



ANALYTICAL REPORT

Lab Number:	L1821023
Client:	CH2M / Dow Chemical Company 299 Madison Ave. Morristown, NJ 07960
ATTN:	David Newman
Phone:	(862) 242-7061
Project Name:	FORMER HAMPSHIRE CHEMICAL CORP
Project Number:	701970.01.SA
Report Date:	06/13/18

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Project Name: FORMER HAMPSHIRE CHEMICAL CORP
Project Number: 701970.01.SA

Lab Number: L1821023
Report Date: 06/13/18

Alpha Sample ID	Client ID	Matrix	Sample Location	Collection Date/Time	Receive Date
L1821023-01	PZ03-060618	WATER	WATERLOO, NY	06/06/18 11:00	06/06/18
L1821023-02	TB-060618-2	WATER	WATERLOO, NY	06/06/18 08:00	06/06/18

Project Name: FORMER HAMPSHIRE CHEMICAL CORP
Project Number: 701970.01.SA

Lab Number: L1821023
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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: FORMER HAMPSHIRE CHEMICAL CORP
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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.

Volatile Organics

L1821023-01 and -02 and the associated method blank were evaluated for the presence of the following project specific TIC(s) and were determined to be non-detect: dimethyl disulfide.

The initial calibration, associated with L1821023-01 and -02, did not meet the method required minimum response factor for the calibration standards for bromodichloromethane, cis-1,3-dichloropropene, bromomethane, chloroethane, trichloroethene, dibromomethane, 2-butanone, 4-methyl-2-pentanone, 2-hexanone, bromochloromethane, and 1,4-dioxane.

The continuing calibration, associated with L1821023-01 and -02, did not meet the method required minimum response factor for bromomethane, chloroethane, trichloroethene, dibromomethane, 2-butanone, 4-methyl-2-pentanone, 2-hexanone, bromochloromethane, and 1,4-dioxane.

The WG1123598-2 continuing calibration verification standard has the percent deviation for bromomethane (49%D) above the 20% CCV criteria, but within overall method allowances.

Total Metals

The WG1124876-7 MS recovery for silica (154%), performed on L1821023-01, does not apply because the sample concentration is greater than four times the spike amount added.

The WG1124878-3 MS recovery for magnesium (281%) and sodium (440%), performed on L1821023-01, does not apply because the sample concentration is greater than four times the spike amount added.

Solids, Total Dissolved

The WG1123335-3 Laboratory Duplicate RPD (13%), performed on L1821023-01, is outside the acceptance criteria. The elevated RPD has been attributed to the non-homogeneous nature of the native sample.

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:

 Cristin Walker

Title: Technical Director/Representative

Date: 06/13/18

ORGANICS

VOLATILES

Project Name: FORMER HAMPSHIRE CHEMICAL CORP
Project Number: 701970.01.SA

Lab Number: L1821023
Report Date: 06/13/18

SAMPLE RESULTS

Lab ID: L1821023-01
 Client ID: PZ03-060618
 Sample Location: WATERLOO, NY

Date Collected: 06/06/18 11:00
 Date Received: 06/06/18
 Field Prep: Refer to COC

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 06/08/18 01:11
 Analyst: BD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	2.6		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: FORMER HAMPSHIRE CHEMICAL CORP
Project Number: 701970.01.SA

Lab Number: L1821023
Report Date: 06/13/18

SAMPLE RESULTS

Lab ID: L1821023-01
 Client ID: PZ03-060618
 Sample Location: WATERLOO, NY

Date Collected: 06/06/18 11:00
 Date Received: 06/06/18
 Field Prep: Refer to COC

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: FORMER HAMPSHIRE CHEMICAL CORP
Project Number: 701970.01.SA

Lab Number: L1821023
Report Date: 06/13/18

SAMPLE RESULTS

Lab ID: L1821023-01
Client ID: PZ03-060618
Sample Location: WATERLOO, NY

Date Collected: 06/06/18 11:00
Date Received: 06/06/18
Field Prep: Refer to COC

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Tentatively Identified Compounds

Total TIC Compounds	1.40	J	ug/l			1
Sulfur Dioxide	1.40	NJ	ug/l			1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	96		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	102		70-130
Dibromofluoromethane	97		70-130

Project Name: FORMER HAMPSHIRE CHEMICAL CORP
Project Number: 701970.01.SA

Lab Number: L1821023
Report Date: 06/13/18

SAMPLE RESULTS

Lab ID: L1821023-02
 Client ID: TB-060618-2
 Sample Location: WATERLOO, NY

Date Collected: 06/06/18 08:00
 Date Received: 06/06/18
 Field Prep: None

Sample Depth:

Matrix: Water
 Analytical Method: 1,8260C
 Analytical Date: 06/07/18 23:30
 Analyst: BD

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Methylene chloride	ND		ug/l	2.5	0.70	1
1,1-Dichloroethane	ND		ug/l	2.5	0.70	1
Chloroform	ND		ug/l	2.5	0.70	1
Carbon tetrachloride	ND		ug/l	0.50	0.13	1
1,2-Dichloropropane	ND		ug/l	1.0	0.14	1
Dibromochloromethane	ND		ug/l	0.50	0.15	1
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50	1
Tetrachloroethene	ND		ug/l	0.50	0.18	1
Chlorobenzene	ND		ug/l	2.5	0.70	1
Trichlorofluoromethane	ND		ug/l	2.5	0.70	1
1,2-Dichloroethane	ND		ug/l	0.50	0.13	1
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70	1
Bromodichloromethane	ND		ug/l	0.50	0.19	1
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16	1
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14	1
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14	1
1,1-Dichloropropene	ND		ug/l	2.5	0.70	1
Bromoform	ND		ug/l	2.0	0.65	1
1,1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17	1
Benzene	ND		ug/l	0.50	0.16	1
Toluene	ND		ug/l	2.5	0.70	1
Ethylbenzene	ND		ug/l	2.5	0.70	1
Chloromethane	ND		ug/l	2.5	0.70	1
Bromomethane	ND		ug/l	2.5	0.70	1
Vinyl chloride	ND		ug/l	1.0	0.07	1
Chloroethane	ND		ug/l	2.5	0.70	1
1,1-Dichloroethene	ND		ug/l	0.50	0.17	1
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1

Project Name: FORMER HAMPSHIRE CHEMICAL CORP
Project Number: 701970.01.SA

Lab Number: L1821023
Report Date: 06/13/18

SAMPLE RESULTS

Lab ID: L1821023-02
 Client ID: TB-060618-2
 Sample Location: WATERLOO, NY

Date Collected: 06/06/18 08:00
 Date Received: 06/06/18
 Field Prep: None

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
Trichloroethene	ND		ug/l	0.50	0.18	1
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70	1
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70	1
Methyl tert butyl ether	ND		ug/l	2.5	0.70	1
p/m-Xylene	ND		ug/l	2.5	0.70	1
o-Xylene	ND		ug/l	2.5	0.70	1
Xylenes, Total	ND		ug/l	2.5	0.70	1
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70	1
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70	1
Dibromomethane	ND		ug/l	5.0	1.0	1
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70	1
Styrene	ND		ug/l	2.5	0.70	1
Dichlorodifluoromethane	ND		ug/l	5.0	1.0	1
Acetone	ND		ug/l	5.0	1.5	1
Carbon disulfide	ND		ug/l	5.0	1.0	1
2-Butanone	ND		ug/l	5.0	1.9	1
Vinyl acetate	ND		ug/l	5.0	1.0	1
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0	1
2-Hexanone	ND		ug/l	5.0	1.0	1
Bromochloromethane	ND		ug/l	2.5	0.70	1
2,2-Dichloropropane	ND		ug/l	2.5	0.70	1
1,2-Dibromoethane	ND		ug/l	2.0	0.65	1
1,3-Dichloropropane	ND		ug/l	2.5	0.70	1
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70	1
Bromobenzene	ND		ug/l	2.5	0.70	1
n-Butylbenzene	ND		ug/l	2.5	0.70	1
sec-Butylbenzene	ND		ug/l	2.5	0.70	1
tert-Butylbenzene	ND		ug/l	2.5	0.70	1
o-Chlorotoluene	ND		ug/l	2.5	0.70	1
p-Chlorotoluene	ND		ug/l	2.5	0.70	1
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70	1
Hexachlorobutadiene	ND		ug/l	2.5	0.70	1
Isopropylbenzene	ND		ug/l	2.5	0.70	1
p-Isopropyltoluene	ND		ug/l	2.5	0.70	1
Naphthalene	ND		ug/l	2.5	0.70	1
n-Propylbenzene	ND		ug/l	2.5	0.70	1

Project Name: FORMER HAMPSHIRE CHEMICAL CORP
Project Number: 701970.01.SA

Lab Number: L1821023
Report Date: 06/13/18

SAMPLE RESULTS

Lab ID: L1821023-02
 Client ID: TB-060618-2
 Sample Location: WATERLOO, NY

Date Collected: 06/06/18 08:00
 Date Received: 06/06/18
 Field Prep: None

Sample Depth:

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor
Volatile Organics by GC/MS - Westborough Lab						
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70	1
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70	1
1,4-Dioxane	ND		ug/l	250	61.	1

Tentatively Identified Compounds

Total TIC Compounds	1.05	J	ug/l			1
Sulfur Dioxide	1.05	NJ	ug/l			1

Surrogate	% Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	98		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	101		70-130
Dibromofluoromethane	98		70-130

Project Name: FORMER HAMPSHIRE CHEMICAL CORP
Project Number: 701970.01.SA

Lab Number: L1821023
Report Date: 06/13/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/07/18 21:50
Analyst: KD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1123959-5					
Methylene chloride	ND		ug/l	2.5	0.70
1,1-Dichloroethane	ND		ug/l	2.5	0.70
Chloroform	ND		ug/l	2.5	0.70
Carbon tetrachloride	ND		ug/l	0.50	0.13
1,2-Dichloropropane	ND		ug/l	1.0	0.14
Dibromochloromethane	ND		ug/l	0.50	0.15
1,1,2-Trichloroethane	ND		ug/l	1.5	0.50
Tetrachloroethene	ND		ug/l	0.50	0.18
Chlorobenzene	ND		ug/l	2.5	0.70
Trichlorofluoromethane	ND		ug/l	2.5	0.70
1,2-Dichloroethane	ND		ug/l	0.50	0.13
1,1,1-Trichloroethane	ND		ug/l	2.5	0.70
Bromodichloromethane	ND		ug/l	0.50	0.19
trans-1,3-Dichloropropene	ND		ug/l	0.50	0.16
cis-1,3-Dichloropropene	ND		ug/l	0.50	0.14
1,3-Dichloropropene, Total	ND		ug/l	0.50	0.14
1,1-Dichloropropene	ND		ug/l	2.5	0.70
Bromoform	ND		ug/l	2.0	0.65
1,1,2,2-Tetrachloroethane	ND		ug/l	0.50	0.17
Benzene	ND		ug/l	0.50	0.16
Toluene	ND		ug/l	2.5	0.70
Ethylbenzene	ND		ug/l	2.5	0.70
Chloromethane	ND		ug/l	2.5	0.70
Bromomethane	ND		ug/l	2.5	0.70
Vinyl chloride	ND		ug/l	1.0	0.07
Chloroethane	ND		ug/l	2.5	0.70
1,1-Dichloroethene	ND		ug/l	0.50	0.17
trans-1,2-Dichloroethene	ND		ug/l	2.5	0.70
Trichloroethene	ND		ug/l	0.50	0.18

Project Name: FORMER HAMPSHIRE CHEMICAL CORP
Project Number: 701970.01.SA

Lab Number: L1821023
Report Date: 06/13/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/07/18 21:50
Analyst: KD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1123959-5					
1,2-Dichlorobenzene	ND		ug/l	2.5	0.70
1,3-Dichlorobenzene	ND		ug/l	2.5	0.70
1,4-Dichlorobenzene	ND		ug/l	2.5	0.70
Methyl tert butyl ether	ND		ug/l	2.5	0.70
p/m-Xylene	ND		ug/l	2.5	0.70
o-Xylene	ND		ug/l	2.5	0.70
Xylenes, Total	ND		ug/l	2.5	0.70
cis-1,2-Dichloroethene	ND		ug/l	2.5	0.70
1,2-Dichloroethene, Total	ND		ug/l	2.5	0.70
Dibromomethane	ND		ug/l	5.0	1.0
1,2,3-Trichloropropane	ND		ug/l	2.5	0.70
Styrene	ND		ug/l	2.5	0.70
Dichlorodifluoromethane	ND		ug/l	5.0	1.0
Acetone	ND		ug/l	5.0	1.5
Carbon disulfide	ND		ug/l	5.0	1.0
2-Butanone	ND		ug/l	5.0	1.9
Vinyl acetate	ND		ug/l	5.0	1.0
4-Methyl-2-pentanone	ND		ug/l	5.0	1.0
2-Hexanone	ND		ug/l	5.0	1.0
Bromochloromethane	ND		ug/l	2.5	0.70
2,2-Dichloropropane	ND		ug/l	2.5	0.70
1,2-Dibromoethane	ND		ug/l	2.0	0.65
1,3-Dichloropropane	ND		ug/l	2.5	0.70
1,1,1,2-Tetrachloroethane	ND		ug/l	2.5	0.70
Bromobenzene	ND		ug/l	2.5	0.70
n-Butylbenzene	ND		ug/l	2.5	0.70
sec-Butylbenzene	ND		ug/l	2.5	0.70
tert-Butylbenzene	ND		ug/l	2.5	0.70
o-Chlorotoluene	ND		ug/l	2.5	0.70

Project Name: FORMER HAMPSHIRE CHEMICAL CORP
Project Number: 701970.01.SA

Lab Number: L1821023
Report Date: 06/13/18

Method Blank Analysis
Batch Quality Control

Analytical Method: 1,8260C
Analytical Date: 06/07/18 21:50
Analyst: KD

Parameter	Result	Qualifier	Units	RL	MDL
Volatile Organics by GC/MS - Westborough Lab for sample(s): 01-02 Batch: WG1123959-5					
p-Chlorotoluene	ND		ug/l	2.5	0.70
1,2-Dibromo-3-chloropropane	ND		ug/l	2.5	0.70
Hexachlorobutadiene	ND		ug/l	2.5	0.70
Isopropylbenzene	ND		ug/l	2.5	0.70
p-Isopropyltoluene	ND		ug/l	2.5	0.70
Naphthalene	ND		ug/l	2.5	0.70
n-Propylbenzene	ND		ug/l	2.5	0.70
1,2,3-Trichlorobenzene	ND		ug/l	2.5	0.70
1,2,4-Trichlorobenzene	ND		ug/l	2.5	0.70
1,3,5-Trimethylbenzene	ND		ug/l	2.5	0.70
1,2,4-Trimethylbenzene	ND		ug/l	2.5	0.70
1,4-Dioxane	ND		ug/l	250	61.

Tentatively Identified Compounds

Total TIC Compounds	1.80	J	ug/l
Unknown	1.80	J	ug/l

Surrogate	%Recovery	Qualifier	Acceptance Criteria
1,2-Dichloroethane-d4	92		70-130
Toluene-d8	98		70-130
4-Bromofluorobenzene	103		70-130
Dibromofluoromethane	97		70-130

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HAMPSHIRE CHEMICAL CORP

Lab Number: L1821023

Project Number: 701970.01.SA

Report Date: 06/13/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1123959-3 WG1123959-4								
Methylene chloride	93		96		70-130	3		20
1,1-Dichloroethane	93		98		70-130	5		20
Chloroform	94		98		70-130	4		20
Carbon tetrachloride	93		100		63-132	7		20
1,2-Dichloropropane	96		100		70-130	4		20
Dibromochloromethane	82		84		63-130	2		20
1,1,2-Trichloroethane	96		98		70-130	2		20
Tetrachloroethene	91		96		70-130	5		20
Chlorobenzene	92		96		75-130	4		20
Trichlorofluoromethane	88		95		62-150	8		20
1,2-Dichloroethane	91		94		70-130	3		20
1,1,1-Trichloroethane	92		99		67-130	7		20
Bromodichloromethane	94		99		67-130	5		20
trans-1,3-Dichloropropene	84		86		70-130	2		20
cis-1,3-Dichloropropene	96		100		70-130	4		20
1,1-Dichloropropene	93		99		70-130	6		20
Bromoform	78		78		54-136	0		20
1,1,2,2-Tetrachloroethane	93		96		67-130	3		20
Benzene	94		100		70-130	6		20
Toluene	92		96		70-130	4		20
Ethylbenzene	92		96		70-130	4		20
Chloromethane	92		93		64-130	1		20
Bromomethane	64		70		39-139	9		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HAMPSHIRE CHEMICAL CORP

Lab Number: L1821023

Project Number: 701970.01.SA

Report Date: 06/13/18

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1123959-3 WG1123959-4								
Vinyl chloride	91		97		55-140	6		20
Chloroethane	94		98		55-138	4		20
1,1-Dichloroethene	92		99		61-145	7		20
trans-1,2-Dichloroethene	93		100		70-130	7		20
Trichloroethene	88		96		70-130	9		20
1,2-Dichlorobenzene	94		98		70-130	4		20
1,3-Dichlorobenzene	94		98		70-130	4		20
1,4-Dichlorobenzene	94		98		70-130	4		20
Methyl tert butyl ether	96		98		63-130	2		20
p/m-Xylene	95		100		70-130	5		20
o-Xylene	95		100		70-130	5		20
cis-1,2-Dichloroethene	94		99		70-130	5		20
Dibromomethane	94		96		70-130	2		20
1,2,3-Trichloropropane	87		95		64-130	9		20
Styrene	100		100		70-130	0		20
Dichlorodifluoromethane	86		92		36-147	7		20
Acetone	96		93		58-148	3		20
Carbon disulfide	100		110		51-130	10		20
2-Butanone	98		98		63-138	0		20
Vinyl acetate	98		100		70-130	2		20
4-Methyl-2-pentanone	87		89		59-130	2		20
2-Hexanone	88		89		57-130	1		20
Bromochloromethane	95		100		70-130	5		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HAMPSHIRE CHEMICAL CORP

Lab Number: L1821023

Project Number: 701970.01.SA

Report Date: 06/13/18

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1123959-3 WG1123959-4								
2,2-Dichloropropane	95		100		63-133	5		20
1,2-Dibromoethane	94		97		70-130	3		20
1,3-Dichloropropane	93		95		70-130	2		20
1,1,1,2-Tetrachloroethane	93		97		64-130	4		20
Bromobenzene	93		97		70-130	4		20
n-Butylbenzene	99		100		53-136	1		20
sec-Butylbenzene	97		100		70-130	3		20
tert-Butylbenzene	97		100		70-130	3		20
o-Chlorotoluene	94		94		70-130	0		20
p-Chlorotoluene	95		100		70-130	5		20
1,2-Dibromo-3-chloropropane	83		81		41-144	2		20
Hexachlorobutadiene	110		110		63-130	0		20
Isopropylbenzene	95		100		70-130	5		20
p-Isopropyltoluene	99		100		70-130	1		20
Naphthalene	92		91		70-130	1		20
n-Propylbenzene	94		99		69-130	5		20
1,2,3-Trichlorobenzene	110		110		70-130	0		20
1,2,4-Trichlorobenzene	100		100		70-130	0		20
1,3,5-Trimethylbenzene	96		100		64-130	4		20
1,2,4-Trimethylbenzene	97		100		70-130	3		20
1,4-Dioxane	118		116		56-162	2		20

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HAMPSHIRE CHEMICAL CORP

Lab Number: L1821023

Project Number: 701970.01.SA

Report Date: 06/13/18

Parameter	LCS %Recovery	Qual	LCSD %Recovery	Qual	%Recovery Limits	RPD	Qual	RPD Limits
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Volatile Organics by GC/MS - Westborough Lab Associated sample(s): 01-02 Batch: WG1123959-3 WG1123959-4

Surrogate	LCS %Recovery	Qual	LCSD %Recovery	Qual	Acceptance Criteria
1,2-Dichloroethane-d4	95		95		70-130
Toluene-d8	99		98		70-130
4-Bromofluorobenzene	102		101		70-130
Dibromofluoromethane	98		99		70-130

METALS

Project Name: FORMER HAMPSHIRE CHEMICAL CORP

Lab Number: L1821023

Project Number: 701970.01.SA

Report Date: 06/13/18

SAMPLE RESULTS

Lab ID: L1821023-01

Date Collected: 06/06/18 11:00

Client ID: PZ03-060618

Date Received: 06/06/18

Sample Location: WATERLOO, NY

Field Prep: Refer to COC

Sample Depth:

Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Prep Method	Analytical Method	Analyst
Total Metals - Mansfield Lab											
Aluminum, Total	0.0266		mg/l	0.0100	0.00327	1	06/12/18 08:45	06/12/18 14:53	EPA 3005A	1,6020A	AM
Arsenic, Total	0.03668		mg/l	0.00050	0.00016	1	06/12/18 08:45	06/12/18 14:53	EPA 3005A	1,6020A	AM
Calcium, Total	144.		mg/l	0.100	0.0394	1	06/12/18 08:45	06/12/18 14:53	EPA 3005A	1,6020A	AM
Chromium, Total	0.00048	J	mg/l	0.00100	0.00017	1	06/12/18 08:45	06/12/18 14:53	EPA 3005A	1,6020A	AM
Iron, Total	2.46		mg/l	0.0500	0.0191	1	06/12/18 08:45	06/12/18 14:53	EPA 3005A	1,6020A	AM
Magnesium, Total	79.9		mg/l	0.0700	0.0242	1	06/12/18 08:45	06/12/18 14:53	EPA 3005A	1,6020A	AM
Manganese, Total	0.1268		mg/l	0.00100	0.00044	1	06/12/18 08:45	06/12/18 14:53	EPA 3005A	1,6020A	AM
Potassium, Total	4.23		mg/l	0.100	0.0309	1	06/12/18 08:45	06/12/18 14:53	EPA 3005A	1,6020A	AM
Silica, Total	26.1		mg/l	0.500	0.007	1	06/12/18 08:45	06/12/18 14:45	EPA 3005A	19,200.7	AB
Sodium, Total	218.		mg/l	0.100	0.0293	1	06/12/18 08:45	06/12/18 14:53	EPA 3005A	1,6020A	AM
Dissolved Metals - Mansfield Lab											
Aluminum, Dissolved	0.00337	J	mg/l	0.0100	0.00327	1	06/12/18 11:00	06/12/18 16:05	EPA 3005A	1,6020A	AM
Arsenic, Dissolved	0.03380		mg/l	0.00050	0.00016	1	06/12/18 11:00	06/12/18 16:05	EPA 3005A	1,6020A	AM
Chromium, Dissolved	0.00018	J	mg/l	0.00100	0.00017	1	06/12/18 11:00	06/12/18 16:05	EPA 3005A	1,6020A	AM
Iron, Dissolved	2.02		mg/l	0.0500	0.0191	1	06/12/18 11:00	06/12/18 16:05	EPA 3005A	1,6020A	AM
Manganese, Dissolved	0.1031		mg/l	0.00100	0.00044	1	06/12/18 11:00	06/12/18 16:05	EPA 3005A	1,6020A	AM



Project Name: FORMER HAMPSHIRE CHEMICAL CORP
Project Number: 701970.01.SA

Lab Number: L1821023
Report Date: 06/13/18

Method Blank Analysis Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1124876-1										
Silica, Total	0.009	J	mg/l	0.500	0.007	1	06/12/18 08:45	06/12/18 14:18	19,200.7	AB

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Total Metals - Mansfield Lab for sample(s): 01 Batch: WG1124878-1										
Aluminum, Total	ND		mg/l	0.0100	0.00327	1	06/12/18 08:45	06/12/18 14:21	1,6020A	AM
Arsenic, Total	ND		mg/l	0.00050	0.00016	1	06/12/18 08:45	06/12/18 14:21	1,6020A	AM
Calcium, Total	ND		mg/l	0.100	0.0394	1	06/12/18 08:45	06/12/18 14:21	1,6020A	AM
Chromium, Total	ND		mg/l	0.00100	0.00017	1	06/12/18 08:45	06/12/18 14:21	1,6020A	AM
Iron, Total	0.0391	J	mg/l	0.0500	0.0191	1	06/12/18 08:45	06/12/18 14:21	1,6020A	AM
Magnesium, Total	ND		mg/l	0.0700	0.0242	1	06/12/18 08:45	06/12/18 14:21	1,6020A	AM
Manganese, Total	ND		mg/l	0.00100	0.00044	1	06/12/18 08:45	06/12/18 14:21	1,6020A	AM
Potassium, Total	ND		mg/l	0.100	0.0309	1	06/12/18 08:45	06/12/18 14:21	1,6020A	AM
Sodium, Total	ND		mg/l	0.100	0.0293	1	06/12/18 08:45	06/12/18 14:21	1,6020A	AM

Prep Information

Digestion Method: EPA 3005A

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
Dissolved Metals - Mansfield Lab for sample(s): 01 Batch: WG1124955-1										
Aluminum, Dissolved	ND		mg/l	0.0100	0.00327	1	06/12/18 11:00	06/12/18 14:41	1,6020A	AM
Arsenic, Dissolved	ND		mg/l	0.00050	0.00016	1	06/12/18 11:00	06/12/18 14:41	1,6020A	AM
Chromium, Dissolved	ND		mg/l	0.00100	0.00017	1	06/12/18 11:00	06/12/18 14:41	1,6020A	AM
Iron, Dissolved	ND		mg/l	0.0500	0.0191	1	06/12/18 11:00	06/12/18 14:41	1,6020A	AM
Manganese, Dissolved	ND		mg/l	0.00100	0.00044	1	06/12/18 11:00	06/12/18 14:41	1,6020A	AM

Project Name: FORMER HAMPSHIRE CHEMICAL CORP

Lab Number: L1821023

Project Number: 701970.01.SA

Report Date: 06/13/18

Method Blank Analysis Batch Quality Control

Prep Information

Digestion Method: EPA 3005A

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HAMPSHIRE CHEMICAL CORP

Lab Number: L1821023

Project Number: 701970.01.SA

Report Date: 06/13/18

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1124876-2								
Silica, Total	106		-		85-115	-		
Total Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1124878-2								
Aluminum, Total	104		-		80-120	-		
Arsenic, Total	108		-		80-120	-		
Calcium, Total	103		-		80-120	-		
Chromium, Total	97		-		80-120	-		
Iron, Total	109		-		80-120	-		
Magnesium, Total	100		-		80-120	-		
Manganese, Total	98		-		80-120	-		
Potassium, Total	96		-		80-120	-		
Sodium, Total	100		-		80-120	-		
Dissolved Metals - Mansfield Lab Associated sample(s): 01 Batch: WG1124955-2								
Aluminum, Dissolved	105		-		80-120	-		
Arsenic, Dissolved	104		-		80-120	-		
Chromium, Dissolved	97		-		80-120	-		
Iron, Dissolved	109		-		80-120	-		
Manganese, Dissolved	99		-		80-120	-		

Matrix Spike Analysis Batch Quality Control

Project Name: FORMER HAMPSHIRE CHEMICAL CORP
Project Number: 701970.01.SA

Lab Number: L1821023
Report Date: 06/13/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1124876-3 QC Sample: L1820975-01 Client ID: MS Sample												
Silica, Total	43.2	2.14	45.8	121		-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1124876-7 QC Sample: L1821023-01 Client ID: PZ03-060618												
Silica, Total	26.1	2.14	29.4	154	Q	-	-		75-125	-		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1124878-3 QC Sample: L1821023-01 Client ID: PZ03-060618												
Aluminum, Total	0.0266	2	2.17	107		-	-		75-125	-		20
Arsenic, Total	0.03668	0.12	0.1696	111		-	-		75-125	-		20
Calcium, Total	144.	10	154	100		-	-		75-125	-		20
Chromium, Total	0.00048J	0.2	0.2047	102		-	-		75-125	-		20
Iron, Total	2.46	1	3.44	98		-	-		75-125	-		20
Magnesium, Total	79.9	10	108	281	Q	-	-		75-125	-		20
Manganese, Total	0.1268	0.5	0.6279	100		-	-		75-125	-		20
Potassium, Total	4.23	10	14.2	100		-	-		75-125	-		20
Sodium, Total	218.	10	262	440	Q	-	-		75-125	-		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1124955-3 QC Sample: L1821017-01 Client ID: MS Sample												
Aluminum, Dissolved	0.00337J	2	2.30	115		-	-		75-125	-		20
Arsenic, Dissolved	0.00126	0.12	0.1268	105		-	-		75-125	-		20
Chromium, Dissolved	0.0002J	0.2	0.1956	98		-	-		75-125	-		20
Iron, Dissolved	0.0267J	1	1.14	114		-	-		75-125	-		20
Manganese, Dissolved	0.00604	0.5	0.5276	104		-	-		75-125	-		20

Lab Duplicate Analysis

Batch Quality Control

Project Name: FORMER HAMPSHIRE CHEMICAL CORP

Project Number: 701970.01.SA

Lab Number: L1821023

Report Date: 06/13/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1124876-8 QC Sample: L1821023-01 Client ID: PZ03-060618						
Silica, Total	26.1	25.8	mg/l	1		20
Total Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1124878-4 QC Sample: L1821023-01 Client ID: PZ03-060618						
Aluminum, Total	0.0266	0.0270	mg/l	1		20
Arsenic, Total	0.03668	0.03627	mg/l	1		20
Calcium, Total	144.	144	mg/l	0		20
Chromium, Total	0.00048J	0.00045J	mg/l	NC		20
Iron, Total	2.46	2.46	mg/l	0		20
Magnesium, Total	79.9	80.9	mg/l	1		20
Manganese, Total	0.1268	0.1261	mg/l	1		20
Potassium, Total	4.23	4.29	mg/l	1		20
Sodium, Total	218.	222	mg/l	2		20
Dissolved Metals - Mansfield Lab Associated sample(s): 01 QC Batch ID: WG1124955-4 QC Sample: L1821017-01 Client ID: DUP Sample						
Aluminum, Dissolved	0.00337J	ND	mg/l	NC		20
Arsenic, Dissolved	0.00126	0.00120	mg/l	5		20
Iron, Dissolved	0.0267J	0.0402J	mg/l	NC		20
Manganese, Dissolved	0.00604	0.00725	mg/l	18		20

INORGANICS & MISCELLANEOUS

Project Name: FORMER HAMPSHIRE CHEMICAL CORP
Project Number: 701970.01.SA

Lab Number: L1821023
Report Date: 06/13/18

SAMPLE RESULTS

Lab ID: L1821023-01
Client ID: PZ03-060618
Sample Location: WATERLOO, NY

Date Collected: 06/06/18 11:00
Date Received: 06/06/18
Field Prep: Refer to COC

Sample Depth:
Matrix: Water

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab										
Alkalinity, Total	415.		mg CaCO3/L	2.00	NA	1	-	06/08/18 09:16	121,2320B	BR
Solids, Total Dissolved	1400		mg/l	10	3.1	1	-	06/07/18 14:25	121,2540C	DW
Nitrogen, Ammonia	0.438		mg/l	0.075	0.024	1	06/08/18 00:30	06/11/18 20:52	44,350.1	AT
Nitrogen, Nitrate	ND		mg/l	0.10	0.033	1	-	06/07/18 18:08	44,353.2	MR
Nitrogen, Total Kjeldahl	0.665		mg/l	0.300	0.066	1	06/12/18 02:00	06/12/18 21:23	4,351.3/.1 (M)	AT
Phosphorus, Total	0.045		mg/l	0.010	0.003	1	06/07/18 12:20	06/08/18 15:05	121,4500P-E	SD
Phosphorus, Orthophosphate	0.003	J	mg/l	0.005	0.001	1	-	06/07/18 05:37	121,4500P-E	MA
Sulfide	0.18		mg/l	0.10	0.10	1	06/08/18 22:00	06/09/18 03:49	121,4500S2-AD	CW
Total Organic Carbon	1.37		mg/l	0.500	0.114	1	-	06/10/18 12:14	121,5310C	AG
Anions by Ion Chromatography - Westborough Lab										
Chloride	543.		mg/l	12.5	2.10	25	-	06/12/18 00:06	44,300.0	ED
Sulfate	209.		mg/l	25.0	4.00	25	-	06/12/18 00:06	44,300.0	ED



Project Name: FORMER HAMPSHIRE CHEMICAL CO
Project Number: 701970.01.SA

Lab Number: L1821023
Report Date: 06/13/18

Method Blank Analysis
Batch Quality Control

Parameter	Result	Qualifier	Units	RL	MDL	Dilution Factor	Date Prepared	Date Analyzed	Analytical Method	Analyst
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1123307-1										
Phosphorus, Orthophosphate	ND		mg/l	0.005	0.001	1	-	06/07/18 05:26	121,4500P-E	MA
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1123335-1										
Solids, Total Dissolved	ND		mg/l	10	3.1	1	-	06/07/18 14:25	121,2540C	DW
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1123432-1										
Phosphorus, Total	ND		mg/l	0.010	0.003	1	06/07/18 12:20	06/08/18 14:33	121,4500P-E	SD
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1123613-1										
Nitrogen, Nitrate	ND		mg/l	0.10	0.033	1	-	06/07/18 17:10	44,353.2	MR
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1123716-1										
Nitrogen, Ammonia	ND		mg/l	0.075	0.024	1	06/08/18 00:30	06/11/18 20:21	44,350.1	AT
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1123881-1										
Alkalinity, Total	ND		mg CaCO3/L	2.00	NA	1	-	06/08/18 09:16	121,2320B	BR
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1124169-1										
Sulfide	ND		mg/l	0.10	0.10	1	06/08/18 22:00	06/09/18 03:45	121,4500S2-AD	CW
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1124427-1										
Total Organic Carbon	ND		mg/l	0.500	0.114	1	-	06/10/18 12:14	121,5310C	AG
General Chemistry - Westborough Lab for sample(s): 01 Batch: WG1124833-1										
Nitrogen, Total Kjeldahl	0.075	J	mg/l	0.300	0.022	1	06/12/18 02:00	06/12/18 21:08	4,351.3/1 (M)	AT
Anions by Ion Chromatography - Westborough Lab for sample(s): 01 Batch: WG1125259-1										
Chloride	ND		mg/l	0.500	0.083	1	-	06/11/18 15:54	44,300.0	ED
Sulfate	0.235	J	mg/l	1.00	0.160	1	-	06/11/18 15:54	44,300.0	ED

Lab Control Sample Analysis

Batch Quality Control

Project Name: FORMER HAMPSHIRE CHEMICAL CORP

Lab Number: L1821023

Project Number: 701970.01.SA

Report Date: 06/13/18

Parameter	LCS		LCSD		%Recovery Limits	RPD	Qual	RPD Limits
	%Recovery	Qual	%Recovery	Qual				
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1123307-2								
Phosphorus, Orthophosphate	97		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1123335-2								
Solids, Total Dissolved	90		-		80-120	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1123432-2								
Phosphorus, Total	95		-		80-120	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1123613-2								
Nitrogen, Nitrate	102		-		90-110	-		
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1123716-2								
Nitrogen, Ammonia	92		-		90-110	-		20
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1123881-2								
Alkalinity, Total	101		-		90-110	-		10
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1124169-2								
Sulfide	81		-		75-125	-		

Lab Control Sample Analysis**Batch Quality Control****Project Name:** FORMER HAMPSHIRE CHEMICAL CORP**Lab Number:** L1821023**Project Number:** 701970.01.SA**Report Date:** 06/13/18

Parameter	LCS %Recovery	LCSD %Recovery	%Recovery Limits	RPD	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1124427-2					
Total Organic Carbon	101	-	90-110	-	
General Chemistry - Westborough Lab Associated sample(s): 01 Batch: WG1124833-2					
Nitrogen, Total Kjeldahl	97	-	78-122	-	
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 Batch: WG1125259-2					
Chloride	103	-	90-110	-	
Sulfate	103	-	90-110	-	

Matrix Spike Analysis Batch Quality Control

Project Name: FORMER HAMPSHIRE CHEMICAL CORP

Lab Number: L1821023

Project Number: 701970.01.SA

Report Date: 06/13/18

Parameter	Native Sample	MS Added	MS Found	MS %Recovery	MSD Qual	MSD Found	MSD %Recovery	MSD Qual	Recovery Limits	RPD	RPD Qual	RPD Limits
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1123307-4 QC Sample: L1820793-03 Client ID: MS Sample												
Phosphorus, Orthophosphate	0.002J	0.5	0.481	96	-	-	-	-	80-120	-	-	20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1123432-3 QC Sample: L1820399-01 Client ID: MS Sample												
Phosphorus, Total	0.105	0.5	0.583	96	-	-	-	-	75-125	-	-	20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1123613-4 QC Sample: L1820975-01 Client ID: MS Sample												
Nitrogen, Nitrate	10.	4	13	75	Q	-	-	-	83-113	-	-	6
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1123716-4 QC Sample: L1821023-01 Client ID: PZ03-060618												
Nitrogen, Ammonia	0.438	4	4.22	94	-	-	-	-	90-110	-	-	20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1123881-4 QC Sample: L1821034-04 Client ID: MS Sample												
Alkalinity, Total	145.	100	246	101	-	-	-	-	86-116	-	-	10
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1124169-4 QC Sample: L1820793-04 Client ID: MS Sample												
Sulfide	ND	0.54	0.33	61	Q	-	-	-	70-130	-	-	20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1124427-4 QC Sample: L1821549-01 Client ID: MS Sample												
Total Organic Carbon	3.56	8	11.8	103	-	-	-	-	80-120	-	-	20
General Chemistry - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1124833-4 QC Sample: L1821549-01 Client ID: MS Sample												
Nitrogen, Total Kjeldahl	6.61	8	13.1	81	-	-	-	-	77-111	-	-	24
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1125259-3 QC Sample: L1821625-07 Client ID: MS Sample												
Chloride	ND	4	4.11	103	-	-	-	-	90-110	-	-	18
Sulfate	ND	8	8.02	100	-	-	-	-	90-110	-	-	20

Lab Duplicate Analysis

Batch Quality Control

Project Name: FORMER HAMPSHIRE CHEMICAL CORP

Project Number: 701970.01.SA

Lab Number: L1821023

Report Date: 06/13/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	Qual	RPD Limits
General Chemistry - Westborough Lab	Associated sample(s): 01	QC Batch ID: WG1123307-3	QC Sample: L1820793-04	Client ID: DUP Sample		
Phosphorus, Orthophosphate	0.002J	0.001J	mg/l	NC		20
General Chemistry - Westborough Lab	Associated sample(s): 01	QC Batch ID: WG1123335-3	QC Sample: L1821023-01	Client ID: PZ03-060618		
Solids, Total Dissolved	1400	1600	mg/l	13	Q	10
General Chemistry - Westborough Lab	Associated sample(s): 01	QC Batch ID: WG1123432-4	QC Sample: L1820399-01	Client ID: DUP Sample		
Phosphorus, Total	0.105	0.102	mg/l	3		20
General Chemistry - Westborough Lab	Associated sample(s): 01	QC Batch ID: WG1123613-3	QC Sample: L1820975-01	Client ID: DUP Sample		
Nitrogen, Nitrate	10.	9.9	mg/l	1		6
General Chemistry - Westborough Lab	Associated sample(s): 01	QC Batch ID: WG1123716-3	QC Sample: L1821023-01	Client ID: PZ03-060618		
Nitrogen, Ammonia	0.438	0.466	mg/l	6		20
General Chemistry - Westborough Lab	Associated sample(s): 01	QC Batch ID: WG1123881-3	QC Sample: L1821034-03	Client ID: DUP Sample		
Alkalinity, Total	106.	104	mg CaCO3/L	2		10
General Chemistry - Westborough Lab	Associated sample(s): 01	QC Batch ID: WG1124169-3	QC Sample: L1820793-03	Client ID: DUP Sample		
Sulfide	ND	ND	mg/l	NC		20
General Chemistry - Westborough Lab	Associated sample(s): 01	QC Batch ID: WG1124427-3	QC Sample: L1821549-01	Client ID: DUP Sample		
Total Organic Carbon	3.56	3.58	mg/l	1		20
General Chemistry - Westborough Lab	Associated sample(s): 01	QC Batch ID: WG1124833-3	QC Sample: L1821549-01	Client ID: DUP Sample		
Nitrogen, Total Kjeldahl	6.61	5.37	mg/l	21		24

Lab Duplicate Analysis

Batch Quality Control

Project Name: FORMER HAMPSHIRE CHEMICAL CORP

Project Number: 701970.01.SA

Lab Number: L1821023

Report Date: 06/13/18

Parameter	Native Sample	Duplicate Sample	Units	RPD	RPD Limits
Anions by Ion Chromatography - Westborough Lab Associated sample(s): 01 QC Batch ID: WG1125259-4 QC Sample: L1821625-07 Client ID: DUP Sample					
Chloride	ND	ND	mg/l	NC	18
Sulfate	ND	ND	mg/l	NC	20

Project Name: FORMER HAMPSHIRE CHEMICAL CORP
Project Number: 701970.01.SA

Serial_No:06131815:02
Lab Number: L1821023
Report Date: 06/13/18

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(*)
L1821023-01A	Vial HCl preserved	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1821023-01B	Vial HCl preserved	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1821023-01C	Vial HCl preserved	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1821023-01D	Vial H2SO4 preserved	A	NA		4.1	Y	Absent		TOC-5310(28)
L1821023-01E	Vial H2SO4 preserved	A	NA		4.1	Y	Absent		TOC-5310(28)
L1821023-01F	Vial H2SO4 preserved	A	NA		4.1	Y	Absent		TOC-5310(28)
L1821023-01G	Plastic 250ml unpreserved/No Headspace	A	NA		4.1	Y	Absent		ALK-T-2320(14)
L1821023-01H	Plastic 250ml unpreserved	A	7	7	4.1	Y	Absent		OPHOS-4500(2)
L1821023-01I	Plastic 250ml unpreserved	A	7	7	4.1	Y	Absent		TDS-2540(7)
L1821023-01J	Plastic 250ml Zn Acetate/NaOH preserved	A	>9	>9	4.1	Y	Absent		SULFIDE-4500(7)
L1821023-01K	Plastic 250ml Zn Acetate/NaOH preserved	A	>9	>9	4.1	Y	Absent		SULFIDE-4500(7)
L1821023-01L	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		MN-6020S(180),CR-6020S(180),FE-6020S(180),AS-6020S(180),AL-6020S(180)
L1821023-01M	Plastic 250ml HNO3 preserved	A	<2	<2	4.1	Y	Absent		FE-6020T(180),CA-6020T(180),CR-6020T(180),K-6020T(180),NA-6020T(180),MN-6020T(180),AS-6020T(180),SO-UI(180),AL-6020T(180),MG-6020T(180)
L1821023-01N	Plastic 500ml H2SO4 preserved	A	<2	<2	4.1	Y	Absent		TKN-351(28),TPHOS-4500(28),NH3-350(28)
L1821023-01O	Plastic 500ml H2SO4 preserved	A	<2	<2	4.1	Y	Absent		TKN-351(28),TPHOS-4500(28),NH3-350(28)
L1821023-01P	Plastic 500ml unpreserved	A	7	7	4.1	Y	Absent		SO4-300(28),CL-300(28),NO3-353(2)
L1821023-02A	Vial HCl preserved	A	NA		4.1	Y	Absent		NYTCL-8260(14)
L1821023-02B	Vial HCl preserved	A	NA		4.1	Y	Absent		NYTCL-8260(14)

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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.
LCSD	- 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

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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.

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REFERENCES

- 1 Test Methods for Evaluating Solid Waste: Physical/Chemical Methods. EPA SW-846. Third Edition. Updates I - IV, 2007.
- 4 Methods for Chemical Analysis of Water and Wastes. EPA 600/4-79-020. Revised March 1983.
- 19 Inductively Coupled Plasma Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes. Appendix C, Part 136, 40 CFR (Code of Federal Regulations). July 1, 1999 edition.
- 44 Methods for the Determination of Inorganic Substances in Environmental Samples, EPA/600/R-93/100, August 1993.
- 121 Standard Methods for the Examination of Water and Wastewater. APHA-AWWA-WEF. Standard Methods Online.

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.



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-Colilert-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, **LACHAT 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-Colilert-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.

