EPA Method TO-3C to confirm the integrity of the probe. The field sampling log is included as Attachment B. Copies of the laboratory data report are provided in Attachment C.

Analytical results of the ambient air sampling are presented in Table 1. Results indicate the presence of low level constituents in ambient air: acetone, benzene, carbon tetrachloride, chloromethane, Freon 12, ethanol, 2-hexanone, methylene chloride, tetrachloroethylene, toluene, Freon 11, and Freon 113. There were no exceedances of the RIDEM 1-hour or 24-hour Acceptable Ambient Air Levels (AALs). RIDEM AALs are listed in Air Pollution Control (APC) Regulation No.22 - Air Toxics. The compounds and limited range of concentrations that were detected are commonly found in ambient air in urban settings and are associated with common products such as gasoline, home heating oils, and air conditioners. The results are consistent with the 2013 ambient air sampling results.

Analytical results of the SG-105S soil gas re-sampling are presented in Table 2. Results indicate the presence of certain compounds: acetone, benzene, carbon disulfide, cyclohexane, cis-1,2-dichloroethylene, ethylbenzene, 4-ethyltoluene, heptane, hexane, indane, isopropylbenzene, naphthalene, styrene, tetrachloroethylene, toluene, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene, and total xylenes. Helium was not detected in the sample, indicating the integrity of the probe and sampling methodologies. Benzene was detected at a concentration of 960 µg/m^3, which is in excess of the MADEP residential and industrial/commercial soil gas screening levels and the NJDEP residential and industrial/commercial soil gas screening levels but less than the benzene concentration detected in July 2013 (1,700 ug/ m^3). Consistent with the July 2013 sampling round, no other compounds were

detected in excess of the MADEP or NJDEP soil gas screening levels; no compounds were detected in excess of CTDEEP soil gas criteria[2].

SUMMARY AND CONCULSIONS

The re-sampling of SG-105S do not alter the conclusions made in the October 2013 *SIR Addendum*; that is that the 2013 and the 2014 soil gas test results confirm that there is no risk of potential migration of impacted soil gas from the Tidewater Site towards neighboring properties and structures. The observations made during the October 2013 *SIR Addendum* and this re-sampling effort do not warrant further investigation and do not alter the conclusions presented in the July 2011 *Remedial Alternative Evaluation*.

To monitor any seasonal variation of benzene soil gas concentrations at SG-105S, GZA recommends performing quarterly soil gas sampling of this monitoring location over the next year. It is anticipated that the quarterly sampling events will be performed in October 2014, January 2015, April 2015 and July 2015. Results of the soil gas monitoring will be summarized in a brief letter to RIDEM.

National Grid continues to be committed to keeping neighbors, the nearby schools, parents and other stakeholders informed about the activities at the Tidewater Site. We look forward to continuing to work cooperatively with RIDEM to advance progress at this Site in accordance with the applicable regulations.

Should you have any questions or comments regarding the information presented herein, please do not hesitate to contact the undersigned or Michele Leone from National Grid at (781) 907-3651.

Very truly yours,

GZA GEOENVIRONMENTAL, INC.

Margaret S. Kilpatrick, P.E.
Senior Project Manager
401-427-2719
margaret.kilpatrick@gza.com

James J. Clark, P.E., LEP
Senior Principal
860-858-3134
james.clark@gza.com

Attachments: Table 1 – Summary of Ambient Air Sampling
Table 2 – Summary of Soil Gas Sampling – SG-105S
Figure 1 – Site Plan
A - Limitations
B - Field Sampling Log
C - Analytical Laboratory Certificate

cc: Barbara Morin, RIDEM
Elizabeth Stone, RIDEM
Michele Leone, National Grid

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[2] It is noted that elevated methane (CH_4) concentrations were detected while purging location SG-105S, as presented in the attached field sampling log. This detection of methane is consistent with the July 2013 sampling results.

TABLES

TABLE 1
Summary of Ambient Air Sampling
Former Tidewater Facility
Pawtucket, Rhode Island

	RIDEM Acceptable Ambient Air Levels (AALs)		Units	Ambient_72914 14G1373-02 Ambient Air 41849
	1 hour	24 hour		
EPA TO-15 Full List				
Acetone	60,000	30,000	µg/m^3	36
Benzene	30	20	µg/m^3	0.63
Benzyl chloride	200	NE	µg/m^3	<0.26
Bromodichloromethane	100	70	µg/m^3	<0.17
Bromoform	2,000	70	µg/m^3	<0.52
Bromomethane	200	NE	µg/m^3	<0.19
1,3-Butadiene	NE	NE	µg/m^3	<0.11
2-Butanone (MEK)	10,000	5,000	µg/m^3	<5.9
Carbon Disulfide	6,000	NE	µg/m^3	<1.6
Carbon Tetrachloride	2,000	200	µg/m^3	0.55
Chlorobenzene	NE	NE	µg/m^3	<0.23
Chloroethane	40,000	10,000	µg/m^3	<0.13
Chloroform	100	NE	µg/m^3	<0.12
Chloromethane	1,000	400	µg/m^3	1.3
Cyclohexane	NE	6,000	µg/m^3	<0.17
Dibromochloromethane	300	70	µg/m^3	<0.21
1,2-Dibromoethane (EDB)	NE	9	µg/m^3	<0.19
1,2-Dichlorobenzene	2000	NE	µg/m^3	<0.3
1,3-Dichlorobenzene	NE	NE	µg/m^3	<0.3
1,4-Dichlorobenzene	12,000	800	µg/m^3	<0.3
Dichlorodifluoromethane (Freon 12)	NE	NE	µg/m^3	2.1
1,1-Dichloroethane	NE	NE	µg/m^3	<0.1
1,2-Dichloroethane	NE	NE	µg/m^3	<0.1
1,1-Dichloroethylene	NE	NE	µg/m^3	<0.099
cis-1,2-Dichloroethylene	3,000	1,000	µg/m^3	<0.099
trans-1,2-Dichloroethylene	800	NE	µg/m^3	<0.099
1,2-Dichloropropane	200	4	µg/m^3	<0.12
cis-1,3-Dichloropropene	NE	20	µg/m^3	<0.11
trans-1,3-Dichloropropene	NE	20	µg/m^3	<0.11
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	NE	NE	µg/m^3	<0.35
1,4-Dioxane	3,000	NE	µg/m^3	<0.17

TABLE 1
Summary of Ambient Air Sampling
Former Tidewater Facility
Pawtucket, Rhode Island

	RIDEM Acceptable Ambient Air Levels (AALs)		Units	Ambient_72914 14G1373-02 Ambient Air 41849
	1 hour	24 hour		
EPA TO-15 Full List				
Ethanol	NE	NE	µg/m^3	8.1
Ethyl Acetate	NE	NE	µg/m^3	<0.18
Ethylbenzene	40,000	3,000	µg/m^3	<0.22
4-Ethyltoluene	NE	NE	µg/m^3	<0.25
Heptane	NE	NE	µg/m^3	<0.2
Hexachlorobutadiene	NE	0.7	µg/m^3	<0.53
Hexane	NE	NE	µg/m^3	<7.0
2-Hexanone (MBK)	NE	3,000	µg/m^3	1.1
Indane	NE	NE	µg/m^3	<0.62
Indene	NE	NE	µg/m^3	<0.63
Isopropanol	3,000	NE	µg/m^3	<4.9
Isopropylbenzene (Cumene)	NE	400	µg/m^3	<0.62
Methyl tert-Butyl Ether (MTBE)	7,000	3,000	µg/m^3	<0.18
Methylene Chloride	2,000	1,000	µg/m^3	1.8
4-Methyl-2-pentanone (MIBK)	NE	NE	µg/m^3	<0.2
Naphthalene	NE	3	µg/m^3	<0.26
Propene	NE	NE	µg/m^3	<3.4
Styrene	9,000	1,000	µg/m^3	<0.21
1,1,2,2-Tetrachloroethane	NE	2,000	µg/m^3	<0.17
Tetrachloroethylene	1,000	NE	µg/m^3	0.48
Tetrahydrofuran	NE	NE	µg/m^3	<0.15
Toluene	4,000	NE	µg/m^3	0.32
1,2,4-Trichlorobenzene	NE	30	µg/m^3	<0.37
1,1,1-Trichloroethane	9,000	6,000	µg/m^3	<0.14
1,1,2-Trichloroethane	NE	10	µg/m^3	<0.14
Trichloroethylene	10,000	500	µg/m^3	<0.13
Trichlorofluoromethane (Freon 11)	NE	1,000	µg/m^3	1.4
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	NE	NE	µg/m^3	0.54
1,2,4-Trimethylbenzene	NE	NE	µg/m^3	<0.25
1,3,5-Trimethylbenzene	NE	NE	µg/m^3	<0.25
Vinyl Acetate	NE	200	µg/m^3	<3.5

TABLE 1
Summary of Ambient Air Sampling
Former Tidewater Facility
Pawtucket, Rhode Island

	RIDEM Acceptable Ambient Air Levels (AALs)		Units	Ambient_72914 14G1373-02 Ambient Air 41849
	1 hour	24 hour		
EPA TO-15 Full List				
Vinyl Chloride	1,000	100	µg/m^3	<0.064
m&p-Xylene	9,000	3,000	µg/m^3	<0.43
o-Xylene	9,000	3,000	µg/m^3	<0.22

Notes:
NE - Not Established
Bolded text indicates an exceedance of the 1-hour RIDEM AALs
A gray shaded cell indicates an exceedance of RIDEM 8-hour RIDEM AALs
A blue shaded cell indicates that the detection limit exceeds relative criteria / screening level.
RIDEM 1-hour and 24-hour Acceptable Ambient Air Levels (AALs) are obtained from AIr Pollution Control Regulation No.22 - Air Toxics published by the RIDEM. AALs are presented in units of µg/m3.

TABLE 2
Summary of Soil Gas Sampling - SG-105S
Former Tidewater Facility
Pawtucket, Rhode Island

	2008 CT DEEP Criteria		2013 MADEP Screening Levels		2013 NJDEP Screening Levels		Units	SG-105S 14G1373-01 Soil Gas 7/29/2014
	Residential	Industrial/ Commercial	Residential	Industrial/ Commercial	Residential	Industrial/ Commercial		
EPA TO-3C								
Helium	NE	NE	NE	NE	NE	NE	%	<0.40
EPA TO-15 Full List								
Acetone	378,030	500,000	6,400	50,000	1,600,000	6,800,000	µg/m^3	3,700
Benzene	2,456	4,501	160	770	16	79	µg/m^3	960
Benzyl chloride	NE	NE	NE	NE	NE	NE	µg/m^3	<0.52
Bromodichloromethane	1,340	1,340	9.1	46	34	34	µg/m^3	<0.34
Bromoform	NE	NE	150	700	110	560	µg/m^3	<1.0
Bromomethane	780	6,930	42	310	260	1,100	µg/m^3	<0.39
1,3-Butadiene	NE	NE	NE	NE	11	20	µg/m^3	<0.22
2-Butanone (MEK)	377,771	500,000	840	310,000	260,000	1,100,000	µg/m^3	<12
Carbon Disulfide	NE	NE	NE	NE	36,000	150,000	µg/m^3	3.3
Carbon Tetrachloride	1,300	1,300	38	130	31	100	µg/m^3	<0.31
Chlorobenzene	30,254	282,730	160	1,300	2,600	11,000	µg/m^3	<0.46
Chloroethane	378,671	500,000	NE	NE	520,000	2,200,000	µg/m^3	<0.26
Chloroform	1,513	13,864	130	210	24	27	µg/m^3	<0.24
Chloromethane	3,926	37,362	NE	NE	4,700	20,000	µg/m^3	<0.41
Cyclohexane	378,242	500,000	NE	NE	310,000	1,300,000	µg/m^3	1,400
Dibromochloromethane	NE	NE	6.8	34	43	43	µg/m^3	<0.43
1,2-Dibromoethane (EDB)	NE	NE	0.55	2.7	38	38	µg/m^3	<0.38
1,2-Dichlorobenzene	60,527	500,000	50	13,000	10,000	44,000	µg/m^3	<0.6
1,3-Dichlorobenzene	1,515	13,865	42	13,000	NE	NE	µg/m^3	<0.6
1,4-Dichlorobenzene	18,156	33,277	35	120	30	56	µg/m^3	<0.6
Dichlorodifluoromethane (Freon 12)	75,770	500,000	NE	NE	5,200	22,000	µg/m^3	<0.49
1,1-Dichloroethane	15,147	141,568	56	31,000	76	380	µg/m^3	<0.2
1,2-Dichloroethane	800	800	6	31	20	24	µg/m^3	<0.2
1,1-Dichloroethylene	7,560	70,654	56	13,000	10,000	44,000	µg/m^3	<0.2
cis-1,2-Dichloroethylene	15,119	141,301	56	2,200	3,100	13,000	µg/m^3	0.48
trans-1,2-Dichloroethylene	15,119	141,305	56	4,300	3,100	13,000	µg/m^3	<0.2
1,2-Dichloropropane	900	1,109	8.4	42	23	61	µg/m^3	<0.23
cis-1,3-Dichloropropene	900	2,774	41	200	30	150	µg/m^3	<0.23
trans-1,3-Dichloropropene	900	2,774	41	200	30	150	µg/m^3	<0.23

TABLE 2
Summary of Soil Gas Sampling - SG-105S
Former Tidewater Facility
Pawtucket, Rhode Island

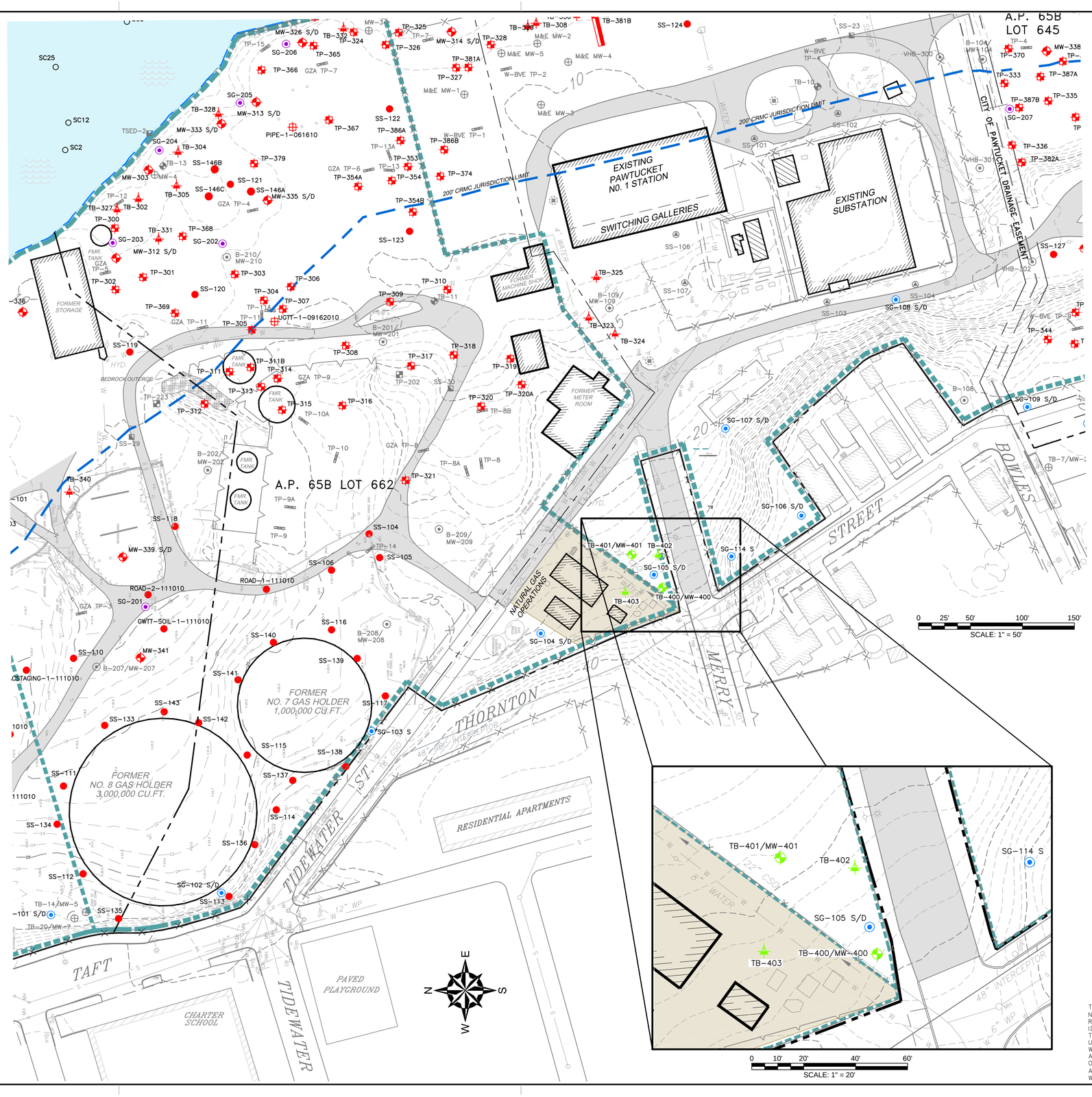
	2008 CT DEEP Criteria		2013 MADEP Screening Levels		2013 NJDEP Screening Levels		Units	SG-105S 14G1373-01 Soil Gas 7/29/2014
	Residential	Industrial/ Commercial	Residential	Industrial/ Commercial	Residential	Industrial/ Commercial		
EPA TO-15 Full List								
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	NE	NE	NE	NE	NE	NE	µg/m^3	<0.7
1,4-Dioxane	NE	NE	40	200	NE	NE	µg/m^3	<3.6
Ethanol	NE	NE	NE	NE	NE	NE	µg/m^3	<7.5
Ethyl Acetate	377,762	500,000	NE	NE	NE	NE	µg/m^3	<0.36
Ethylbenzene	43,882	410,364	520	62,000	49	250	µg/m^3	31
4-Ethyltoluene	NE	NE	NE	NE	NE	NE	µg/m^3	39
Heptane	NE	NE	NE	NE	NE	NE	µg/m^3	570
Hexachlorobutadiene	NE	NE	7.7	320	53	53	µg/m^3	<1.1
Hexane	302,386	500,000	NE	NE	36,000	150,000	µg/m^3	1,500
2-Hexanone (MBK)	NE	NE	NE	NE	NE	NE	µg/m^3	<0.41
Indane	NE	NE	NE	NE	NE	NE	µg/m^3	19
Indene	NE	NE	NE	NE	NE	NE	µg/m^3	<1.3
Isopropanol	NE	NE	NE	NE	NE	NE	µg/m^3	<9.8
Isopropylbenzene (Cumene)	29,545	54,140	NE	NE	NE	NE	µg/m^3	35
Methyl tert-Butyl Ether (MTBE)	129,581	263,819	2,700	190,000	470	2,400	µg/m^3	<0.36
Methylene Chloride	2,269	23,554	770	37,000	4,800	61,000	µg/m^3	<3.5
4-Methyl-2-pentanone (MIBK)	378,459	500,000	150	190,000	160,000	660,000	µg/m^3	<0.41
Naphthalene	1,284	12,203	42	190	26	26	µg/m^3	5.7
Propene	NE	NE	NE	NE	NE	NE	µg/m^3	<6.9
Styrene	45,420	425,838	98	1,400	52,000	220,000	µg/m^3	3.9
1,1,2,2-Tetrachloroethane	1,400	1,386	2.8	14	34	34	µg/m^3	<0.34
Tetrachloroethylene	3,783	6,936	98	290	470	2,400	µg/m^3	6.9
Tetrahydrofuran	605	5,814	NE	NE	NE	NE	µg/m^3	<0.29
Toluene	130,246	500,000	3,800	310,000	260,000	1,100,000	µg/m^3	66
1,2,4-Trichlorobenzene	1,135	11,093	240	13,000	100	440	µg/m^3	<0.74
1,1,1-Trichloroethane	115,135	500,000	210	320,000	260,000	1,100,000	µg/m^3	<0.27
1,1,2-Trichloroethane	1,100	1,100	11	50	27	38	µg/m^3	<0.27
Trichloroethylene	1,100	1,385	28	130	27	150	µg/m^3	<0.27
Trichlorofluoromethane (Freon 11)	378,591	500,000	NE	NE	36,000	150,000	µg/m^3	<0.56
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	378,304	500,000	NE	NE	1,600,000	6,600,000	µg/m^3	<0.77
1,2,4-Trimethylbenzene	2,578	23,601	NE	NE	NE	NE	µg/m^3	140

TABLE 2
Summary of Soil Gas Sampling - SG-105S
Former Tidewater Facility
Pawtucket, Rhode Island

	2008 CT DEEP Criteria		2013 MADEP Screening Levels		2013 NJDEP Screening Levels		Units	SG-105S 14G1373-01 Soil Gas 7/29/2014
	Residential	Industrial/ Commercial	Residential	Industrial/ Commercial	Residential	Industrial/ Commercial		
EPA TO-15 Full List								
1,3,5-Trimethylbenzene	2,578	23,601	NE	NE	NE	NE	µg/m^3	80
Vinyl Acetate	86,247	500,000	NE	NE	NE	NE	µg/m^3	<7.0
Vinyl Chloride	500	1,249	19	91	13	140	µg/m^3	<0.13
m&p-Xylene	44,967	421,609	1,400	6,200	5,200	22,000	µg/m^3	260
o-Xylene	44,967	421,609	1,400	6,200	5,200	22,000	µg/m^3	79

Notes:
NE - Not Established
Bolded text indicates an exceedance of MADEP residential screening levels.
A gray shaded cell indicates an exceedance of MADEP industrial/commercial screening levels.
Red text indicates an exceedance of NJDEP residential screening levels.
Underlined text indicates an exceedance of NJDEP indsutrial/commercial screening levels.
Italicized text indicates an exceedance of CTDEEP residential criteria
A bold borded cell indicates an exceedance of CTDEEP industrial/commercial criteria.
A blue shaded cell indicates that the detection limit exceeds relative criteria / screening level.
CTDEEP residential and industrial/commercial criteria is obtained from the 2008 Connecticut Remediation Criteria: Technical Support Document Appendix J published by the CTDEEP.
CTDEEP Criteria is presented in the 2008 Connecticut Remediation Criteria: Technical Support Document Appendix J - Table J6 and J8 in parts per million (ppmv) with adjustments presented for analytical capabilities and maximum values. To obtain criteria in mg/m3 units, ppmv criteria is multiplied by the molecular weight of the compound divided by 24.45 (a conversion factor). The mg/m3 criteria is multiplied by 1000 to obtain µg/m3.
MADEP Screening Levels obtained from the 2011 Interim Final Vapor Intrusion Guidance last revised in 2013 published by MADEP. Screening levels are presented in units of µg/m3.
NJDEP Residential and industrial/commercial screening values are obtained from Table 1 - NJDEP Master Table Generic Vapor Intrusion Screen Levels as referenced in the 2013 Vapor Intrusion Technical Guidance published by NJDEP. Screening levels are presented in units of µg/m3.

FIGURE



LEGEND:

- SITE AREA BOUNDARIES
- EXISTING BUILDINGS ON-SITE
- EXISTING FOUNDATION/PAD ON-SITE
- EXISTING BUILDINGS/STRUCTURES OFF-SITE
- EXISTING CONTOUR (MINOR 1 FOOT INTERVAL)
- EXISTING CONTOUR (MAJOR 5 FOOT INTERVAL)
- PROPERTY LINE
- APPROX. 200 FT. CRMC JURISDICTION LIMIT
- APPROX. WATERS EDGE
- EXISTING NBC INTERCEPTOR SANITARY SEWER
- EXISTING CITY OF PAWTUCKET STORM DRAIN
- EXISTING WATER LINE
- EXISTING STORM/COMBINED SAN. SEWER OVERFLOW
- EXISTING UNDERGROUND ELECTRIC CABLE IN CONDUIT
- EXISTING UNDERGROUND ELECTRIC MH/STRUCTURE
- EXISTING ACCESS ROAD
- EXISTING RETAINING WALLS
- EXISTING FENCE
- EXISTING CATCH BASIN LOCATIONS
- APPROXIMATE BOUNDARY OF NATURAL GAS REGULATOR STATION

SAMPLE LEGEND

SS-9	ATLANTIC SURFACE SOIL SAMPLE LOCATION
TSED-6	ATLANTIC SEDIMENT SAMPLE LOCATION
W-BVE SS-3	WESTON/BLACKSTONE VALLEY ELECTRIC SEDIMENT SAMPLE LOCATION
RIDEM SS-3	RIDEM SURFACE SOIL SAMPLE LOCATION
B-109/ MW-109	MONITORING WELL/BORING (VHB) SURVEYED
TP-3A	ATLANTIC TEST PIT LOCATION
W-BVE TP-8	WESTON/BLACKSTONE VALLEY ELECTRIC TEST PIT LOCATION
GZA TP-8	GZA/VALLEY GAS TEST PIT LOCATION
TB-15	ATLANTIC SOIL BORING LOCATION
MW-3	ATLANTIC MONITORING WELL LOCATION
M&E MW-1	METCALF & EDDY MONITORING WELL LOCATION
VHB-400	VHB SURFACE SOIL SAMPLE LOCATION NON-SURVEYED
TP-204	VHB TEST PIT (2006)
GZ-01	GZA TEST PIT (2009)
TB-300	GZA TEST BORING LOCATION (2010)
MW-320 S/D	GZA MONITORING WELL LOCATION (2010)
TP-306	GZA TEST PIT LOCATION (2010)
SS-100	GZA SURFACE SOIL SAMPLE LOCATION (2010)
SC31	ARCADIS SEDIMENT SAMPLE LOCATION (2008)
PIPE-1-061610	GZA RESIDUAL MATERIAL SAMPLE (2010)
TB-300	GZA TEST BORING LOCATION (2011)
SG-200	INTERIOR SOIL GAS SAMPLING LOCATION
SG-100	PERIMETER SOIL GAS SAMPLING LOCATION
TB-400	GZA BORING LOCATION (2014)
MW-400	GZA MONITORING WELL LOCATION (2014)

GENERAL NOTES:

1. EXISTING CONDITIONS BASE MAP DEVELOPED FROM THE FOLLOWING:
   - ELECTRONIC FILES FROM GEI CONSULTANTS, INC. (FORMERLY AES) ENTITLED "HISTORIC STRUCTURES AND SAMPLE LOCATIONS", ORIGINAL SCALE 1"=80', DATED JULY 1999
   - ELECTRONIC FILES FROM VANASSE HANGEN BRUSTLIN, INC. ENTITLED "SOIL BORING, TEST PIT AND MONITOR WELL LOCATIONS", SCALE: 1"=60', UNDATED
   - ELECTRONIC FILES FROM WELSH ASSOCIATES LAND SURVEYORS, INC. ENTITLED "TOPOGRAPHIC SURVEY (AS-BUILT), FORMER TIDEWATER FACILITY, DEMOLITION OF GAS HOLDERS NOS. 7 & 8", DATED DECEMBER 17, 2010
   - ON-SITE INVESTIGATIONS AND SURVEYS BY GZA PERSONNEL DURING VARIOUS SITE VISITS DURING 2009 AND 2010.
2. PROPERTY LINES AND LOT INFORMATION ESTABLISHED FROM INFORMATION PROVIDED ON A DRAWING ENTITLED "PERIMETER SURVEY OF LAND AT THE TIDEWATER FORMER MGP SITE IN PAWTUCKET, RHODE ISLAND FOR ATLANTIC ENVIRONMENTAL SERVICES INC." DEVELOPED BY LOUIS FEDERICI AND ASSOCIATES AND AN AUTO CAD FILE ENTITLED "MAX READ FIELD TRACK EXPANSION 2007" PROVIDED BY THE CITY OF PAWTUCKET.
3. HORIZONTAL DATUM IS BASED ON NAD 1983 FROM BASE MAPPING PROVIDED BY GEI CONSULTANTS, INC.
4. VERTICAL DATUM IS BASED ON NGVD 1929 (MSL) FROM BASE MAPPING PROVIDED BY GEI CONSULTANTS, INC.
5. REFERENCE SEWER DATA FROM SCANNED IMAGE PROVIDED BY THE CITY OF PAWTUCKET, RHODE ISLAND, ENTITLED "STUDY OF SEWERAGE FACILITIES" BY WATERMAN ENGINEERING CO. & ANDERSON NICHOLS CO. DATED NOV. 1975, ORIGINAL SCALE 1"=400' & SCANNED IMAGES OF HISTORIC PLAN & PROFILE DRAWINGS PROVIDED BY THE CITY OF PAWTUCKET, RHODE ISLAND.
6. SITE UTILITIES TAKEN FROM 1984 SANBORN MAP AND HISTORIC FIGURES PROVIDED BY NATIONAL GRID. ALL UTILITY LOCATIONS ARE APPROXIMATE AND SHOWN FOR REFERENCE ONLY.

NO.	ISSUE/DESCRIPTION	BY	DATE

FORMER TIDEWATER FACILITY

PAWTUCKET, RHODE ISLAND

EXPLORATION LOCATION PLAN
SUPPLEMENTAL SITE INVESTIGATION REPORT

PREPARED BY:
GZA GeoEnvironmental, Inc.
Engineers and Scientists
530 BROADWAY
PROVIDENCE, RHODE ISLAND 02909
(401) 421-4140

PREPARED FOR:
NATIONAL GRID

PROJ MGR: MSK	REVIEWED BY: WF	CHECKED BY: MSK	FIGURE 1
DESIGNED BY: WF	DRAWN BY: CRD	SCALE: AS NOTED	
DATE 2014	PROJECT NO. 43654.00	REVISION NO. 0	SHEET NO. 1 OF 1

ATTACHMENT A

LIMITATIONS

LIMITATIONS

1. This Summary Letter has been prepared on behalf of and for the exclusive use of The Narragansett Electric Company d/b/a National Grid (National Grid) and the City of Pawtucket (City of Pawtucket), solely for use in documenting the work completed as described herein at the Former Tidewater MGP and Merry Street ("Site") under the applicable provisions of the State of Rhode Island Department of Environmental Management Rules and Regulations for the Investigation and Remediation of Hazardous Material Releases (Remediation Regulations). This report and the findings contained herein shall not, in whole or in part, be disseminated or conveyed to any other party, nor used by any other party in whole or in part, without the prior written consent of GZA GeoEnvironmental, Inc.(GZA) or National Grid or City of Pawtucket.

2. GZA's work was performed in accordance with generally accepted practices of other consultants undertaking similar studies at the same time and in the same geographical area, and GZA observed that degree of care and skill generally exercised by other consultants under similar circumstances and conditions. GZA's findings and conclusions must be considered not as scientific certainties, but rather as our professional opinion concerning the significance of the limited data gathered during the course of the study. No other warranty, express or implied is made. Specifically, GZA does not and cannot represent that the Site contains no hazardous material, oil, or other latent condition beyond that observed by GZA during the work described herein.

3. The observations described in this report were made under the conditions stated therein. The conclusions presented in the report were based upon services performed and observations made by GZA.

4. In the event that National Grid, City of Pawtucket or others authorized to use this report obtain information on environmental or hazardous waste issues at the Site not contained in this report, such information shall be brought to GZA's attention forthwith. GZA will evaluate such information and, on the basis of this evaluation, may modify the conclusions stated in this report.

5. The conclusions and recommendations contained in this report are based in part upon the data obtained from environmental samples obtained from relatively widely spread subsurface explorations. The nature and extent of variations between these explorations may not become evident until further exploration. If variations or other latent conditions then appear evident, it will be necessary to reevaluate the conclusions and recommendations of this report.

6. The generalized soil profile described in the text is intended to convey trends in subsurface conditions. The boundaries between strata are approximate and idealized and have been developed by interpretations of widely spaced explorations and samples; actual soil transitions are probably more gradual. For specific information, refer to the boring logs.

7. In the event this work included the collection of water level data, these readings have been made in the test pits, borings and/or observation wells at times and under conditions stated on the exploration logs. These data have been reviewed and interpretations have been made in the text of this report. However, it must be noted that fluctuations in the level of the groundwater may occur due to variations in rainfall and other factors different from those prevailing at the time measurements were made.

8. The conclusions contained in this report are based in part upon various types of chemical data and are contingent upon their validity. These data have been reviewed and interpretations made in the report. Moreover, it should be noted that variations in the types and concentrations of contaminants and variations in their flow paths may occur due to seasonal water table fluctuations, past disposal practices, the passage of time, and other factors. Should additional chemical data become available in the future, these data should be reviewed by GZA and the conclusions and recommendations presented herein modified accordingly.

ATTACHMENT B

FIELD SAMPLING LOG

Soil Gas Sampling Log

Site:	Tidewater, Pawtucket, RI	Total Depth (ft):	5	Date:	7/29/2014
Probe ID:	SG-105S	Casing Volume (mL):	250	Weather:	Sunny 80s
GZA Job No:	43654	Tubing Volume (mL):	50	Field Personnel:	SDN
Start Location Time:	10:00	Stop Location Time:	14:00	Start Purging Time:	13:20

Field Calibration

Photoionization Detector			Lantec Landfill Gas Meter			Helium Detector		
Zero (with filter)	0 ppm	0	O_2	20.9%	20.8	Detector #1	0%	0
Span Gas	10 ppm	10.0	CO_2	0%	0	Detector #2	0%	0
			CH_4	0%	0			

Ambient Air Screening								Casing Volume
Initial				Final				1" rods - 50 mL/ft
O_2	20.90%	CH_4	0%	O_2	20.80%	CH_4	0%	**Tubing Volume**
CO_2	0%	PID	0 ppb	CO_2	0.10%	PID	0 ppb	1/4 " tubing - 10 mL/ft

Initial Pressure Test

Test #	Pressure (in-H^2O)	Time Held	Notes:
1	144	0	Did not hold - had to retighten seals/replace valves
2	205	5 minutes	OK

Purge Data

Time	Elapsed Time (min)	Pump Flow Rate (mL/min)	Vacuum (in-H_20)	Total Volume Purged (L)	Helium (%) in Shroud	O_2 (%)	CO_2 (%)	CH_4 (%)	TVOCs (ppb)	Helium (ppm)
13:22	1	200	0.90	0.2	11	0.5	10.6	47	NM	NM
13:23	2	200	1.00	0.4	11	0.5	10.6	47.4	NM	NM
13:29	8	200	1.00	1.6	10	0.5	10.7	47.4	NM	NM
13:31	10	200	1.00	2	10	0.5	10.7	47.5	NM	NM

Analytical Samples

Can ID + FC ID	1382/4103	Analytical Method	TO-15 + Helium	Initial Pressure (in-Hg)	-29
Sample ID	SG-105S	Time to Fill (min)	15	Final Pressure (in-Hg)	-4
Helium Percentage in Shroud During Sampling:		12	Start Time: 13:37	Stop Time:	13:53

Final Purge Data

Time	Pump Flow Rate (mL/min)	Vacuum (in-H_20)	Helium (%) in Shroud	O_2 (%)	CO_2 (%)	CH_4 (%)	TVOCs (ppb)	Helium (ppm)		
13:54	200	1	12	0.4	10.7	47.1	NM	NM		

Abbreviations:
ppm - parts per million
in-H20 - inches of water column
mL/min - milliliters per minute
ppb - parts per billion
O_2- oxygen
CO_2 - carbon dioxide
CH_4 - methane
mL - milliliters
min - minutes
PID- Photoionization Detector
TVOCs - Total Volatile Organic Compounds

Other Comments or Notes: TVOC or Helium concentration in exhaust not measured due to CH_4 concentration
NM-Not measured
Very slight sulfur odor

ATTACHMENT C

ANALYTICAL LABORATORY CERTIFICATE

con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

August 8, 2014

Margaret Kilpatrick
GZA GeoEnvironmental-RI
530 Broadway Street
Providence, RI 02909

Project Location: Tidewater
Client Job Number:
Project Number: 43654
Laboratory Work Order Number: 14G1373

Enclosed are results of analyses for samples received by the laboratory on July 30, 2014. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Lisa A. Worthington
Project Manager

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con-test® ANALYTICAL LABORATORY
39 Spruce Street * East Longmeadow, MA 01028 * FAX 413/525-6405 * TEL. 413/525-2332

GZA GeoEnvironmental-RI
530 Broadway Street
Providence, RI 02909
ATTN: Margaret Kilpatrick

REPORT DATE: 8/8/2014

PURCHASE ORDER NUMBER:

PROJECT NUMBER: 43654

ANALYTICAL SUMMARY

WORK ORDER NUMBER: 14G1373

The results of analyses performed on the following samples submitted to the CON-TEST Analytical Laboratory are found in this report.

PROJECT LOCATION: Tidewater

FIELD SAMPLE #	LAB ID:	MATRIX	SAMPLE DESCRIPTION	TEST	SUB LAB
SG-105S	14G1373-01	Soil Gas		EPA 3C	
				EPA TO-15	
Ambient_72914	14G1373-02	Ambient Air		EPA TO-15	

con-test® ANALYTICAL LABORATORY
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CASE NARRATIVE SUMMARY

All reported results are within defined laboratory quality control objectives unless listed below or otherwise qualified in this report.

EPA TO-15

Qualifications:

L-01

Laboratory fortified blank /laboratory control sample recovery outside of control limits. Data validation is not affected since all results are "not detected" for all samples in this batch for this compound and bias is on the high side.

Analyte & Samples(s) Qualified:

Benzyl chloride
B102194-BS1

Indane
B102194-BS1

L-05

Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the high side.

Analyte & Samples(s) Qualified:

Acetone
14G1373-01RE1[SG-105S], 14G1373-02[Ambient_72914], B102194-BS1

Ethanol
14G1373-01RE1[SG-105S], 14G1373-02[Ambient_72914], B102194-BS1

Isopropylbenzene (Cumene)
14G1373-01RE1[SG-105S], 14G1373-02[Ambient_72914], B102194-BS1, 14G1373-01[SG-105S]

V-06

Continuing calibration did not meet method specifications and was biased on the high side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the high side.

Analyte & Samples(s) Qualified:

Acetone
14G1373-01RE1[SG-105S], 14G1373-02[Ambient_72914], B102194-BS1

The results of analyses reported only relate to samples submitted to the Con-Test Analytical Laboratory for testing.
I certify that the analyses listed above, unless specifically listed as subcontracted, if any, were performed under my direction according to the approved methodologies listed in this document, and that based upon my inquiry of those individuals immediately responsible for obtaining the information, the material contained in this report is, to the best of my knowledge and belief, accurate and complete.

Daren J. Damboragian
Laboratory Manager

con-test® ANALYTICAL LABORATORY
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ANALYTICAL RESULTS

Project Location: Tidewater
Date Received: 7/30/2014
Field Sample #: SG-105S
Sample ID: 14G1373-01
Sample Matrix: Soil Gas
Sampled: 7/29/2014 13:53

Sample Description/Location:
Sub Description/Location:
Canister ID: 1382
Canister Size: 3 liter
Flow Controller ID: 4103
Sample Type: 15 min

Work Order: 14G1373
Initial Vacuum(in Hg): -29
Final Vacuum(in Hg): -4
Receipt Vacuum(in Hg): -5
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling:

EPA 3C

Analyte	% Results	RL	Flag/Qual	Dilution	Date/Time Analyzed	Analyst
Helium	ND	0.40		1	8/8/14 14:01	WSD

EPA TO-15

Analyte	ppbv Results	RL	Flag/Qual	ug/m3 Results	RL	Dilution	Date/Time Analyzed	Analyst
Acetone	1600	40	L-05, V-06	3700	95	20	8/8/14 9:26	WSD
Benzene	300	1.0		960	3.2	20	8/8/14 9:26	WSD
Benzyl chloride	ND	0.10		ND	0.52	2	8/7/14 20:47	WSD
Bromodichloromethane	ND	0.050		ND	0.34	2	8/7/14 20:47	WSD
Bromoform	ND	0.10		ND	1.0	2	8/7/14 20:47	WSD
Bromomethane	ND	0.10		ND	0.39	2	8/7/14 20:47	WSD
1,3-Butadiene	ND	0.10		ND	0.22	2	8/7/14 20:47	WSD
2-Butanone (MEK)	ND	4.0		ND	12	2	8/7/14 20:47	WSD
Carbon Disulfide	1.1	1.0		3.3	3.1	2	8/7/14 20:47	WSD
Carbon Tetrachloride	ND	0.050		ND	0.31	2	8/7/14 20:47	WSD
Chlorobenzene	ND	0.10		ND	0.46	2	8/7/14 20:47	WSD
Chloroethane	ND	0.10		ND	0.26	2	8/7/14 20:47	WSD
Chloroform	ND	0.050		ND	0.24	2	8/7/14 20:47	WSD
Chloromethane	ND	0.20		ND	0.41	2	8/7/14 20:47	WSD
Cyclohexane	400	1.0		1400	3.4	20	8/8/14 9:26	WSD
Dibromochloromethane	ND	0.050		ND	0.43	2	8/7/14 20:47	WSD
1,2-Dibromoethane (EDB)	ND	0.050		ND	0.38	2	8/7/14 20:47	WSD
1,2-Dichlorobenzene	ND	0.10		ND	0.60	2	8/7/14 20:47	WSD
1,3-Dichlorobenzene	ND	0.10		ND	0.60	2	8/7/14 20:47	WSD
1,4-Dichlorobenzene	ND	0.10		ND	0.60	2	8/7/14 20:47	WSD
Dichlorodifluoromethane (Freon 12)	ND	0.10		ND	0.49	2	8/7/14 20:47	WSD
1,1-Dichloroethane	ND	0.050		ND	0.20	2	8/7/14 20:47	WSD
1,2-Dichloroethane	ND	0.050		ND	0.20	2	8/7/14 20:47	WSD
1,1-Dichloroethylene	ND	0.050		ND	0.20	2	8/7/14 20:47	WSD
cis-1,2-Dichloroethylene	0.12	0.050		0.48	0.20	2	8/7/14 20:47	WSD
trans-1,2-Dichloroethylene	ND	0.050		ND	0.20	2	8/7/14 20:47	WSD
1,2-Dichloropropane	ND	0.050		ND	0.23	2	8/7/14 20:47	WSD
cis-1,3-Dichloropropene	ND	0.050		ND	0.23	2	8/7/14 20:47	WSD
trans-1,3-Dichloropropene	ND	0.050		ND	0.23	2	8/7/14 20:47	WSD
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	ND	0.10		ND	0.70	2	8/7/14 20:47	WSD
1,4-Dioxane	ND	1.0		ND	3.6	2	8/7/14 20:47	WSD

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ANALYTICAL RESULTS

Project Location: Tidewater
Date Received: 7/30/2014
Field Sample #: SG-105S
Sample ID: 14G1373-01
Sample Matrix: Soil Gas
Sampled: 7/29/2014 13:53

Sample Description/Location:
Sub Description/Location:
Canister ID: 1382
Canister Size: 3 liter
Flow Controller ID: 4103
Sample Type: 15 min

Work Order: 14G1373
Initial Vacuum(in Hg): -29
Final Vacuum(in Hg): -4
Receipt Vacuum(in Hg): -5
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling:

EPA TO-15

Analyte	ppbv Results	ppbv RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Date/Time Analyzed	Analyst
Ethanol	ND	4.0		ND	7.5	2	8/7/14 20:47	WSD
Ethyl Acetate	ND	0.10		ND	0.36	2	8/7/14 20:47	WSD
Ethylbenzene	7.2	0.10		31	0.43	2	8/7/14 20:47	WSD
4-Ethyltoluene	7.9	0.10		39	0.49	2	8/7/14 20:47	WSD
Heptane	140	0.10		570	0.41	2	8/7/14 20:47	WSD
Hexachlorobutadiene	ND	0.10		ND	1.1	2	8/7/14 20:47	WSD
Hexane	440	40		1500	140	20	8/8/14 9:26	WSD
2-Hexanone (MBK)	ND	0.10		ND	0.41	2	8/7/14 20:47	WSD
Indane	4.0	0.26		19	1.2	2	8/7/14 20:47	WSD
Indene	ND	0.26		ND	1.3	2	8/7/14 20:47	WSD
Isopropanol	ND	4.0		ND	9.8	2	8/7/14 20:47	WSD
Isopropylbenzene (Cumene)	7.1	0.25	L-05	35	1.2	2	8/7/14 20:47	WSD
Methyl tert-Butyl Ether (MTBE)	ND	0.10		ND	0.36	2	8/7/14 20:47	WSD
Methylene Chloride	ND	1.0		ND	3.5	2	8/7/14 20:47	WSD
4-Methyl-2-pentanone (MIBK)	ND	0.10		ND	0.41	2	8/7/14 20:47	WSD
Naphthalene	1.1	0.10		5.7	0.52	2	8/7/14 20:47	WSD
Propene	ND	4.0		ND	6.9	2	8/7/14 20:47	WSD
Styrene	0.91	0.10		3.9	0.43	2	8/7/14 20:47	WSD
1,1,2,2-Tetrachloroethane	ND	0.050		ND	0.34	2	8/7/14 20:47	WSD
Tetrachloroethylene	1.0	0.050		6.9	0.34	2	8/7/14 20:47	WSD
Tetrahydrofuran	ND	0.10		ND	0.29	2	8/7/14 20:47	WSD
Toluene	18	0.10		66	0.38	2	8/7/14 20:47	WSD
1,2,4-Trichlorobenzene	ND	0.10		ND	0.74	2	8/7/14 20:47	WSD
1,1,1-Trichloroethane	ND	0.050		ND	0.27	2	8/7/14 20:47	WSD
1,1,2-Trichloroethane	ND	0.050		ND	0.27	2	8/7/14 20:47	WSD
Trichloroethylene	ND	0.050		ND	0.27	2	8/7/14 20:47	WSD
Trichlorofluoromethane (Freon 11)	ND	0.10		ND	0.56	2	8/7/14 20:47	WSD
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.10		ND	0.77	2	8/7/14 20:47	WSD
1,2,4-Trimethylbenzene	29	0.10		140	0.49	2	8/7/14 20:47	WSD
1,3,5-Trimethylbenzene	16	0.10		80	0.49	2	8/7/14 20:47	WSD
Vinyl Acetate	ND	2.0		ND	7.0	2	8/7/14 20:47	WSD
Vinyl Chloride	ND	0.050		ND	0.13	2	8/7/14 20:47	WSD
m&p-Xylene	60	0.20		260	0.87	2	8/7/14 20:47	WSD
o-Xylene	18	0.10		79	0.43	2	8/7/14 20:47	WSD

Surrogates	% Recovery	% REC Limits	
4-Bromofluorobenzene (1)	105	70-130	8/8/14 9:26

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ANALYTICAL RESULTS

Project Location: Tidewater
Date Received: 7/30/2014
Field Sample #: SG-105S
Sample ID: 14G1373-01
Sample Matrix: Soil Gas
Sampled: 7/29/2014 13:53

Sample Description/Location:
Sub Description/Location:
Canister ID: 1382
Canister Size: 3 liter
Flow Controller ID: 4103
Sample Type: 15 min

Work Order: 14G1373
Initial Vacuum(in Hg): -29
Final Vacuum(in Hg): -4
Receipt Vacuum(in Hg): -5
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling:

EPA TO-15

Analyte	ppbv Results	ppbv RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Date/Time Analyzed	Analyst
Surrogates	% Recovery			% REC Limits				
4-Bromofluorobenzene (1)	107			70-130			8/7/14 20:47	
4-Bromofluorobenzene (2)	98.5			70-130			8/7/14 20:47	

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ANALYTICAL RESULTS

Project Location: Tidewater
Date Received: 7/30/2014
Field Sample #: Ambient_72914
Sample ID: 14G1373-02
Sample Matrix: Ambient Air
Sampled: 7/29/2014 13:50

Sample Description/Location:
Sub Description/Location:
Canister ID: 1397
Canister Size: 3 liter
Flow Controller ID: 3015
Sample Type: 8 hr

Work Order: 14G1373
Initial Vacuum(in Hg): -31
Final Vacuum(in Hg): -11.5
Receipt Vacuum(in Hg): -11
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling:

EPA TO-15

	ppbv			ug/m3			Date/Time	
Analyte	**Results**	**RL**	**Flag/Qual**	**Results**	**RL**	**Dilution**	**Analyzed**	**Analyst**
Acetone	15	2.0	L-05, V-06	36	4.8	1	8/7/14 20:06	WSD
Benzene	0.20	0.050		0.63	0.16	1	8/7/14 20:06	WSD
Benzyl chloride	ND	0.050		ND	0.26	1	8/7/14 20:06	WSD
Bromodichloromethane	ND	0.025		ND	0.17	1	8/7/14 20:06	WSD
Bromoform	ND	0.050		ND	0.52	1	8/7/14 20:06	WSD
Bromomethane	ND	0.050		ND	0.19	1	8/7/14 20:06	WSD
1,3-Butadiene	ND	0.050		ND	0.11	1	8/7/14 20:06	WSD
2-Butanone (MEK)	ND	2.0		ND	5.9	1	8/7/14 20:06	WSD
Carbon Disulfide	ND	0.50		ND	1.6	1	8/7/14 20:06	WSD
Carbon Tetrachloride	0.087	0.025		0.55	0.16	1	8/7/14 20:06	WSD
Chlorobenzene	ND	0.050		ND	0.23	1	8/7/14 20:06	WSD
Chloroethane	ND	0.050		ND	0.13	1	8/7/14 20:06	WSD
Chloroform	ND	0.025		ND	0.12	1	8/7/14 20:06	WSD
Chloromethane	0.62	0.10		1.3	0.21	1	8/7/14 20:06	WSD
Cyclohexane	ND	0.050		ND	0.17	1	8/7/14 20:06	WSD
Dibromochloromethane	ND	0.025		ND	0.21	1	8/7/14 20:06	WSD
1,2-Dibromoethane (EDB)	ND	0.025		ND	0.19	1	8/7/14 20:06	WSD
1,2-Dichlorobenzene	ND	0.050		ND	0.30	1	8/7/14 20:06	WSD
1,3-Dichlorobenzene	ND	0.050		ND	0.30	1	8/7/14 20:06	WSD
1,4-Dichlorobenzene	ND	0.050		ND	0.30	1	8/7/14 20:06	WSD
Dichlorodifluoromethane (Freon 12)	0.42	0.050		2.1	0.25	1	8/7/14 20:06	WSD
1,1-Dichloroethane	ND	0.025		ND	0.10	1	8/7/14 20:06	WSD
1,2-Dichloroethane	ND	0.025		ND	0.10	1	8/7/14 20:06	WSD
1,1-Dichloroethylene	ND	0.025		ND	0.099	1	8/7/14 20:06	WSD
cis-1,2-Dichloroethylene	ND	0.025		ND	0.099	1	8/7/14 20:06	WSD
trans-1,2-Dichloroethylene	ND	0.025		ND	0.099	1	8/7/14 20:06	WSD
1,2-Dichloropropane	ND	0.025		ND	0.12	1	8/7/14 20:06	WSD
cis-1,3-Dichloropropene	ND	0.025		ND	0.11	1	8/7/14 20:06	WSD
trans-1,3-Dichloropropene	ND	0.025		ND	0.11	1	8/7/14 20:06	WSD
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	ND	0.050		ND	0.35	1	8/7/14 20:06	WSD
1,4-Dioxane	ND	0.50		ND	1.8	1	8/7/14 20:06	WSD
Ethanol	4.3	2.0	L-05	8.1	3.8	1	8/7/14 20:06	WSD
Ethyl Acetate	ND	0.050		ND	0.18	1	8/7/14 20:06	WSD
Ethylbenzene	ND	0.050		ND	0.22	1	8/7/14 20:06	WSD
4-Ethyltoluene	ND	0.050		ND	0.25	1	8/7/14 20:06	WSD
Heptane	ND	0.050		ND	0.20	1	8/7/14 20:06	WSD
Hexachlorobutadiene	ND	0.050		ND	0.53	1	8/7/14 20:06	WSD

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ANALYTICAL RESULTS

Project Location: Tidewater
Date Received: 7/30/2014
Field Sample #: Ambient_72914
Sample ID: 14G1373-02
Sample Matrix: Ambient Air
Sampled: 7/29/2014 13:50

Sample Description/Location:
Sub Description/Location:
Canister ID: 1397
Canister Size: 3 liter
Flow Controller ID: 3015
Sample Type: 8 hr

Work Order: 14G1373
Initial Vacuum(in Hg): -31
Final Vacuum(in Hg): -11.5
Receipt Vacuum(in Hg): -11
Flow Controller Type: Fixed-Orifice
Flow Controller Calibration
RPD Pre and Post-Sampling:

EPA TO-15

Analyte	ppbv Results	ppbv RL	Flag/Qual	ug/m3 Results	ug/m3 RL	Dilution	Date/Time Analyzed	Analyst
Hexane	ND	2.0		ND	7.0	1	8/7/14 20:06	WSD
2-Hexanone (MBK)	0.27	0.050		1.1	0.20	1	8/7/14 20:06	WSD
Indane	ND	0.13		ND	0.62	1	8/7/14 20:06	WSD
Indene	ND	0.13		ND	0.63	1	8/7/14 20:06	WSD
Isopropanol	ND	2.0		ND	4.9	1	8/7/14 20:06	WSD
Isopropylbenzene (Cumene)	ND	0.13		ND	0.62	1	8/7/14 20:06	WSD
Methyl tert-Butyl Ether (MTBE)	ND	0.050		ND	0.18	1	8/7/14 20:06	WSD
Methylene Chloride	0.51	0.50		1.8	1.7	1	8/7/14 20:06	WSD
4-Methyl-2-pentanone (MIBK)	ND	0.050		ND	0.20	1	8/7/14 20:06	WSD
Naphthalene	ND	0.050		ND	0.26	1	8/7/14 20:06	WSD
Propene	ND	2.0		ND	3.4	1	8/7/14 20:06	WSD
Styrene	ND	0.050		ND	0.21	1	8/7/14 20:06	WSD
1,1,2,2-Tetrachloroethane	ND	0.025		ND	0.17	1	8/7/14 20:06	WSD
Tetrachloroethylene	0.071	0.025		0.48	0.17	1	8/7/14 20:06	WSD
Tetrahydrofuran	ND	0.050		ND	0.15	1	8/7/14 20:06	WSD
Toluene	0.084	0.050		0.32	0.19	1	8/7/14 20:06	WSD
1,2,4-Trichlorobenzene	ND	0.050		ND	0.37	1	8/7/14 20:06	WSD
1,1,1-Trichloroethane	ND	0.025		ND	0.14	1	8/7/14 20:06	WSD
1,1,2-Trichloroethane	ND	0.025		ND	0.14	1	8/7/14 20:06	WSD
Trichloroethylene	ND	0.025		ND	0.13	1	8/7/14 20:06	WSD
Trichlorofluoromethane (Freon 11)	0.26	0.050		1.4	0.28	1	8/7/14 20:06	WSD
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	0.071	0.050		0.54	0.38	1	8/7/14 20:06	WSD
1,2,4-Trimethylbenzene	ND	0.050		ND	0.25	1	8/7/14 20:06	WSD
1,3,5-Trimethylbenzene	ND	0.050		ND	0.25	1	8/7/14 20:06	WSD
Vinyl Acetate	ND	1.0		ND	3.5	1	8/7/14 20:06	WSD
Vinyl Chloride	ND	0.025		ND	0.064	1	8/7/14 20:06	WSD
m&p-Xylene	ND	0.10		ND	0.43	1	8/7/14 20:06	WSD
o-Xylene	ND	0.050		ND	0.22	1	8/7/14 20:06	WSD

Surrogates	% Recovery	% REC Limits	
4-Bromofluorobenzene (1)	94.8	70-130	8/7/14 20:06
4-Bromofluorobenzene (2)	72.6	70-130	8/7/14 20:06

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Sample Extraction Data

Prep Method: TO-15 Prep-EPA 3C

Lab Number [Field ID]	Batch	Pressure Dilution	Pre Dilution	Pre-Dil Initial mL	Pre-Dil Final mL	Default Injection mL	Actual Injection mL	Date
14G1373-01 [SG-105S]	B102214	1	1	N/A	1000	0.5	0.5	08/08/14

Prep Method: TO-15 Prep-EPA TO-15

Lab Number [Field ID]	Batch	Pressure Dilution	Pre Dilution	Pre-Dil Initial mL	Pre-Dil Final mL	Default Injection mL	Actual Injection mL	Date
14G1373-01 [SG-105S]	B102194	1.5	1	N/A	1000	400	300	08/07/14
14G1373-01RE1 [SG-105S]	B102194	1.5	1	N/A	1000	400	30	08/07/14
14G1373-02 [Ambient_72914]	B102194	1.5	1	N/A	1000	400	600	08/07/14

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QUALITY CONTROL

Miscellaneous Air Analyses - Quality Control

Analyte	% Results	% RL	ug/m3 Results	ug/m3 RL	Spike Level %	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag/Qual
Batch B102214 - TO-15 Prep											
Blank (B102214-BLK1)					Prepared & Analyzed: 08/08/14						
Helium	ND	0.40									
Duplicate (B102214-DUP1)			**Source: 14G1373-01**		Prepared & Analyzed: 08/08/14						
Helium	ND	0.40				0.0				50	

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QUALITY CONTROL

Air Toxics by EPA Compendium Methods - Quality Control

Analyte	ppbv Results	ppbv RL	ug/m3 Results	ug/m3 RL	Spike Level ppbv	Source Result	%REC	%REC Limits	RPD	RPD Limit	Flag/Qual
Batch B102194 - TO-15 Prep											
Blank (B102194-BLK1)					Prepared & Analyzed: 08/07/14						
Acetone	ND	1.0									
Benzene	ND	0.025									
Benzyl chloride	ND	0.025									
Bromodichloromethane	ND	0.012									
Bromoform	ND	0.025									
Bromomethane	ND	0.025									
1,3-Butadiene	ND	0.025									
2-Butanone (MEK)	ND	1.0									
Carbon Disulfide	ND	0.25									
Carbon Tetrachloride	ND	0.012									
Chlorobenzene	ND	0.025									
Chloroethane	ND	0.025									
Chloroform	ND	0.012									
Chloromethane	ND	0.050									
Cyclohexane	ND	0.025									
Dibromochloromethane	ND	0.012									
1,2-Dibromoethane (EDB)	ND	0.012									
1,2-Dichlorobenzene	ND	0.025									
1,3-Dichlorobenzene	ND	0.025									
1,4-Dichlorobenzene	ND	0.025									
Dichlorodifluoromethane (Freon 12)	ND	0.025									
1,1-Dichloroethane	ND	0.012									
1,2-Dichloroethane	ND	0.012									
1,1-Dichloroethylene	ND	0.012									
cis-1,2-Dichloroethylene	ND	0.012									
trans-1,2-Dichloroethylene	ND	0.012									
1,2-Dichloropropane	ND	0.012									
cis-1,3-Dichloropropene	ND	0.012									
trans-1,3-Dichloropropene	ND	0.012									
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	ND	0.025									
1,4-Dioxane	ND	0.25									
Ethanol	ND	1.0									
Ethyl Acetate	ND	0.025									
Ethylbenzene	ND	0.025									
4-Ethyltoluene	ND	0.025									
Heptane	ND	0.025									
Hexachlorobutadiene	ND	0.025									
Hexane	ND	1.0									
2-Hexanone (MBK)	ND	0.025									
Indane	ND	0.064									
Indene	ND	0.066									
Isopropanol	ND	1.0									
Isopropylbenzene (Cumene)	ND	0.064									
Methyl tert-Butyl Ether (MTBE)	ND	0.025									
Methylene Chloride	ND	0.25									
4-Methyl-2-pentanone (MIBK)	ND	0.025									

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QUALITY CONTROL

Air Toxics by EPA Compendium Methods - Quality Control

Analyte	ppbv Results	ppbv RL	ug/m3 Results	ug/m3 RL	Spike Level ppbv	Source Result	%REC		%REC Limits	RPD	RPD Limit	Flag/Qual
Batch B102194 - TO-15 Prep												
Blank (B102194-BLK1)					Prepared & Analyzed: 08/07/14							
Naphthalene	ND	0.025										
Propene	ND	1.0										
Styrene	ND	0.025										
1,1,2,2-Tetrachloroethane	ND	0.012										
Tetrachloroethylene	ND	0.012										
Tetrahydrofuran	ND	0.025										
Toluene	ND	0.025										
1,2,4-Trichlorobenzene	ND	0.025										
1,1,1-Trichloroethane	ND	0.012										
1,1,2-Trichloroethane	ND	0.012										
Trichloroethylene	ND	0.012										
Trichlorofluoromethane (Freon 11)	ND	0.025										
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	ND	0.025										
1,2,4-Trimethylbenzene	ND	0.025										
1,3,5-Trimethylbenzene	ND	0.025										
Vinyl Acetate	ND	0.50										
Vinyl Chloride	ND	0.012										
m&p-Xylene	ND	0.050										
o-Xylene	ND	0.025										
Surrogate: 4-Bromofluorobenzene (1)	*7.19*				*8.00*		*89.8*		*70-130*			
Surrogate: 4-Bromofluorobenzene (2)	*5.53*				*8.00*		**69.1**	*	*70-130*			
LCS (B102194-BS1)					Prepared & Analyzed: 08/07/14							
Acetone	7.14				5.00		**143**	*	70-130			L-05, V-06
Benzene	4.22				5.00		84.5		70-130			
Benzyl chloride	7.00				5.00		**140**	*	70-130			L-01
Bromodichloromethane	4.82				5.00		96.3		70-130			
Bromoform	4.57				5.00		91.3		70-130			
Bromomethane	4.53				5.00		90.7		70-130			
1,3-Butadiene	5.55				5.00		111		70-130			
2-Butanone (MEK)	5.36				5.00		107		70-130			
Carbon Disulfide	3.61				5.00		72.2		70-130			
Carbon Tetrachloride	4.84				5.00		96.8		70-130			
Chlorobenzene	4.21				5.00		84.2		70-130			
Chloroethane	5.56				5.00		111		70-130			
Chloroform	3.99				5.00		79.9		70-130			
Chloromethane	4.71				5.00		94.1		70-130			
Cyclohexane	4.07				5.00		81.5		70-130			
Dibromochloromethane	4.64				5.00		92.9		70-130			
1,2-Dibromoethane (EDB)	4.24				5.00		84.8		70-130			
1,2-Dichlorobenzene	4.53				5.00		90.7		70-130			
1,3-Dichlorobenzene	4.67				5.00		93.4		70-130			
1,4-Dichlorobenzene	4.62				5.00		92.3		70-130			
Dichlorodifluoromethane (Freon 12)	4.04				5.00		80.9		70-130			
1,1-Dichloroethane	3.86				5.00		77.2		70-130			
1,2-Dichloroethane	4.36				5.00		87.3		70-130			

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QUALITY CONTROL

Air Toxics by EPA Compendium Methods - Quality Control

Analyte	ppbv Results	ppbv RL	ug/m3 Results	ug/m3 RL	Spike Level ppbv	Source Result	%REC		%REC Limits	RPD	RPD Limit	Flag/Qual
Batch B102194 - TO-15 Prep												
LCS (B102194-BS1)					Prepared & Analyzed: 08/07/14							
1,1-Dichloroethylene	4.08				5.00		81.7		70-130			
cis-1,2-Dichloroethylene	3.84				5.00		76.8		70-130			
trans-1,2-Dichloroethylene	3.80				5.00		76.0		70-130			
1,2-Dichloropropane	4.23				5.00		84.6		70-130			
cis-1,3-Dichloropropene	4.94				5.00		98.8		70-130			
trans-1,3-Dichloropropene	5.15				5.00		103		70-130			
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	4.13				5.00		82.5		70-130			
1,4-Dioxane	4.29				5.00		85.8		70-130			
Ethanol	7.04				5.00		**141**	*	70-130			L-05
Ethyl Acetate	4.44				5.00		88.8		70-130			
Ethylbenzene	4.92				5.00		98.3		70-130			
4-Ethyltoluene	5.13				5.00		103		70-130			
Heptane	5.18				5.00		104		70-130			
Hexachlorobutadiene	3.84				5.00		76.7		70-130			
Hexane	4.62				5.00		92.3		70-130			
2-Hexanone (MBK)	5.87				5.00		117		70-130			
Indane	3.50				1.29		**271**	*	70-130			L-01
Indene	3.32				2.64		126		70-130			
Isopropanol	6.39				5.00		128		70-130			
Isopropylbenzene (Cumene)	3.39				2.54		**133**	*	70-130			L-05
Methyl tert-Butyl Ether (MTBE)	4.18				5.00		83.6		70-130			
Methylene Chloride	3.98				5.00		79.7		70-130			
4-Methyl-2-pentanone (MIBK)	6.34				5.00		127		70-130			
Naphthalene	4.35				5.00		87.0		70-130			
Propene	4.35				5.00		87.0		70-130			
Styrene	4.93				5.00		98.6		70-130			
1,1,2,2-Tetrachloroethane	4.45				5.00		89.0		70-130			
Tetrachloroethylene	4.11				5.00		82.2		70-130			
Tetrahydrofuran	4.04				5.00		80.8		70-130			
Toluene	4.62				5.00		92.4		70-130			
1,2,4-Trichlorobenzene	4.00				5.00		80.1		70-130			
1,1,1-Trichloroethane	4.87				5.00		97.5		70-130			
1,1,2-Trichloroethane	4.19				5.00		83.8		70-130			
Trichloroethylene	4.26				5.00		85.1		70-130			
Trichlorofluoromethane (Freon 11)	5.73				5.00		115		70-130			
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	3.95				5.00		78.9		70-130			
1,2,4-Trimethylbenzene	5.00				5.00		100		70-130			
1,3,5-Trimethylbenzene	5.15				5.00		103		70-130			
Vinyl Acetate	5.74				5.00		115		70-130			
Vinyl Chloride	5.06				5.00		101		70-130			
m&p-Xylene	10.6				10.0		106		70-130			
o-Xylene	5.03				5.00		101		70-130			
Surrogate: 4-Bromofluorobenzene (1)	*8.17*				*8.00*		*102*		*70-130*			
Surrogate: 4-Bromofluorobenzene (2)	*7.38*				*8.00*		*92.2*		*70-130*			

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FLAG/QUALIFIER SUMMARY

*	QC result is outside of established limits.
†	Wide recovery limits established for difficult compound.
‡	Wide RPD limits established for difficult compound.
#	Data exceeded client recommended or regulatory level
	Percent recoveries and relative percent differences (RPDs) are determined by the software using values in the calculation which have not been rounded.
	No results have been blank subtracted unless specified in the case narrative section.
L-01	Laboratory fortified blank /laboratory control sample recovery outside of control limits. Data validation is not affected since all results are "not detected" for all samples in this batch for this compound and bias is on the high side.
L-05	Laboratory fortified blank/laboratory control sample recovery is outside of control limits. Reported value for this compound is likely to be biased on the high side.
V-06	Continuing calibration did not meet method specifications and was biased on the high side for this compound. Increased uncertainty is associated with the reported value which is likely to be biased on the high side.

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
EPA TO-15 in Air	
Acetone	AIHA,NY,ME
Benzene	AIHA,FL,NJ,NY,VA,ME
Benzyl chloride	AIHA,FL,NJ,NY,VA,ME
Bromodichloromethane	AIHA,NJ,NY,VA,ME
Bromoform	AIHA,NJ,NY,VA,ME
Bromomethane	AIHA,FL,NJ,NY,ME
1,3-Butadiene	AIHA,NJ,NY,VA,ME
2-Butanone (MEK)	AIHA,FL,NJ,NY,VA,ME
Carbon Disulfide	AIHA,NJ,NY,VA,ME
Carbon Tetrachloride	AIHA,FL,NJ,NY,VA,ME
Chlorobenzene	AIHA,FL,NJ,NY,VA,ME
Chloroethane	AIHA,FL,NJ,NY,VA,ME
Chloroform	AIHA,FL,NJ,NY,VA,ME
Chloromethane	AIHA,FL,NJ,NY,VA,ME
Cyclohexane	AIHA,NJ,NY,VA,ME
Dibromochloromethane	AIHA,NY,ME
1,2-Dibromoethane (EDB)	AIHA,NJ,NY,ME
1,2-Dichlorobenzene	AIHA,FL,NJ,NY,VA,ME
1,3-Dichlorobenzene	AIHA,NJ,NY,ME
1,4-Dichlorobenzene	AIHA,FL,NJ,NY,VA,ME
Dichlorodifluoromethane (Freon 12)	AIHA,NY,ME
1,1-Dichloroethane	AIHA,FL,NJ,NY,VA,ME
1,2-Dichloroethane	AIHA,FL,NJ,NY,VA,ME
1,1-Dichloroethylene	AIHA,FL,NJ,NY,VA,ME
cis-1,2-Dichloroethylene	AIHA,FL,NY,VA,ME
trans-1,2-Dichloroethylene	AIHA,NJ,NY,VA,ME
1,2-Dichloropropane	AIHA,FL,NJ,NY,VA,ME
cis-1,3-Dichloropropene	AIHA,FL,NJ,NY,VA,ME
trans-1,3-Dichloropropene	AIHA,NY,ME
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114)	AIHA,NJ,NY,VA,ME
1,4-Dioxane	AIHA,NJ,NY,VA,ME
Ethanol	AIHA
Ethyl Acetate	AIHA
Ethylbenzene	AIHA,FL,NJ,NY,VA,ME
4-Ethyltoluene	AIHA,NJ
Heptane	AIHA,NJ,NY,VA,ME
Hexachlorobutadiene	AIHA,NJ,NY,VA,ME
Hexane	AIHA,FL,NJ,NY,VA,ME
2-Hexanone (MBK)	AIHA
Isopropanol	AIHA,NY,ME
Isopropylbenzene (Cumene)	AIHA,NJ,NY,ME
Methyl tert-Butyl Ether (MTBE)	AIHA,FL,NJ,NY,VA,ME
Methylene Chloride	AIHA,FL,NJ,NY,VA,ME
4-Methyl-2-pentanone (MIBK)	AIHA,FL,NJ,NY,ME
Naphthalene	NY,ME
Propene	AIHA
Styrene	AIHA,FL,NJ,NY,VA,ME

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CERTIFICATIONS

Certified Analyses included in this Report

Analyte	Certifications
EPA TO-15 in Air	
1,1,2,2-Tetrachloroethane	AIHA,FL,NJ,NY,VA,ME
Tetrachloroethylene	AIHA,FL,NJ,NY,VA,ME
Tetrahydrofuran	AIHA
Toluene	AIHA,FL,NJ,NY,VA,ME
1,2,4-Trichlorobenzene	AIHA,NJ,NY,VA,ME
1,1,1-Trichloroethane	AIHA,FL,NJ,NY,VA,ME
1,1,2-Trichloroethane	AIHA,FL,NJ,NY,VA,ME
Trichloroethylene	AIHA,FL,NJ,NY,VA,ME
Trichlorofluoromethane (Freon 11)	AIHA,NY,ME
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113)	AIHA,NJ,NY,VA,ME
1,2,4-Trimethylbenzene	AIHA,NJ,NY,ME
1,3,5-Trimethylbenzene	AIHA,NJ,NY,ME
Vinyl Acetate	AIHA,FL,NJ,NY,VA,ME
Vinyl Chloride	AIHA,FL,NJ,NY,VA,ME
m&p-Xylene	AIHA,FL,NJ,NY,VA,ME
o-Xylene	AIHA,FL,NJ,NY,VA,ME

The CON-TEST Environmental Laboratory operates under the following certifications and accreditations:

Code	Description	Number	Expires
AIHA	AIHA-LAP, LLC	100033	02/1/2016
MA	Massachusetts DEP	M-MA100	06/30/2015
CT	Connecticut Department of Publilc Health	PH-0567	09/30/2015
NY	New York State Department of Health	10899 NELAP	04/1/2015
NH-S	New Hampshire Environmental Lab	2516 NELAP	02/5/2015
RI	Rhode Island Department of Health	LAO00112	12/30/2014
NC	North Carolina Div. of Water Quality	652	12/31/2014
NJ	New Jersey DEP	MA007 NELAP	06/30/2015
FL	Florida Department of Health	E871027 NELAP	06/30/2015
VT	Vermont Department of Health Lead Laboratory	LL015036	07/30/2015
WA	State of Washington Department of Ecology	C2065	02/23/2015
ME	State of Maine	2011028	06/9/2015
VA	Commonwealth of Virginia	460217	12/14/2014
NH-P	New Hampshire Environmental Lab	2557 NELAP	09/6/2014

con-test ANALYTICAL LABORATORY
www.contestlabs.com
Phone: 413-525-2332
Fax: 413-525-6405
Email: info@contestlabs.com

AIR SAMPLE CHAIN OF CUSTODY RECORD

39 SPRUCE ST
EAST LONGMEADOW, MA 01028

DOC#284
Rev. Feb 2014

14G1373

Company Name: G2A
Address: 530 BROADWAY
PROVIDENCE, RHODE ISLAND
Attention: MEG KILPATRICK
Project Location: TIDEWATER
Sampled By: SOPHIA NARKIEWICZ

Telephone: 401-421-4140
Project #: 43654
Client PO #:

DATA DELIVERY (check one):
☐FAX ☒EMAIL ☐WEBSITE CLIENT
Fax #:
Email: margaret.kilpatrick@g2a.com
Format: ☒EXCEL ☒PDF ☐GIS KEY ☐OTHER

Proposal Provided? (For Billing purposes)
☐yes _____ proposal date

Field ID	Sample Description	Media	Lab #	Date Sampled Start Date Time	Date Sampled Stop Date Time	ONLY USE WHEN USING PUMPS Total Minutes Sampled	Flow Rate M^3/Min. or L/Min.	Volume Liters or M^3	Matrix Code*	ANALYSIS REQUESTED TO-15	T-3C Helium			"Hg Initial pressure	"Hg Final pressure	Lab Receipt pressure	Summa Canister ID	Flow Controller ID
	SG-105S	S	01	7/29/14 13:38	7/29/14 13:53				SG	X	X			-29	-4		1382	4103
	AMBIENT-72914	S	02	7/29/14 9:50	7/29/14 15:50				AMB	X				>31	-11.5		1397	3015
	DID NOT USE - RETURN ONLY																1392	4104

Please fill out completely, sign, date and retain the yellow copy for your record.
Summa canisters and flow controllers must be returned within 14 days of receipt or rental fees will apply.
For summa canister and flow controller information please refer to Con-Test's Air Media Agreement.

Laboratory Comments:

CLIENT COMMENTS:
EMAIL SOPHIA.NARKIEWICZ@G2A.COM ALSO
- RETURN S1392 FC 4104 - NO ANALYSIS
- RESULTS IN ug/m3

Relinquished by: (signature)	Date/Time:
	7/29/14 1815
Received by: (signature)	Date/Time:
	7/30/14 1025
Relinquished by: (signature)	Date/Time:
	7/30/14 430
Received by: (signature)	Date/Time:
Paula	7/30/14 16:30

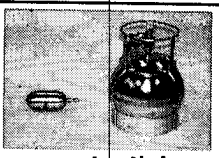
Turnaround **
☒ 7-Day
☐ 10-Day
☐ Other ___
RUSH *
☐ *24-Hr ☐ *48-Hr
☐ *72-Hr ☐ *4-Day
*Approval Required

Special Requirements
Regulations: NJ/CT
Data Enhancement/RCP? ☐Y ☒N
Enhanced Data Package ☐Y ☒N
(Surchage Applies)
Required Detection Limits: PROJECT SPECIFIC
Other: NJ/CT

*Matrix Code:
SG= SOIL GAS
IA= INDOOR AIR
AMB=AMBIENT
SS = SUB SLAB
D = DUP
BL = BLANK
O = other

**Media Codes:
S=summa can
T=tedlar bag
P=PUF
T=tube
F= filter
C=cassette
O = Other

** TURNAROUND TIME STARTS AT 9:00 A.M. THE DAY AFTER SAMPLE RECEIPT UNLESS THERE ARE QUESTIONS ON YOUR CHAIN. IF THIS FORM IS NOT FILLED OUT COMPLETELY OR IS INCORRECT, TURNAROUND TIME WILL NOT START UNTIL ALL QUESTIONS ARE ANSWERED BY OUR CLIENT. NELAC & AIHA-LAP, LLC Accredited/WBE/DBE Certified



www.contestlabs.com

con-test® ANALYTICAL LABORATORY

AIR Only Receipt Checklist

39 Spruce St.
East Longmeadow, MA.
01028
P: 413-525-2332
F: 413-525-6405

CLIENT NAME: GZA RECEIVED BY: PB DATE: 7-30-14

1) Was the chain(s) of custody relinquished and signed? ~~Yes~~ No

2) Does the chain agree with the samples? Yes No
If not, explain:

3) Are all the samples in good condition? Yes No
If not, explain:

4) Are there any samples "On Hold"? Yes No Stored where:

5) Are there any RUSH or SHORT HOLDING TIME samples? Yes No
Who was notified _____ Date _____ Time _____

6) Location where samples are stored: Air Lab

Permission to subcontract samples? Yes No
(Walk-in clients only) if not already approved
Client Signature: _____

7) Number of cans Individually Certified or Batch Certified? NONE

Containers received at Con-Test

		# of Containers	Types (Size, Duration)
Summa Cans (TO-14/TO-15/APH)		3	3 6L
Tedlar Bags			
TO-17 Tubes			
Regulators		3	2 15min 1 8hr
Restrictors			
Hg/Hopcalite Tube (NIOSH 6009)			
(TO-4A/ TO-10A/TO-13) PUFs			
PCB Florisil Tubes (NIOSH 5503)			
Air cassette			
PM 2.5/PM 10			
TO-11A Cartridges			
Other			

Unused Summas/PUF Media: 1392

Unused Regulators:

1) Was all media (used & unused) checked into the WASP?

2) Were all returned summa cans, Restrictors & Regulators and PUF's documented as returned in the Air Lab Inbound/Outbound Excel Spreadsheet?

Laboratory Comments: 1382 1397 3015 = 8 hr ~~4014~~ 4104 40 4103

Login Sample Receipt Checklist
(Rejection Criteria Listing - Using Sample Acceptance Policy)
Any False statement will be brought to the attention of Client

Question	Answer (True/False) T/F/NA	Comment
1) The cooler's custody seal, if present, is intact.	NA	
2) The cooler or samples do not appear to have been compromised or tampered with.	NA	
3) Samples were received on ice.	NA	
4) Cooler Temperature is acceptable.	NA	
5) Cooler Temperature is recorded.	NA	
6) COC is filled out in ink and legible.	T	
7) COC is filled out with all pertinent information.	T	
8) Field Sampler's name present on COC.	T	
9) There are no discrepancies between the sample IDs on the container and the COC.	T	
10) Samples are received within Holding Time.	T	
11) Sample containers have legible labels.	T	
12) Containers are not broken or leaking.	T	
13) Air Cassettes are not broken/open.	NA	
14) Sample collection date/times are provided.	T	
15) Appropriate sample containers are used.	T	
16) Proper collection media used.	T	
17) No headspace sample bottles are completely filled.	NA	
18) There is sufficient volume for all requsted analyses, including any requested MS/MSDs.	T	
19) Trip blanks provided if applicable.	NA	
20) VOA sample vials do not have head space or bubble is <6mm (1/4") in diameter.	NA	
21) Samples do not require splitting or compositing.	T	

Doc #278 Rev. 4 January 2014

Who notified of False statements?
Log-In Technician Initials: PB

Date/Time:
Date/Time: 7-30-14 11:30