



*Solving Environmental Problems
& Creating Redevelopment Opportunities*

May 21, 2018

Mr. Scott Heck, CPWM
Borough Manager/Director DPW
Borough of Ringwood
60 Margaret King Avenue
Ringwood, New Jersey 07456

BY EMAIL AND MAIL

Re: **Municipal Production Well Sampling
Borough of Ringwood, New Jersey 07456
Sampling Date: April 6, 2018**

Dear Mr. Heck:

This letter report has been prepared by Excel Environmental Resources, Inc. (Excel) to provide you with the analytical results of water sampling from three Borough of Ringwood municipal production wells collected at the following locations on April 6, 2018:

- Valley Road Well #2 TP003022;
- Brooksyde Booster TP001001 (Brooksyde Treatment Plant); and
- Beattie Lane Well 9R TP002003 (Beattie Lane Treatment Plant).

Drinking water sampling was conducted by a qualified sampler from the New Jersey-certified laboratory conducting the analysis, Alpha Analytical, Inc. (Alpha). At each of the three well locations, water samples were collected directly from a spigot tapped off the inlet waterline after allowing the line to purge for approximately 10 minutes.

At each well location, two sets of samples were collected for 1,4-Dioxane analysis using both methods historically used for verification of water quality at the Borough production wells, specifically, United States Environmental Protection Agency (USEPA) Method 8270-SIM with Isotope Dilution, the method being used for groundwater monitoring at the Ringwood Mines Superfund Site, and USEPA Method 522 which is the drinking water method. Samples for analysis using USEPA Method 8270 SIM with Isotope Dilution were collected in a 500 milliliter (ml) amber borosilicate jar with no added preservative. Samples for analysis using USEPA Method 522 were collected in a 500 ml amber borosilicate jar that contained Sodium Sulfite (solid dichlorination reagent). Upon filling the jar, approximately 1.0 ml of sodium bisulfate solution (microbial inhibitor) was added to the jar and the jar was capped.



Upon sample collection, all sample containers were labeled with the following information:

- Project name;
- Sample identification (ID) Number;
- Date and time of sample collection;
- Sampler's Initials; and
- Preservation used (if applicable).

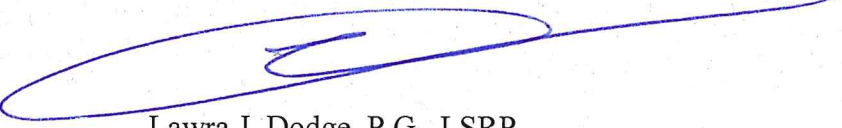
Each sample was placed into a cooler and properly packed to prevent breakage. A sufficient quantity of ice was placed in the cooler to maintain a temperature at or below four degrees Celsius. The cooler, along with a properly completed chain-of-custody, was delivered directly to Alpha Analytical by the sampler.

The full Laboratory Analytical Report for the samples collected on April 6, 2018 is provided as Attachment A, including chain-of-custody and Quality Assurance/Quality Control (QA/QC) documentation. The laboratory analytical data and QA/QC documentation was reviewed and deemed valid by Excel.

The analytical results of the water sampling conducted on April 6, 2018 are summarized in the enclosed Table 1 which also includes the analytical results for samples collected from the same municipal wells in 2013 and 2016. As shown in Table 1, the analytical results using both EPA Method 8270 Sim with Isotope Dilution and EPA Method 522 indicate that 1,4-Dioxane was not detected above method detection levels in any of the three municipal production well samples. These results are consistent with the results of the municipal well sampling and analysis conducted in 2013 and 2016 which confirm that 1,4-Dioxane is not detected in the Borough's drinking water.

As always, please feel free to contact me at (732) 545-9525 if you have any questions or need any additional information.

Sincerely,
EXCEL ENVIRONMENTAL RESOURCES, INC.



Lawra J. Dodge, P.G., LSRP
President

Cc: Wanda Monahan, Esq., Law Offices of Wanda Chin Monahan

Enclosures:

Table 1
Attachment A: Laboratory Analytical Report



TABLE 1
PRODUCTION WELL¹ POTABLE WATER ANALYTICAL RESULTS: 1,4-DIOXANE
 Borough of Ringwood, Passaic County, New Jersey
 Samples Reported in (ug/L)

Facility Name	Sample Location	Sample Matrix	Sample Date	Time	Analytical Method	NJDEP GWQC ²	Method Detection Limit	1,4-Dioxane
Borough of Ringwood Valley Road Treatment Plant	Valley Road TP	GW	1/22/2013	---	EPA 522	0.4	0.07	0.08287
	Valley Road TP	GW	9/4/2013	---	EPA 522	0.4	0.07	ND
	Valley Road TP	GW	2/26/2016	1059	EPA 8270 SIM	0.4	0.0735	ND
	Valley Road TP	GW	4/6/2018	1148	EPA 8270 SIM	0.4	0.078	ND
	Valley Road TP	GW	4/6/2018	1148	EPA 522	0.4	0.111	ND
Borough of Ringwood Brookside Treatment Plant	Treatment Plant #1	GW	1/22/2013	---	EPA 522	0.4	0.07	0.10145
	Treatment Plant #1	GW	7/24/2013	---	EPA 522	0.4	0.07	ND
	Treatment Plant #1	GW	2/26/2016	1111	EPA 8270 SIM	0.4	0.0721	ND
	Treatment Plant #1	GW	4/6/2018	1215	EPA 8270 SIM	0.4	0.072	ND
	Treatment Plant #1	GW	4/6/2018	1215	EPA 522	0.4	0.100	ND
Borough of Ringwood Beattie Lane Treatment Plant	Beattie Lane TP	GW	1/22/2013	---	EPA 522	0.4	0.07	ND
	Beattie Lane TP	GW	7/24/2013	---	EPA 522	0.4	0.07	ND
	Beattie Lane TP	GW	2/26/2016	1128	EPA 8270 SIM	0.4	0.0721	ND
	Beattie Lane TP	GW	4/6/2018	1245	EPA 8270 SIM	0.4	0.075	ND
	Beattie Lane TP	GW	4/6/2018	1245	EPA 522	0.4	0.100	ND

KEY:

- ug/L - micrograms per liter or parts per billion
- NJDEP - New Jersey Department of Environmental Protection
- GWQC - NJDEP Interim Groundwater Quality Criteria Adopted November 2015
- GW - Groundwater
- ND - Not Detected Above the Method Detection Limit Listed
- EPA - United States Environmental Protection Agency
- SIM - Selective Ion Monitoring

NOTES:

- 1 - Approximately 97% of the Borough of Ringwood's potable water is drawn from production wells owned and operated by the Borough.
- 2 - This value is the NJDEP Interim Specific Groundwater Quality Criteria which is for site investigation purposes only. Given that there is no EPA or NJDEP drinking water standard for 1,4-dioxane, it is provided only as a point of reference.

ATTACHMENT A
LABORATORY ANALYTICAL REPORT



ANALYTICAL REPORT

Lab Number:	L1812089
Client:	Excel Environmental Resources, Inc. 111 North Center Drive North Brunswick, NJ 08902
ATTN:	Ron Harwood
Phone:	(732) 545-9525
Project Name:	RINGWOOD
Project Number:	Not Specified
Report Date:	04/10/18

The original project report/data package is held by Alpha Analytical. This report/data package is paginated and should be reproduced only in its entirety. Alpha Analytical holds no responsibility for results and/or data that are not consistent with the original.

Certifications & Approvals: MA (M-MA086), NH NELAP (2064), NJ NELAP (MA935), CT (PH-0574), IL (200077), ME (MA00086), MD (348), NY (11148), NC (25700/666), PA (68-03671), RI (LAO00065), TX (T104704476), VT (VT-0935), VA (460195), USDA (Permit #P330-14-00197).

Eight Walkup Drive, Westborough, MA 01581-1019
508-898-9220 (Fax) 508-898-9193 800-624-9220 - www.alphalab.com



Serial_No:04101815:05

Project Name: RINGWOOD
Project Number: Not Specified

Lab Number: L1812089
Report Date: 04/10/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1812089-01	VALLEY ROAD WELL #2 TP003022	WATER	RINGWOOD, NJ	04/06/18 11:48	04/06/18
L1812089-02	BROOKSYDE BOOSTER TP001001	WATER	RINGWOOD, NJ	04/06/18 12:15	04/06/18
L1812089-03	BEATTIE LANE WELL 9R TP002003	WATER	RINGWOOD, NJ	04/06/18 12:45	04/06/18

Project Name: RINGWOOD
Project Number: Not Specified

Lab Number: L1812089
Report Date: 04/10/18

**NJ DEP Data of Known Quality Protocols
Conformance/Non-Conformance
Summary Questionnaire**

1	For each analytical method referenced in this laboratory report package, were all specified QA/QC performance criteria followed, including the requirement to explain any criteria falling outside of acceptable guidelines, as specified in the NJDEP Data of Known Quality performance standards?	YES
1a	Were the method specified handling, preservation, and holding time requirements met?	YES
1b	EPH Method: Was the EPH Method conducted without significant modifications (see Section 11.3 of respective DKQ methods)?	N/A
2	Were all samples received by the laboratory in a condition consistent with that described on the associated chain-of-custody document(s)?	YES
3	Were all samples received at an appropriate temperature ($4 \pm 2^{\circ}$ C)?	YES
4	Were all QA/QC performance criteria specified in the NJDEP DKQP standards achieved?	YES
5a	Were reporting limits specified or referenced on the chain-of-custody or communicated to the laboratory prior to sample receipt?	YES
5b	Were these reporting limits met?	YES
6	For each analytical method referenced in this laboratory report package, were results reported for all constituents identified in the method-specific analyte lists presented in the DKQP documents and/or site-specific QAPP?	YES
7	Are project-specific matrix spikes and/or laboratory duplicates included in this data set?	YES

Note: For all questions to which the response was "No" (with the exception of question #7), additional information must be provided in an attached narrative. If the answer to question #1, #1a or #1b is "No", the data package does not meet the requirements for "Data of Known Quality".

Project Name: RINGWOOD
Project Number: Not Specified

Lab Number: L1812089
Report Date: 04/10/18

Case Narrative

The samples were received in accordance with the Chain of Custody and no significant deviations were encountered during the preparation or analysis unless otherwise noted. Sample Receipt, Container Information, and the Chain of Custody are located at the back of the report.

Results contained within this report relate only to the samples submitted under this Alpha Lab Number and meet NELAP requirements for all NELAP accredited parameters unless otherwise noted in the following narrative. The data presented in this report is organized by parameter (i.e. VOC, SVOC, etc.). Sample specific Quality Control data (i.e. Surrogate Spike Recovery) is reported at the end of the target analyte list for each individual sample, followed by the Laboratory Batch Quality Control at the end of each parameter. Tentatively Identified Compounds (TICs), if requested, are reported for compounds identified to be present and are not part of the method/program Target Compound List, even if only a subset of the TCL are being reported. If a sample was re-analyzed or re-extracted due to a required quality control corrective action and if both sets of data are reported, the Laboratory ID of the re-analysis or re-extraction is designated with an "R" or "RE", respectively. When multiple Batch Quality Control elements are reported (e.g. more than one LCS), the associated samples for each element are noted in the grey shaded header line of each data table. Any Laboratory Batch, Sample Specific % recovery or RPD value that is outside the listed Acceptance Criteria is bolded in the report. All specific QC information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications. Soil/sediments, solids and tissues are reported on a dry weight basis unless otherwise noted. Definitions of all data qualifiers and acronyms used in this report are provided in the Glossary located at the back of the report.

In reference to questions H (CAM) or 4 (RCP) when "NO" is checked, the performance criteria for CAM and RCP methods allow for some quality control failures to occur and still be within method compliance. In these instances the specific failure is not narrated but noted in the associated QC table. The information is also incorporated in the Data Usability format of our Data Merger tool where it can be reviewed along with any associated usability implications.

Please see the associated ADEx data file for a comparison of laboratory reporting limits that were achieved with the regulatory Numerical Standards requested on the Chain of Custody.

HOLD POLICY

For samples submitted on hold, Alpha's policy is to hold samples (with the exception of Air canisters) free of charge for 21 calendar days from the date the project is completed. After 21 calendar days, we will dispose of all samples submitted including those put on hold unless you have contacted your Client Service Representative and made arrangements for Alpha to continue to hold the samples. Air canisters will be disposed after 3 business days from the date the project is completed.

Please contact Client Services at 800-624-9220 with any questions.

Project Name: RINGWOOD
Project Number: Not Specified

Lab Number: L1812089
Report Date: 04/10/18

Case Narrative (continued)

Report Submission

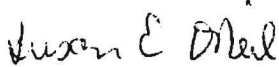
All non-detect (ND) or estimated concentrations (J-qualified) have been quantitated to the limit noted in the MDL column.

DKQP Related Narratives

Report Submission

All DKQP required questions were answered with affirmative responses; therefore, there are no relevant data issues to discuss.

I, the undersigned, attest under the pains and penalties of perjury that, to the best of my knowledge and belief and based upon my personal inquiry of those responsible for providing the information contained in this analytical report, such information is accurate and complete. This certificate of analysis is not complete unless this page accompanies any and all pages of this report.

Authorized Signature:  Susan O' Neil

Title: Technical Director/Representative

Date: 04/10/18

ORGANICS

SEMIVOLATILES

Project Name: RINGWOOD
Project Number: Not Specified

Lab Number: L1812089
Report Date: 04/10/18

SAMPLE RESULTS

Lab ID: L1812089-01
Client ID: VALLEY ROAD WELL #2 TP003022
Sample Location: RINGWOOD, NJ

Date Collected: 04/06/18 11:48
Date Received: 04/06/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 04/09/18 17:47
Analyst: TJ

Extraction Method: EPA 3510C
Extraction Date: 04/09/18 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.156	0.078	1
Surrogate			% Recovery	Qualifier	Acceptance Criteria	
1,4-Dioxane-d8			24		15-110	



Project Name: RINGWOOD
Project Number: Not Specified

Lab Number: L1812089
Report Date: 04/10/18

SAMPLE RESULTS

Lab ID: L1812089-01
 Client ID: VALLEY ROAD WELL #2 TP003022
 Sample Location: RINGWOOD, NJ

Date Collected: 04/06/18 11:48
 Date Received: 04/06/18
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 120,522
 Analytical Date: 04/09/18 16:35
 Analyst: TJ

Extraction Method: EPA 522
 Extraction Date: 04/09/18 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by EPA 522 - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.111	0.111	1
Surrogate			% Recovery	Qualifier	Acceptance Criteria	
1,4-Dioxane-d8			79		70-130	

Project Name: RINGWOOD
Project Number: Not Specified

Lab Number: L1812089
Report Date: 04/10/18

SAMPLE RESULTS

Lab ID: L1812089-02
Client ID: BROOKSYDE BOOSTER TP001001
Sample Location: RINGWOOD, NJ

Date Collected: 04/06/18 12:15
Date Received: 04/06/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 04/09/18 18:32
Analyst: TJ

Extraction Method: EPA 3510C
Extraction Date: 04/09/18 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.144	0.072	1
Surrogate			% Recovery	Qualifier	Acceptance Criteria	
1,4-Dioxane-d8			23		15-110	

Project Name: RINGWOOD
Project Number: Not Specified

Lab Number: L1812089
Report Date: 04/10/18

SAMPLE RESULTS

Lab ID: L1812089-02
 Client ID: BROOKSYDE BOOSTER TP001001
 Sample Location: RINGWOOD, NJ

Date Collected: 04/06/18 12:15
 Date Received: 04/06/18
 Field Prep: Not Specified

Sample Depth:
 Matrix: Water
 Analytical Method: 120,522
 Analytical Date: 04/09/18 16:57
 Analyst: TJ

Extraction Method: EPA 522
 Extraction Date: 04/09/18 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by EPA 522 - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.100	0.100	1
Surrogate			% Recovery	Qualifier	Acceptance Criteria	
1,4-Dioxane-d8			85		70-130	

Project Name: RINGWOOD
Project Number: Not Specified

Lab Number: L1812089
Report Date: 04/10/18

SAMPLE RESULTS

Lab ID: L1812089-03
Client ID: BEATTIE LANE WELL 9R TP002003
Sample Location: RINGWOOD, NJ

Date Collected: 04/06/18 12:45
Date Received: 04/06/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 1,8270D-SIM
Analytical Date: 04/09/18 19:16
Analyst: TJ

Extraction Method: EPA 3510C
Extraction Date: 04/09/18 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by 8270D-SIM - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.150	0.075	1
Surrogate			% Recovery	Qualifier	Acceptance Criteria	
1,4-Dioxane-d8			26		15-110	

Project Name: RINGWOOD
Project Number: Not Specified

Lab Number: L1812089
Report Date: 04/10/18

SAMPLE RESULTS

Lab ID: L1812089-03
Client ID: BEATTIE LANE WELL 9R TP002003
Sample Location: RINGWOOD, NJ

Date Collected: 04/06/18 12:45
Date Received: 04/06/18
Field Prep: Not Specified

Sample Depth:
Matrix: Water
Analytical Method: 120,522
Analytical Date: 04/09/18 17:20
Analyst: TJ

Extraction Method: EPA 522
Extraction Date: 04/09/18 09:00

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
1,4 Dioxane by EPA 522 - Mansfield Lab						
1,4-Dioxane	ND		ug/l	0.100	0.100	1
Surrogate			% Recovery	Qualifier	Acceptance Criteria	
1,4-Dioxane-d8			83		70-130	



Project Name: RINGWOOD
Project Number: Not Specified

Lab Number: L1812089
Report Date: 04/10/18

**Method Blank Analysis
 Batch Quality Control**

Analytical Method: 1,8270D-SIM
Analytical Date: 04/09/18 12:55
Analyst: TJ

Extraction Method: EPA 3510C
Extraction Date: 04/09/18 09:00

Parameter	Result	Qualifier	Units	RL	MDL
1,4 Dioxane by 8270D-SIM - Mansfield Lab for sample(s): 01-03 Batch: WG1104722-1					
1,4-Dioxane	ND		ug/l	0.150	0.075

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	27		15-110

Project Name: RINGWOOD
Project Number: Not Specified

Lab Number: L1812089
Report Date: 04/10/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 120,522
Analytical Date: 04/09/18 12:58
Analyst: TJ

Extraction Method: EPA 522
Extraction Date: 04/09/18 09:00

Parameter	Result	Qualifier	Units	RL	MDL
1,4 Dioxane by EPA 522 - Mansfield Lab for sample(s): 01-03 Batch: WG1104863-1					
1,4-Dioxane	ND		ug/l	0.100	0.100

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	78		70-130

Serial_No:04101815:05

Lab Control Sample Analysis
Batch Quality Control

Project Name: RINGWOOD
Project Number: Not Specified

Lab Number: L1812089
Report Date: 04/10/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
1,4 Dioxane by 8270D-SIM - Mansfield Lab	Associated sample(s): 01-03 Batch: WG1104722-2 WG1104722-3							
1,4-Dioxane	112		114		40-140	2		30

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	31		25		15-110



Serial_No:04101815:05

Lab Control Sample Analysis
Batch Quality Control

Project Name: RINGWOOD
Project Number: Not Specified

Lab Number: L1812089
Report Date: 04/10/18

Parameter	LCS %Recovery	Qual	LCS %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
1,4 Dioxane by EPA 522 - Mansfield Lab Associated sample(s): 01-03 Batch: WG1104863-2 WG1104863-3								
1,4-Dioxane	110		92		70-130	18		30

Surrogate	LCS %Recovery	Qual	LCS %Recovery	Qual	Acceptance Criteria
1,4-Dioxane-d8	83		77		70-130



Serial_No:04101815:05

Matrix Spike Analysis
Batch Quality Control

Project Name: RINGWOOD
Project Number: Not Specified

Lab Number: L1812089
Report Date: 04/10/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MS Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
1,4 Dioxane by 8270D-SIM - Mansfield Lab BOOSTER TP001001 Associated sample(s): 01-03 QC Batch ID: WG1104722-5 QC Sample: L1812089-02 Client ID: BROOKSYDE												
1,4-Dioxane	ND	4.81	5.54	115		-	-		40-140	-		30

Surrogate	MS % Recovery	MS Qualifier	MSD % Recovery	MSD Qualifier	Acceptance Criteria
1,4-Dioxane-d8	26				15-110



Serial_No:04101815:05

Project Name: RINGWOOD
Project Number: Not Specified

Lab Duplicate Analysis
Batch Quality Control

Lab Number: L1812089
Report Date: 04/10/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
1,4 Dioxane by 8270D-SIM - Mansfield Lab Associated sample(s): 01-03 QC Batch ID: WG1104722-4 QC Sample: L1812089-01 Client ID: VALLEY ROAD WELL #2 TP003022						

1,4-Dioxane	ND	ND	ug/l	NC		30
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Surrogate	%Recovery	Qualifier	%Recovery	Qualifier	Acceptance Criteria
1,4-Dioxane-d8	24		26		15-110



Project Name: RINGWOOD
 Project Number: Not Specified

Serial_No:04101815:05
 Lab Number: L1812089
 Report Date: 04/10/18

Sample Receipt and Container Information

Were project specific reporting limits specified? YES

Cooler Information

Cooler Custody Seal
 A Absent

Container Information

Container ID	Container Type	Cooler	Initial pH	Final pH	Temp deg C	Pres	Seal	Frozen Date/Time	Analysis(*)
L1812089-01A	Amber 500ml NaSulfite/NaHSO4 preserved	A	<4	<4	2.8	Y	Absent		A2-NJ-14DIOXANE-522(28)
L1812089-01B	Amber 500ml NaSulfite/NaHSO4 preserved	A	<4	<4	2.8	Y	Absent		A2-NJ-14DIOXANE-522(28)
L1812089-01C	Amber 500ml unpreserved	A	7	7	2.8	Y	Absent		A2-NJ-14DIOXSIM-PPB(7)
L1812089-01D	Amber 500ml unpreserved	A	7	7	2.8	Y	Absent		A2-NJ-14DIOXSIM-PPB(7)
L1812089-02A	Amber 500ml NaSulfite/NaHSO4 preserved	A	<4	<4	2.8	Y	Absent		A2-NJ-14DIOXANE-522(28)
L1812089-02B	Amber 500ml NaSulfite/NaHSO4 preserved	A	<4	<4	2.8	Y	Absent		A2-NJ-14DIOXANE-522(28)
L1812089-02C	Amber 500ml unpreserved	A	7	7	2.8	Y	Absent		A2-NJ-14DIOXSIM-PPB(7)
L1812089-02D	Amber 500ml unpreserved	A	7	7	2.8	Y	Absent		A2-NJ-14DIOXSIM-PPB(7)
L1812089-03A	Amber 500ml NaSulfite/NaHSO4 preserved	A	<4	<4	2.8	Y	Absent		A2-NJ-14DIOXANE-522(28)
L1812089-03B	Amber 500ml NaSulfite/NaHSO4 preserved	A	<4	<4	2.8	Y	Absent		A2-NJ-14DIOXANE-522(28)
L1812089-03C	Amber 500ml unpreserved	A	7	7	2.8	Y	Absent		A2-NJ-14DIOXSIM-PPB(7)
L1812089-03D	Amber 500ml unpreserved	A	7	7	2.8	Y	Absent		A2-NJ-14DIOXSIM-PPB(7)

*Values in parentheses indicate holding time in days



Project Name: RINGWOOD
Project Number: Not Specified

Lab Number: L1812089
Report Date: 04/10/18

GLOSSARY

Acronyms

EDL	- Estimated Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The EDL includes any adjustments from dilutions, concentrations or moisture content, where applicable. The use of EDLs is specific to the analysis of PAHs using Solid-Phase Microextraction (SPME).
EPA	- Environmental Protection Agency.
LCS	- Laboratory Control Sample: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
LCS D	- Laboratory Control Sample Duplicate: Refer to LCS.
LFB	- Laboratory Fortified Blank: A sample matrix, free from the analytes of interest, spiked with verified known amounts of analytes or a material containing known and verified amounts of analytes.
MDL	- Method Detection Limit: This value represents the level to which target analyte concentrations are reported as estimated values, when those target analyte concentrations are quantified below the reporting limit (RL). The MDL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
MS	- Matrix Spike Sample: A sample prepared by adding a known mass of target analyte to a specified amount of matrix sample for which an independent estimate of target analyte concentration is available.
MSD	- Matrix Spike Sample Duplicate: Refer to MS.
NA	- Not Applicable.
NC	- Not Calculated: Term is utilized when one or more of the results utilized in the calculation are non-detect at the parameter's reporting unit.
NDPA/DPA	- N-Nitrosodiphenylamine/Diphenylamine.
NI	- Not Ignitable.
NP	- Non-Plastic: Term is utilized for the analysis of Atterberg Limits in soil.
RL	- Reporting Limit: The value at which an instrument can accurately measure an analyte at a specific concentration. The RL includes any adjustments from dilutions, concentrations or moisture content, where applicable.
RPD	- Relative Percent Difference: The results from matrix and/or matrix spike duplicates are primarily designed to assess the precision of analytical results in a given matrix and are expressed as relative percent difference (RPD). Values which are less than five times the reporting limit for any individual parameter are evaluated by utilizing the absolute difference between the values; although the RPD value will be provided in the report.
SRM	- Standard Reference Material: A reference sample of a known or certified value that is of the same or similar matrix as the associated field samples.
STLP	- Semi-dynamic Tank Leaching Procedure per EPA Method 1315.
TIC	- Tentatively Identified Compound: A compound that has been identified to be present and is not part of the target compound list (TCL) for the method and/or program. All TICs are qualitatively identified and reported as estimated concentrations.

Footnotes

- 1 - The reference for this analyte should be considered modified since this analyte is absent from the target analyte list of the original method.

Terms

Analytical Method: Both the document from which the method originates and the analytical reference method. (Example: EPA 8260B is shown as 1,8260B.) The codes for the reference method documents are provided in the References section of the Addendum.

Final pH: As it pertains to Sample Receipt & Container Information section of the report, Final pH reflects pH of container determined after adjustment at the laboratory, if applicable. If no adjustment required, value reflects Initial pH.

Frozen Date/Time: With respect to Volatile Organics in soil, Frozen Date/Time reflects the date/time at which associated Reagent Water-preserved vials were initially frozen. Note: If frozen date/time is beyond 48 hours from sample collection, value will be reflected in 'bold'.

Initial pH: As it pertains to Sample Receipt & Container Information section of the report, Initial pH reflects pH of container determined upon receipt, if applicable.

Total: With respect to Organic analyses, a 'Total' result is defined as the summation of results for individual isomers or Aroclors. If a 'Total' result is requested, the results of its individual components will also be reported. This is applicable to 'Total' results for methods 8260, 8081 and 8082.

Data Qualifiers

- A** - Spectra identified as "Aldol Condensation Product".
- B** - The analyte was detected above the reporting limit in the associated method blank. Flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For MCP-related

Report Format: DU Report with 'J' Qualifiers



Project Name: RINGWOOD
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Lab Number: L1812089
Report Date: 04/10/18

Data Qualifiers

projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank. For DOD-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte at less than ten times (10x) the concentration found in the blank AND the analyte was detected above one-half the reporting limit (or above the reporting limit for common lab contaminants) in the associated method blank. For NJ-Air-related projects, flag only applies to associated field samples that have detectable concentrations of the analyte above the reporting limit. For NJ-related projects (excluding Air), flag only applies to associated field samples that have detectable concentrations of the analyte, which was detected above the reporting limit in the associated method blank or above five times the reporting limit for common lab contaminants (Phthalates, Acetone, Methylene Chloride, 2-Butanone).

- C** - Co-elution: The target analyte co-elutes with a known lab standard (i.e. surrogate, internal standards, etc.) for co-extracted analyses.
- D** - Concentration of analyte was quantified from diluted analysis. Flag only applies to field samples that have detectable concentrations of the analyte.
- E** - Concentration of analyte exceeds the range of the calibration curve and/or linear range of the instrument.
- G** - The concentration may be biased high due to matrix interferences (i.e. co-elution) with non-target compound(s). The result should be considered estimated.
- H** - The analysis of pH was performed beyond the regulatory-required holding time of 15 minutes from the time of sample collection.
- I** - The lower value for the two columns has been reported due to obvious interference.
- M** - Reporting Limit (RL) exceeds the MCP CAM Reporting Limit for this analyte.
- NJ** - Presumptive evidence of compound. This represents an estimated concentration for Tentatively Identified Compounds (TICs), where the identification is based on a mass spectral library search.
- P** - The RPD between the results for the two columns exceeds the method-specified criteria.
- Q** - The quality control sample exceeds the associated acceptance criteria. For DOD-related projects, LCS and/or Continuing Calibration Standard exceedences are also qualified on all associated sample results. Note: This flag is not applicable for matrix spike recoveries when the sample concentration is greater than 4x the spike added or for batch duplicate RPD when the sample concentrations are less than 5x the RL. (Metals only.)
- R** - Analytical results are from sample re-analysis.
- RE** - Analytical results are from sample re-extraction.
- S** - Analytical results are from modified screening analysis.
- J** - Estimated value. The Target analyte concentration is below the quantitation limit (RL), but above the Method Detection Limit (MDL) or Estimated Detection Limit (EDL) for SPME-related analyses. This represents an estimated concentration for Tentatively Identified Compounds (TICs).
- ND** - Not detected at the method detection limit (MDL) for the sample, or estimated detection limit (EDL) for SPME-related analyses.

Report Format: DU Report with 'J' Qualifiers



Project Name: RINGWOOD
Project Number: Not Specified

Lab Number: L1812089
Report Date: 04/10/18

REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 120 Determination of 1,4-Dioxane in Drinking Water by Solid Phase Extraction (SPE) and Gas Chromatography/Mass Spectrometry (GC/MS) with Selected Ion Monitoring (SIM). EPA Method 522, EPA/600/R-08/101. Version 1.0, September 2008.

LIMITATION OF LIABILITIES

Alpha Analytical performs services with reasonable care and diligence normal to the analytical testing laboratory industry. In the event of an error, the sole and exclusive responsibility of Alpha Analytical shall be to re-perform the work at it's own expense. In no event shall Alpha Analytical be held liable for any incidental, consequential or special damages, including but not limited to, damages in any way connected with the use of, interpretation of, information or analysis provided by Alpha Analytical.

We strongly urge our clients to comply with EPA protocol regarding sample volume, preservation, cooling, containers, sampling procedures, holding time and splitting of samples in the field.



Alpha Analytical, Inc.
 Facility: **Company-wide**
 Department: **Quality Assurance**
 Title: **Certificate/Approval Program Summary**

Certification Information

The following analytes are not included in our Primary NELAP Scope of Accreditation:

Westborough Facility

EPA 624: m/p-xylene, o-xylene
 EPA 8260C: NPW: 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene, Azobenzene; SCM: Iodomethane (methyl iodide), Methyl methacrylate, 1,2,4,5-Tetramethylbenzene; 4-Ethyltoluene.
 EPA 8270D: NPW: Dimethylnaphthalene, 1,4-Diphenylhydrazine; SCM: Dimethylnaphthalene, 1,4-Diphenylhydrazine.
 EPA 300: DW: Bromide
 EPA 6860: SCM: Perchlorate
 EPA 9010: NPW and SCM: Amenable Cyanide Distillation
 SM4500: NPW: Amenable Cyanide, Dissolved Oxygen; SCM: Total Phosphorus, TKN, NO₂, NO₃.

Mansfield Facility

SM 2540D: TSS
 EPA 8082A: NPW: PCB: 1, 5, 31, 87,101, 110, 141, 151, 153, 180, 183, 187.
 EPA TO-15: Halothane, 2,4,4-Trimethyl-2-pentene, 2,4,4-Trimethyl-1-pentene, Thiophene, 2-Methylthiophene, 3-Methylthiophene, 2-Ethylthiophene, 1,2,3-Trimethylbenzene, Indan, Indene, 1,2,4,5-Tetramethylbenzene, Benzothiophene, 1-Methylnaphthalene.
 Biological Tissue Matrix: EPA 3050B

The following analytes are included in our Massachusetts DEP Scope of Accreditation

Westborough Facility:

Drinking Water

EPA 300.0: Chloride, Nitrate-N, Fluoride, Sulfate; EPA 353.2: Nitrate-N, Nitrite-N; SM4500NO3-F: Nitrate-N, Nitrite-N; SM4500F-C, SM4500CN-CE, EPA 180.1, SM2130B, SM4500CI-D, SM2320B, SM2540C, SM4500H-B
 EPA 332: Perchlorate; EPA 524.2: THMs and VOCs; EPA 504.1: EDB, DBCP.
 Microbiology: SM9215B; SM9223-P/A, SM9223B-Collert-QT, SM9222D.

Non-Potable Water

SM4500H,B, EPA 120.1, SM2510B, SM2540C, SM2320B, SM4500CL-E, SM4500F-BC, SM4500NH3-BH: Ammonia-N and Kjeldahl-N, EPA 350.1: Ammonia-N, LCHAT 10-107-06-1-B: Ammonia-N, EPA 351.1, SM4500NO3-F, EPA 353.2: Nitrate-N, EPA 351.1, SM4500P-E, SM4500P-B, E, SM4500SO4-E, SM5220D, EPA 410.4, SM5210B, SM5310C, SM4500CL-D, EPA 1664, EPA 420.1, SM4500-CN-CE, SM2540D.
 EPA 624: Volatile Halocarbons & Aromatics,
 EPA 608: Chlordane, Toxaphene, Aldrin, alpha-BHC, beta-BHC, gamma-BHC, delta-BHC, Dieldrin, DDD, DDE, DDT, Endosulfan I, Endosulfan II, Endosulfan sulfate, Endrin, Endrin Aldehyde, Heptachlor, Heptachlor Epoxide, PCBs
 EPA 625: SVOC (Acid/Base/Neutral Extractables), EPA 600/4-81-045: PCB-Oil.
 Microbiology: SM9223B-Collert-QT; Enterolert-QT, SM9221E, SM9222D.

Mansfield Facility:


Drinking Water

EPA 200.7: Al, Ba, Be, Cd, Cr, Cu, Mn, Ni, Na, Ag, Ca, Zn. EPA 200.8: Al, Sb, As, Ba, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn. EPA 245.1 Hg.
 EPA 522.

Non-Potable Water

EPA 200.7: Al, Sb, As, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Sr, TL, Ti, V, Zn.
 EPA 200.8: Al, Sb, As, Be, Cd, Cr, Cu, Pb, Mn, Ni, Se, Ag, TL, Zn.
 EPA 245.1 Hg.
 SM2340B

For a complete listing of analytes and methods, please contact your Alpha Project Manager.

 NEW JERSEY CHAIN OF CUSTODY		Service Centers Mahwah, NJ 07430: 35 Whitney Rd, Suite 6 Albany, NY 12205: 14 Walker Way Tonawanda, NY 14150: 275 Cooper Ave, Suite 105		Page 1 of 1		Date Rec'd in Lab 4/6/18		ALPHA Job # L1812089			
Westborough, MA 01581 8 Walkup Dr. TEL: 508-898-9220 FAX: 508-898-9193		Mansfield, MA 02048 320 Forbes Blvd TEL: 508-822-9300 FAX: 508-822-3288		Project Information Project Name: Ringwood Project Location: Ringwood, NJ Project # _____ (Use Project name as Project #) <input type="checkbox"/>		Deliverables <input checked="" type="checkbox"/> NJ Full / Reduced <input type="checkbox"/> EQulS (1 File) <input type="checkbox"/> EQulS (4 File) <input type="checkbox"/> Other		Billing Information <input checked="" type="checkbox"/> Same as Client Info PO # _____			
Client Information Client: Excel Environmental Resources Address: 111 North Center Dr North Brunswick, NJ Phone: 732-545-9525 Fax: 732-545-9425 Email: behalt@excelenv.com		Project Manager: behalt@excelenv.com (201)575-1067 ALPHAQuote #: _____ Turn-Around Time: Standard <input type="checkbox"/> Due Date: 4/11/2018 Rush (only if pre approved) <input checked="" type="checkbox"/> # of Days: 3 Day		Regulatory Requirement <input type="checkbox"/> SRS Residential/Non Residential <input type="checkbox"/> SRS Impact to Groundwater <input type="checkbox"/> NJ Ground Water Quality Standards <input type="checkbox"/> NJ IGW SPLP Leachate Criteria <input checked="" type="checkbox"/> Other		Site Information Is this site impacted by Petroleum? Yes <input type="checkbox"/> Petroleum Product: _____					
For EPH, selection is REQUIRED: <input type="checkbox"/> Category 1 <input type="checkbox"/> Category 2		For VOC, selection is REQUIRED: <input type="checkbox"/> 1,4-Dioxane <input type="checkbox"/> 8011		Other project specific requirements/comments: all samples collected following 10 minute flush Please specify Metals or TAL.		ANALYSIS 1,4 Dioxane by 8270 SIM 1,4 Dioxane by 522		Sample Filtration <input type="checkbox"/> Done <input type="checkbox"/> Lab to do <input type="checkbox"/> Preservation <input type="checkbox"/> Lab to do (Please Specify below)			
ALPHA Lab ID (Lab Use Only)		Sample ID		Collection Date Time		Sample Matrix		Sampler's Initials		Sample Specific Comments	
12389-01		Valley Road Well #2 TP003022		4/6/2018 11:48		AQ KH		XX XX		Point of Entry 4	
62		Brooksyde Booster TP001001		4/6/2018 12:15		AQ KH		XX XX		Point of Entry 4	
63		Reattie Lane Well 9R TP002003		4/6/2018 12:45		AQ KH		XX XX		Point of Entry 4	
Preservative Code: A = None B = HCl C = HNO ₃ D = H ₂ SO ₄ E = NaOH F = MeOH G = NaHSO ₄ H = Na ₂ S ₂ O ₃ K/E = Zn Ac/NaOH O = Other		Container Code: P = Plastic A = Amber Glass V = Vial G = Glass B = Bacteria Cup C = Cube O = Other E = Encore D = BOD Bottle		Westboro: Certification No: MA935 Mansfield: Certification No: MA015		Container Type A A		Preservative A H		Please print clearly, legibly and completely. Samples can not be logged in and turnaround time clock will not start until any ambiguities are resolved. BY EXECUTING THIS COC, THE CLIENT HAS READ AND AGREES TO BE BOUND BY ALPHA'S TERMS & CONDITIONS.	
Relinquished By: <i>Kuan Hoogehyde AAL</i>		Date/Time: <i>4/6/2018 14:15</i>		Received By: <i>Danny Santos AAL</i>		Date/Time: <i>4/6/18 1800</i>		<i>4/6/18 2218</i>			
Relinquished By: <i>David Santos AAL</i>		Date/Time: <i>4/6/18 22:15</i>		Received By: <i>CC</i>		Date/Time: <i>4/6/18 2218</i>					

