

ANALYTICAL REPORT

PREPARED FOR

Attn: Norfolk Southern
Norfolk Southern Corporation
650 W Peachtree St NW
Atlanta, Georgia 30308

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JOB DESCRIPTION

East Palestine - Privileged & Confidential
SDG NUMBER Sentinel

JOB NUMBER

240-185687-1

Eurofins Cleveland

Job Notes

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The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization



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Definitions/Glossary

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

GC/MS Semi VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
*+	LCS and/or LCSD is outside acceptance limits, high biased.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Job ID: 240-185687-1

Laboratory: Eurofins Cleveland

Narrative

Job Narrative 240-185687-1

Receipt

The samples were received on 5/19/2023 7:08 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 4 coolers at receipt time were 3.0°C, 4.5°C, 5.7°C and 5.7°C

GC/MS VOA

Method 524.2_Ext: Sample vial contained acceptable air bubble. SMW-TB-001-05192023 (240-185687-5)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC/MS Semi VOA

Method 525.2_PREC: The laboratory control sample (LCS) for preparation batch 810-60076 and analytical batch 810-60199 recovered outside control limits for the following analytes: Anthracene @ 57.5% (Range 70-130%). Initial extraction yielded similar results.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA

Method 8015D_DAI: Surrogate recovery for the following sample was outside the upper control limit: SMW-13-05192023 (240-185687-1). This sample did not contain any target analytes; therefore, re-extraction and/or re-analysis was not performed.

Method 8015D_DAI: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for analytical batch 400-626972 recovered outside control limits for the following analytes: Propylene glycol, Dipropylene glycol, Diethylene glycol and 2-(2-Butoxyethoxy)ethanol. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8015D_DAI: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for analytical batch 400-627400 recovered outside control limits for the following analytes: Ethylene glycol Propylene glycol Dipropylene glycol Diethylene glycol 1,2-Propylene glycol. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8015D_DAI: The continuing calibration verification (CCV) associated with batch 400-626972 recovered above the upper control limit for Propylene glycol, Dipropylene glycol and Diethylene glycol. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported.

Method 8015D_DAI: The continuing calibration verification (CCV) associated with batch 400-627400 recovered above the upper control limit for Ethylene glycol 1,2-Propylene glycol Dipropylene glycol Diethylene glycol. The samples associated with this CCV were non-detects for the affected analytes; therefore, the data have been reported. The associated sample is impacted: (CCVIS 400-627400/31).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Method Summary

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Method	Method Description	Protocol	Laboratory
524.2	Total Trihalomethanes	EPA-DW	EA SB
524.2	Volatile Organic Compounds (GC/MS)	EPA-DW	EA SB
524.2 Ext	Volatile Organic Compounds (GC/MS)	EPA-DW	EA SB
525.2	Semivolatile Organic Compounds (GC/MS)	EPA	EA SB
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET CLE
8015D	Nonhalogenated Organic Compounds - Direct Injection (GC)	SW846	EET PEN
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CLE
525.2	Extraction of Semivolatile Compounds	EPA	EA SB

Protocol References:

EPA = US Environmental Protection Agency

EPA-DW = "Methods For The Determination Of Organic Compounds In Drinking Water", EPA/600/4-88/039, December 1988 And Its Supplements.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EA SB = Eurofins Eaton Analytical South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

EET PEN = Eurofins Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Sample Summary

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
240-185687-1	SMW-13-05192023	Water	05/19/23 09:55	05/19/23 19:08
240-185687-2	SMW-14-05192023	Water	05/19/23 12:05	05/19/23 19:08
240-185687-3	SMW-15-05192023	Water	05/19/23 14:20	05/19/23 19:08
240-185687-4	SMW-FB-003-05192023	Water	05/19/23 13:30	05/19/23 19:08
240-185687-5	SMW-TB-001-05192023	Water	05/19/23 00:00	05/19/23 19:08
240-185687-6	SMW-TB-002-05192023	Water	05/19/23 00:00	05/19/23 19:08

Detection Summary

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-13-05192023

Lab Sample ID: 240-185687-1

No Detections.

Client Sample ID: SMW-14-05192023

Lab Sample ID: 240-185687-2

No Detections.

Client Sample ID: SMW-15-05192023

Lab Sample ID: 240-185687-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Trihalomethanes, Total	0.42	J	0.50	0.20	ug/L	1		524.2	Total/NA
Carbon disulfide	1.4		0.50	0.20	ug/L	1		524.2	Total/NA
Chloroform	0.42	J	0.50	0.20	ug/L	1		524.2	Total/NA
Naphthalene - RE	0.013	J	0.10	0.010	ug/L	1		525.2	Total/NA

Client Sample ID: SMW-FB-003-05192023

Lab Sample ID: 240-185687-4

No Detections.

Client Sample ID: SMW-TB-001-05192023

Lab Sample ID: 240-185687-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	34		5.0	2.0	ug/L	1		524.2	Total/NA

Client Sample ID: SMW-TB-002-05192023

Lab Sample ID: 240-185687-6

No Detections.

This Detection Summary does not include radiochemical test results.

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-13-05192023

Lab Sample ID: 240-185687-1

Date Collected: 05/19/23 09:55

Matrix: Water

Date Received: 05/19/23 19:08

Method: EPA-DW 524.2 Ext - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	5.0	U	10	5.0	ug/L			05/22/23 15:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene-d4 (Surr)	100		70 - 130		05/22/23 15:09	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 130		05/22/23 15:09	1
Toluene-d8 (Surr)	98		70 - 130		05/22/23 15:09	1
4-Bromofluorobenzene (Surr)	96		70 - 130		05/22/23 15:09	1

Method: EPA-DW 524.2 - Total Trihalomethanes

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trihalomethanes, Total	0.20	U	0.50	0.20	ug/L			05/23/23 14:04	1

Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.30	U	0.50	0.30	ug/L			05/25/23 00:08	1
1,1,1-Trichloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
1,1,2,2-Tetrachloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.30	U	0.50	0.30	ug/L			05/25/23 00:08	1
1,1,2-Trichloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
1,1-Dichloroethane	0.10	U	0.50	0.10	ug/L			05/25/23 00:08	1
1,1-Dichloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
1,1-Dichloropropene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
1,2,3-Trichlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
1,2,3-Trichloropropane	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
1,2,3-Trimethylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
1,2,4-Trichlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
1,2,4-Trimethylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
1,2-Dibromo-3-Chloropropane	0.20	U	0.20	0.20	ug/L			05/25/23 00:08	1
Chloroacetonitrile	2.0	U	5.0	2.0	ug/L			05/23/23 13:59	1
1,2-Dichlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
1,2-Dichloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
1,2-Dichloropropane	0.20	U	0.25	0.20	ug/L			05/25/23 00:08	1
1-Chlorobutane	0.70	U	5.0	0.70	ug/L			05/23/23 13:59	1
1,3,5-Trimethylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
1,3-Dichlorobenzene	0.10	U	0.50	0.10	ug/L			05/25/23 00:08	1
1,3-Dichloropropane	0.10	U	0.50	0.10	ug/L			05/25/23 00:08	1
1,3-Dichloropropene, Total	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
1,4-Dichlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
Bis(2-chloroethyl)ether	0.80	U	2.0	0.80	ug/L			05/25/23 00:08	1
1,4-Dioxane	2.0	U	5.0	2.0	ug/L			05/25/23 00:08	1
Dibromochloromethane	0.10	U	0.50	0.10	ug/L			05/25/23 00:08	1
2-Butanone (MEK)	2.0	U	5.0	2.0	ug/L			05/25/23 00:08	1
2-Chloro-1,3-butadiene	0.40	U	5.0	0.40	ug/L			05/25/23 00:08	1
2-Chlorotoluene	0.10	U	0.50	0.10	ug/L			05/25/23 00:08	1
2-Hexanone	1.2	U	5.0	1.2	ug/L			05/25/23 00:08	1
2-Nitropropane	0.90	U	2.0	0.90	ug/L			05/23/23 13:59	1
3-Chloro-1-propene	1.1	U	5.0	1.1	ug/L			05/23/23 13:59	1
4-Chlorotoluene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
4-Isopropyltoluene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
4-Methyl-2-pentanone (MIBK)	1.5	U	2.0	1.5	ug/L			05/25/23 00:08	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-13-05192023

Lab Sample ID: 240-185687-1

Date Collected: 05/19/23 09:55

Matrix: Water

Date Received: 05/19/23 19:08

Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	2.0	U	5.0	2.0	ug/L			05/25/23 00:08	1
Acrylonitrile	0.90	U	1.0	0.90	ug/L			05/23/23 13:59	1
Benzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
Bromobenzene	0.10	U	0.50	0.10	ug/L			05/25/23 00:08	1
Bromoform	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
Bromomethane	0.40	U	0.50	0.40	ug/L			05/25/23 00:08	1
Carbon disulfide	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
Epichlorohydrin	0.80	U	1.0	0.80	ug/L			05/25/23 00:08	1
Carbon tetrachloride	0.10	U	0.50	0.10	ug/L			05/25/23 00:08	1
Chlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
Chloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
Chloroform	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
Chloromethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
cis-1,2-Dichloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
cis-1,3-Dichloropropene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
Hexachloroethane	1.1	U	2.0	1.1	ug/L			05/23/23 13:59	1
Cyclohexanone	2.0	U	5.0	2.0	ug/L			05/25/23 00:08	1
Dibromomethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
Chlorobromomethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
Dichlorodifluoromethane	0.30	U	0.50	0.30	ug/L			05/25/23 00:08	1
Dichlorobromomethane	0.10	U	0.50	0.10	ug/L			05/25/23 00:08	1
2-Methyl-2-propanol	0.60	U	2.0	0.60	ug/L			05/25/23 00:08	1
Ethyl acrylate	0.40	U	1.0	0.40	ug/L			05/25/23 00:08	1
Ethyl ether	0.30	U	2.0	0.30	ug/L			05/23/23 13:59	1
Ethyl methacrylate	1.0	U	1.0	1.0	ug/L			05/23/23 13:59	1
Ethylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
Hexachlorobutadiene	0.20	U	0.25	0.20	ug/L			05/25/23 00:08	1
Isopropyl ether	0.50	U	0.50	0.50	ug/L			05/25/23 00:08	1
Isopropylbenzene	0.20	U	0.25	0.20	ug/L			05/25/23 00:08	1
Methacrylonitrile	1.7	U	5.0	1.7	ug/L			05/23/23 13:59	1
Methyl methacrylate	1.0	U	1.0	1.0	ug/L			05/23/23 13:59	1
Methyl tert-butyl ether	0.40	U	0.50	0.40	ug/L			05/25/23 00:08	1
Methylene Chloride	0.40	U	0.50	0.40	ug/L			05/25/23 00:08	1
m-Xylene & p-Xylene	0.50	U	0.50	0.50	ug/L			05/25/23 00:08	1
Naphthalene	0.30	U	0.50	0.30	ug/L			05/25/23 00:08	1
n-Butylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
N-Propylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
o-Xylene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
Propionitrile	1.3	U	5.0	1.3	ug/L			05/23/23 13:59	1
sec-Butylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
Styrene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
Tert-amyl methyl ether	0.60	U	3.0	0.60	ug/L			05/25/23 00:08	1
Tert-butyl ethyl ether	0.40	U	2.0	0.40	ug/L			05/25/23 00:08	1
Tetrachloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
Tetrahydrofuran	1.4	U	5.0	1.4	ug/L			05/25/23 00:08	1
Toluene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
trans-1,2-Dichloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
trans-1,3-Dichloropropene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
trans-1,4-Dichloro-2-butene	1.4	U	5.0	1.4	ug/L			05/23/23 13:59	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-13-05192023

Lab Sample ID: 240-185687-1

Date Collected: 05/19/23 09:55

Matrix: Water

Date Received: 05/19/23 19:08

Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
Ethyl bromide	0.10	U	0.50	0.10	ug/L			05/25/23 00:08	1
Trichlorofluoromethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
Vinyl acetate	2.0	U	5.0	2.0	ug/L			05/25/23 00:08	1
Vinyl chloride	0.20	U	0.20	0.20	ug/L			05/25/23 00:08	1
Xylenes, Total	0.50	U	0.50	0.50	ug/L			05/25/23 00:08	1
tert-Butylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:08	1
Ethylene Dibromide	0.20	U	0.20	0.20	ug/L			05/25/23 00:08	1
Butadiene	0.50	U	5.0	0.50	ug/L			05/25/23 00:08	1
Benzyl chloride	0.40	U	0.50	0.40	ug/L			05/25/23 00:08	1
Pentachloroethane	1.1	U	2.0	1.1	ug/L			05/23/23 13:59	1
n-Butyl acrylate	0.50	U	1.0	0.50	ug/L			05/25/23 00:08	1
Methyl acrylate	0.80	U	1.0	0.80	ug/L			05/23/23 13:59	1
2-Ethylhexyl acrylate	0.50	U	0.50	0.50	ug/L			05/25/23 00:08	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	98		70 - 130		05/23/23 13:59	1
Toluene-d8 (Surr)	90		70 - 130		05/25/23 00:08	1
Toluene-d8 (Surr)	89		70 - 130		05/25/23 00:08	1
1,2-Dichlorobenzene-d4 (Surr)	101		70 - 130		05/23/23 13:59	1
1,2-Dichlorobenzene-d4 (Surr)	75		70 - 130		05/25/23 00:08	1
1,2-Dichlorobenzene-d4 (Surr)	91		70 - 130		05/25/23 00:08	1
4-Bromofluorobenzene (Surr)	100		70 - 130		05/23/23 13:59	1
4-Bromofluorobenzene (Surr)	77		70 - 130		05/25/23 00:08	1
4-Bromofluorobenzene (Surr)	75		70 - 130		05/25/23 00:08	1
1,2-Dichloroethane-d4 (Surr)	103		70 - 130		05/23/23 13:59	1
1,2-Dichloroethane-d4 (Surr)	97		70 - 130		05/25/23 00:08	1
1,2-Dichloroethane-d4 (Surr)	96		70 - 130		05/25/23 00:08	1

Method: EPA 525.2 - Semivolatile Organic Compounds (GC/MS) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.020	U	0.099	0.020	ug/L		05/24/23 05:35	05/25/23 01:56	1
2-Methylnaphthalene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 01:56	1
Acenaphthene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 01:56	1
Acenaphthylene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 01:56	1
Anthracene	0.0099	U *	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 01:56	1
Benzo[a]anthracene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 01:56	1
Benzo[a]pyrene	0.012	U	0.020	0.012	ug/L		05/24/23 05:35	05/25/23 01:56	1
Benzo[b]fluoranthene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 01:56	1
Benzo[g,h,i]perylene	0.020	U	0.099	0.020	ug/L		05/24/23 05:35	05/25/23 01:56	1
Benzo[k]fluoranthene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 01:56	1
Butylbenzylphthalate	0.020	U	0.99	0.020	ug/L		05/24/23 05:35	05/25/23 01:56	1
Chrysene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 01:56	1
Di (2-ethylhexyl)phthalate	0.099	U	0.59	0.099	ug/L		05/24/23 05:35	05/25/23 01:56	1
Di-n-butyl phthalate	0.069	U	2.0	0.069	ug/L		05/24/23 05:35	05/25/23 01:56	1
Di-n-octyl phthalate	0.020	U	2.0	0.020	ug/L		05/24/23 05:35	05/25/23 01:56	1
Dibenz(a,h)anthracene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 01:56	1
Diethylphthalate	0.020	U	0.99	0.020	ug/L		05/24/23 05:35	05/25/23 01:56	1
Fluoranthene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 01:56	1
Fluorene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 01:56	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-13-05192023

Lab Sample ID: 240-185687-1

Date Collected: 05/19/23 09:55

Matrix: Water

Date Received: 05/19/23 19:08

Method: EPA 525.2 - Semivolatile Organic Compounds (GC/MS) - RE (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachlorobenzene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 01:56	1
Hexachlorocyclopentadiene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 01:56	1
Isophorone	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 01:56	1
Indeno[1,2,3-cd]pyrene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 01:56	1
Naphthalene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 01:56	1
Phenanthrene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 01:56	1
Pyrene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 01:56	1
2,6-Dinitrotoluene	0.040	U	0.099	0.040	ug/L		05/24/23 05:35	05/25/23 01:56	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene (Surr)	103		70 - 130				05/24/23 05:35	05/25/23 01:56	1
Perylene-d12 (Surr)	97		70 - 130				05/24/23 05:35	05/25/23 01:56	1
Triphenylphosphate (Surr)	99		70 - 130				05/24/23 05:35	05/25/23 01:56	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dinitrotoluene	2.0	U	5.0	2.0	ug/L		05/22/23 10:43	05/23/23 23:03	1
3 & 4 Methylphenol	0.19	U	2.0	0.19	ug/L		05/22/23 10:43	05/23/23 23:03	1
3,3'-Dichlorobenzidine	1.1	U	5.0	1.1	ug/L		05/22/23 10:43	05/23/23 23:03	1
Benzoic acid	12	U	50	12	ug/L		05/22/23 10:43	05/23/23 23:03	1
Phenol	0.13	U	0.99	0.13	ug/L		05/22/23 10:43	05/23/23 23:03	1
4-Nitrophenol	2.2	U	9.9	2.2	ug/L		05/22/23 10:43	05/23/23 23:03	1
2-Butoxyethanol	1.0	U	4.0	1.0	ug/L		05/22/23 10:43	05/23/23 23:03	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	111		31 - 140				05/22/23 10:43	05/23/23 23:03	1
Phenol-d5 (Surr)	25		18 - 120				05/22/23 10:43	05/23/23 23:03	1
Nitrobenzene-d5 (Surr)	84		13 - 120				05/22/23 10:43	05/23/23 23:03	1
2-Fluorophenol (Surr)	42		12 - 120				05/22/23 10:43	05/23/23 23:03	1
2-Fluorobiphenyl (Surr)	92		23 - 120				05/22/23 10:43	05/23/23 23:03	1
2,4,6-Tribromophenol (Surr)	90		10 - 126				05/22/23 10:43	05/23/23 23:03	1

Method: SW846 8015D - Nonhalogenated Organic Compounds - Direct Injection (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Propylene glycol	20	U *	25	20	mg/L			05/28/23 06:06	1
Dipropylene glycol	20	U *	25	20	mg/L			05/28/23 06:06	1
Diethylene glycol	20	U *	25	20	mg/L			05/28/23 06:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-(2-Butoxyethoxy)ethanol	161	S1+	50 - 150					05/28/23 06:06	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-14-05192023

Lab Sample ID: 240-185687-2

Date Collected: 05/19/23 12:05

Matrix: Water

Date Received: 05/19/23 19:08

Method: EPA-DW 524.2 Ext - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	5.0	U	10	5.0	ug/L			05/22/23 15:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene-d4 (Surr)	97		70 - 130		05/22/23 15:33	1
1,2-Dichloroethane-d4 (Surr)	100		70 - 130		05/22/23 15:33	1
Toluene-d8 (Surr)	97		70 - 130		05/22/23 15:33	1
4-Bromofluorobenzene (Surr)	93		70 - 130		05/22/23 15:33	1

Method: EPA-DW 524.2 - Total Trihalomethanes

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trihalomethanes, Total	0.20	U	0.50	0.20	ug/L			05/23/23 14:04	1

Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.30	U	0.50	0.30	ug/L			05/25/23 00:31	1
1,1,1-Trichloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
1,1,2,2-Tetrachloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.30	U	0.50	0.30	ug/L			05/25/23 00:31	1
1,1,2-Trichloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
1,1-Dichloroethane	0.10	U	0.50	0.10	ug/L			05/25/23 00:31	1
1,1-Dichloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
1,1-Dichloropropene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
1,2,3-Trichlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
1,2,3-Trichloropropane	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
1,2,3-Trimethylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
1,2,4-Trichlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
1,2,4-Trimethylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
1,2-Dibromo-3-Chloropropane	0.20	U	0.20	0.20	ug/L			05/25/23 00:31	1
Chloroacetonitrile	2.0	U	5.0	2.0	ug/L			05/23/23 14:23	1
1,2-Dichlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
1,2-Dichloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
1,2-Dichloropropane	0.20	U	0.25	0.20	ug/L			05/25/23 00:31	1
1-Chlorobutane	0.70	U	5.0	0.70	ug/L			05/23/23 14:23	1
1,3,5-Trimethylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
1,3-Dichlorobenzene	0.10	U	0.50	0.10	ug/L			05/25/23 00:31	1
1,3-Dichloropropane	0.10	U	0.50	0.10	ug/L			05/25/23 00:31	1
1,3-Dichloropropene, Total	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
1,4-Dichlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
Bis(2-chloroethyl)ether	0.80	U	2.0	0.80	ug/L			05/25/23 00:31	1
1,4-Dioxane	2.0	U	5.0	2.0	ug/L			05/25/23 00:31	1
Dibromochloromethane	0.10	U	0.50	0.10	ug/L			05/25/23 00:31	1
2-Butanone (MEK)	2.0	U	5.0	2.0	ug/L			05/25/23 00:31	1
2-Chloro-1,3-butadiene	0.40	U	5.0	0.40	ug/L			05/25/23 00:31	1
2-Chlorotoluene	0.10	U	0.50	0.10	ug/L			05/25/23 00:31	1
2-Hexanone	1.2	U	5.0	1.2	ug/L			05/25/23 00:31	1
2-Nitropropane	0.90	U	2.0	0.90	ug/L			05/23/23 14:23	1
3-Chloro-1-propene	1.1	U	5.0	1.1	ug/L			05/23/23 14:23	1
4-Chlorotoluene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
4-Isopropyltoluene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
4-Methyl-2-pentanone (MIBK)	1.5	U	2.0	1.5	ug/L			05/25/23 00:31	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-14-05192023

Lab Sample ID: 240-185687-2

Date Collected: 05/19/23 12:05

Matrix: Water

Date Received: 05/19/23 19:08

Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	2.0	U	5.0	2.0	ug/L			05/25/23 00:31	1
Acrylonitrile	0.90	U	1.0	0.90	ug/L			05/23/23 14:23	1
Benzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
Bromobenzene	0.10	U	0.50	0.10	ug/L			05/25/23 00:31	1
Bromoform	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
Bromomethane	0.40	U	0.50	0.40	ug/L			05/25/23 00:31	1
Carbon disulfide	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
Epichlorohydrin	0.80	U	1.0	0.80	ug/L			05/25/23 00:31	1
Carbon tetrachloride	0.10	U	0.50	0.10	ug/L			05/25/23 00:31	1
Chlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
Chloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
Chloroform	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
Chloromethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
cis-1,2-Dichloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
cis-1,3-Dichloropropene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
Hexachloroethane	1.1	U	2.0	1.1	ug/L			05/23/23 14:23	1
Cyclohexanone	2.0	U	5.0	2.0	ug/L			05/25/23 00:31	1
Dibromomethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
Chlorobromomethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
Dichlorodifluoromethane	0.30	U	0.50	0.30	ug/L			05/25/23 00:31	1
Dichlorobromomethane	0.10	U	0.50	0.10	ug/L			05/25/23 00:31	1
2-Methyl-2-propanol	0.60	U	2.0	0.60	ug/L			05/25/23 00:31	1
Ethyl acrylate	0.40	U	1.0	0.40	ug/L			05/25/23 00:31	1
Ethyl ether	0.30	U	2.0	0.30	ug/L			05/23/23 14:23	1
Ethyl methacrylate	1.0	U	1.0	1.0	ug/L			05/23/23 14:23	1
Ethylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
Hexachlorobutadiene	0.20	U	0.25	0.20	ug/L			05/25/23 00:31	1
Isopropyl ether	0.50	U	0.50	0.50	ug/L			05/25/23 00:31	1
Isopropylbenzene	0.20	U	0.25	0.20	ug/L			05/25/23 00:31	1
Methacrylonitrile	1.7	U	5.0	1.7	ug/L			05/23/23 14:23	1
Methyl methacrylate	1.0	U	1.0	1.0	ug/L			05/23/23 14:23	1
Methyl tert-butyl ether	0.40	U	0.50	0.40	ug/L			05/25/23 00:31	1
Methylene Chloride	0.40	U	0.50	0.40	ug/L			05/25/23 00:31	1
m-Xylene & p-Xylene	0.50	U	0.50	0.50	ug/L			05/25/23 00:31	1
Naphthalene	0.30	U	0.50	0.30	ug/L			05/25/23 00:31	1
n-Butylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
N-Propylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
o-Xylene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
Propionitrile	1.3	U	5.0	1.3	ug/L			05/23/23 14:23	1
sec-Butylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
Styrene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
Tert-amyl methyl ether	0.60	U	3.0	0.60	ug/L			05/25/23 00:31	1
Tert-butyl ethyl ether	0.40	U	2.0	0.40	ug/L			05/25/23 00:31	1
Tetrachloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
Tetrahydrofuran	1.4	U	5.0	1.4	ug/L			05/25/23 00:31	1
Toluene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
trans-1,2-Dichloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
trans-1,3-Dichloropropene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
trans-1,4-Dichloro-2-butene	1.4	U	5.0	1.4	ug/L			05/23/23 14:23	1

Eurofins Cleveland

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-14-05192023

Lab Sample ID: 240-185687-2

Date Collected: 05/19/23 12:05

Matrix: Water

Date Received: 05/19/23 19:08

Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
Ethyl bromide	0.10	U	0.50	0.10	ug/L			05/25/23 00:31	1
Trichlorofluoromethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
Vinyl acetate	2.0	U	5.0	2.0	ug/L			05/25/23 00:31	1
Vinyl chloride	0.20	U	0.20	0.20	ug/L			05/25/23 00:31	1
Xylenes, Total	0.50	U	0.50	0.50	ug/L			05/25/23 00:31	1
tert-Butylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:31	1
Ethylene Dibromide	0.20	U	0.20	0.20	ug/L			05/25/23 00:31	1
Butadiene	0.50	U	5.0	0.50	ug/L			05/25/23 00:31	1
Benzyl chloride	0.40	U	0.50	0.40	ug/L			05/25/23 00:31	1
Pentachloroethane	1.1	U	2.0	1.1	ug/L			05/23/23 14:23	1
n-Butyl acrylate	0.50	U	1.0	0.50	ug/L			05/25/23 00:31	1
Methyl acrylate	0.80	U	1.0	0.80	ug/L			05/23/23 14:23	1
2-Ethylhexyl acrylate	0.50	U	0.50	0.50	ug/L			05/25/23 00:31	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		70 - 130		05/23/23 14:23	1
Toluene-d8 (Surr)	90		70 - 130		05/25/23 00:31	1
Toluene-d8 (Surr)	89		70 - 130		05/25/23 00:31	1
1,2-Dichlorobenzene-d4 (Surr)	94		70 - 130		05/23/23 14:23	1
1,2-Dichlorobenzene-d4 (Surr)	75		70 - 130		05/25/23 00:31	1
1,2-Dichlorobenzene-d4 (Surr)	89		70 - 130		05/25/23 00:31	1
4-Bromofluorobenzene (Surr)	101		70 - 130		05/23/23 14:23	1
4-Bromofluorobenzene (Surr)	74		70 - 130		05/25/23 00:31	1
4-Bromofluorobenzene (Surr)	75		70 - 130		05/25/23 00:31	1
1,2-Dichloroethane-d4 (Surr)	103		70 - 130		05/23/23 14:23	1
1,2-Dichloroethane-d4 (Surr)	94		70 - 130		05/25/23 00:31	1
1,2-Dichloroethane-d4 (Surr)	93		70 - 130		05/25/23 00:31	1

Method: EPA 525.2 - Semivolatile Organic Compounds (GC/MS) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.020	U	0.099	0.020	ug/L		05/24/23 05:35	05/25/23 02:22	1
2-Methylnaphthalene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 02:22	1
Acenaphthene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 02:22	1
Acenaphthylene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 02:22	1
Anthracene	0.0099	U *	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 02:22	1
Benzo[a]anthracene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 02:22	1
Benzo[a]pyrene	0.012	U	0.020	0.012	ug/L		05/24/23 05:35	05/25/23 02:22	1
Benzo[b]fluoranthene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 02:22	1
Benzo[g,h,i]perylene	0.020	U	0.099	0.020	ug/L		05/24/23 05:35	05/25/23 02:22	1
Benzo[k]fluoranthene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 02:22	1
Butylbenzylphthalate	0.020	U	0.99	0.020	ug/L		05/24/23 05:35	05/25/23 02:22	1
Chrysene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 02:22	1
Di (2-ethylhexyl)phthalate	0.099	U	0.60	0.099	ug/L		05/24/23 05:35	05/25/23 02:22	1
Di-n-butyl phthalate	0.070	U	2.0	0.070	ug/L		05/24/23 05:35	05/25/23 02:22	1
Di-n-octyl phthalate	0.020	U	2.0	0.020	ug/L		05/24/23 05:35	05/25/23 02:22	1
Dibenz(a,h)anthracene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 02:22	1
Diethylphthalate	0.020	U	0.99	0.020	ug/L		05/24/23 05:35	05/25/23 02:22	1
Fluoranthene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 02:22	1
Fluorene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 02:22	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-14-05192023

Lab Sample ID: 240-185687-2

Date Collected: 05/19/23 12:05

Matrix: Water

Date Received: 05/19/23 19:08

Method: EPA 525.2 - Semivolatile Organic Compounds (GC/MS) - RE (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachlorobenzene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 02:22	1
Hexachlorocyclopentadiene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 02:22	1
Isophorone	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 02:22	1
Indeno[1,2,3-cd]pyrene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 02:22	1
Naphthalene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 02:22	1
Phenanthrene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 02:22	1
Pyrene	0.0099	U	0.099	0.0099	ug/L		05/24/23 05:35	05/25/23 02:22	1
2,6-Dinitrotoluene	0.040	U	0.099	0.040	ug/L		05/24/23 05:35	05/25/23 02:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene (Surr)	99		70 - 130	05/24/23 05:35	05/25/23 02:22	1
Perylene-d12 (Surr)	98		70 - 130	05/24/23 05:35	05/25/23 02:22	1
Triphenylphosphate (Surr)	99		70 - 130	05/24/23 05:35	05/25/23 02:22	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dinitrotoluene	2.1	U	5.0	2.1	ug/L		05/22/23 10:43	05/23/23 23:27	1
3 & 4 Methylphenol	0.19	U	2.0	0.19	ug/L		05/22/23 10:43	05/23/23 23:27	1
3,3'-Dichlorobenzidine	1.2	U	5.0	1.2	ug/L		05/22/23 10:43	05/23/23 23:27	1
Benzoic acid	12	U	50	12	ug/L		05/22/23 10:43	05/23/23 23:27	1
Phenol	0.13	U	1.0	0.13	ug/L		05/22/23 10:43	05/23/23 23:27	1
4-Nitrophenol	2.2	U	10	2.2	ug/L		05/22/23 10:43	05/23/23 23:27	1
2-Butoxyethanol	1.1	U	4.0	1.1	ug/L		05/22/23 10:43	05/23/23 23:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	109		31 - 140	05/22/23 10:43	05/23/23 23:27	1
Phenol-d5 (Surr)	26		18 - 120	05/22/23 10:43	05/23/23 23:27	1
Nitrobenzene-d5 (Surr)	81		13 - 120	05/22/23 10:43	05/23/23 23:27	1
2-Fluorophenol (Surr)	43		12 - 120	05/22/23 10:43	05/23/23 23:27	1
2-Fluorobiphenyl (Surr)	89		23 - 120	05/22/23 10:43	05/23/23 23:27	1
2,4,6-Tribromophenol (Surr)	88		10 - 126	05/22/23 10:43	05/23/23 23:27	1

Method: SW846 8015D - Nonhalogenated Organic Compounds - Direct Injection (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Propylene glycol	20	U *	25	20	mg/L			05/28/23 06:28	1
Dipropylene glycol	20	U *	25	20	mg/L			05/28/23 06:28	1
Diethylene glycol	20	U *	25	20	mg/L			05/28/23 06:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-(2-Butoxyethoxy)ethanol	147		50 - 150		05/28/23 06:28	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-15-05192023

Lab Sample ID: 240-185687-3

Date Collected: 05/19/23 14:20

Matrix: Water

Date Received: 05/19/23 19:08

Method: EPA-DW 524.2 Ext - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	5.0	U	10	5.0	ug/L			05/22/23 15:57	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene-d4 (Surr)	101		70 - 130		05/22/23 15:57	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 130		05/22/23 15:57	1
Toluene-d8 (Surr)	99		70 - 130		05/22/23 15:57	1
4-Bromofluorobenzene (Surr)	94		70 - 130		05/22/23 15:57	1

Method: EPA-DW 524.2 - Total Trihalomethanes

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trihalomethanes, Total	0.42	J	0.50	0.20	ug/L			05/23/23 14:04	1

Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.30	U	0.50	0.30	ug/L			05/25/23 00:54	1
1,1,1-Trichloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
1,1,2,2-Tetrachloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.30	U	0.50	0.30	ug/L			05/25/23 00:54	1
1,1,2-Trichloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
1,1-Dichloroethane	0.10	U	0.50	0.10	ug/L			05/25/23 00:54	1
1,1-Dichloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
1,1-Dichloropropene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
1,2,3-Trichlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
1,2,3-Trichloropropane	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
1,2,3-Trimethylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
1,2,4-Trichlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
1,2,4-Trimethylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
1,2-Dibromo-3-Chloropropane	0.20	U	0.20	0.20	ug/L			05/25/23 00:54	1
Chloroacetonitrile	2.0	U	5.0	2.0	ug/L			05/23/23 14:47	1
1,2-Dichlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
1,2-Dichloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
1,2-Dichloropropane	0.20	U	0.25	0.20	ug/L			05/25/23 00:54	1
1-Chlorobutane	0.70	U	5.0	0.70	ug/L			05/23/23 14:47	1
1,3,5-Trimethylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
1,3-Dichlorobenzene	0.10	U	0.50	0.10	ug/L			05/25/23 00:54	1
1,3-Dichloropropane	0.10	U	0.50	0.10	ug/L			05/25/23 00:54	1
1,3-Dichloropropene, Total	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
1,4-Dichlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
Bis(2-chloroethyl)ether	0.80	U	2.0	0.80	ug/L			05/25/23 00:54	1
1,4-Dioxane	2.0	U	5.0	2.0	ug/L			05/25/23 00:54	1
Dibromochloromethane	0.10	U	0.50	0.10	ug/L			05/25/23 00:54	1
2-Butanone (MEK)	2.0	U	5.0	2.0	ug/L			05/25/23 00:54	1
2-Chloro-1,3-butadiene	0.40	U	5.0	0.40	ug/L			05/25/23 00:54	1
2-Chlorotoluene	0.10	U	0.50	0.10	ug/L			05/25/23 00:54	1
2-Hexanone	1.2	U	5.0	1.2	ug/L			05/25/23 00:54	1
2-Nitropropane	0.90	U	2.0	0.90	ug/L			05/23/23 14:47	1
3-Chloro-1-propene	1.1	U	5.0	1.1	ug/L			05/23/23 14:47	1
4-Chlorotoluene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
4-Isopropyltoluene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
4-Methyl-2-pentanone (MIBK)	1.5	U	2.0	1.5	ug/L			05/25/23 00:54	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-15-05192023

Lab Sample ID: 240-185687-3

Date Collected: 05/19/23 14:20

Matrix: Water

Date Received: 05/19/23 19:08

Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	2.0	U	5.0	2.0	ug/L			05/25/23 00:54	1
Acrylonitrile	0.90	U	1.0	0.90	ug/L			05/23/23 14:47	1
Benzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
Bromobenzene	0.10	U	0.50	0.10	ug/L			05/25/23 00:54	1
Bromoform	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
Bromomethane	0.40	U	0.50	0.40	ug/L			05/25/23 00:54	1
Carbon disulfide	1.4		0.50	0.20	ug/L			05/25/23 00:54	1
Epichlorohydrin	0.80	U	1.0	0.80	ug/L			05/25/23 00:54	1
Carbon tetrachloride	0.10	U	0.50	0.10	ug/L			05/25/23 00:54	1
Chlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
Chloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
Chloroform	0.42	J	0.50	0.20	ug/L			05/25/23 00:54	1
Chloromethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
cis-1,2-Dichloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
cis-1,3-Dichloropropene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
Hexachloroethane	1.1	U	2.0	1.1	ug/L			05/23/23 14:47	1
Cyclohexanone	2.0	U	5.0	2.0	ug/L			05/25/23 00:54	1
Dibromomethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
Chlorobromomethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
Dichlorodifluoromethane	0.30	U	0.50	0.30	ug/L			05/25/23 00:54	1
Dichlorobromomethane	0.10	U	0.50	0.10	ug/L			05/25/23 00:54	1
2-Methyl-2-propanol	0.60	U	2.0	0.60	ug/L			05/25/23 00:54	1
Ethyl acrylate	0.40	U	1.0	0.40	ug/L			05/25/23 00:54	1
Ethyl ether	0.30	U	2.0	0.30	ug/L			05/23/23 14:47	1
Ethyl methacrylate	1.0	U	1.0	1.0	ug/L			05/23/23 14:47	1
Ethylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
Hexachlorobutadiene	0.20	U	0.25	0.20	ug/L			05/25/23 00:54	1
Isopropyl ether	0.50	U	0.50	0.50	ug/L			05/25/23 00:54	1
Isopropylbenzene	0.20	U	0.25	0.20	ug/L			05/25/23 00:54	1
Methacrylonitrile	1.7	U	5.0	1.7	ug/L			05/23/23 14:47	1
Methyl methacrylate	1.0	U	1.0	1.0	ug/L			05/23/23 14:47	1
Methyl tert-butyl ether	0.40	U	0.50	0.40	ug/L			05/25/23 00:54	1
Methylene Chloride	0.40	U	0.50	0.40	ug/L			05/25/23 00:54	1
m-Xylene & p-Xylene	0.50	U	0.50	0.50	ug/L			05/25/23 00:54	1
Naphthalene	0.30	U	0.50	0.30	ug/L			05/25/23 00:54	1
n-Butylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
N-Propylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
o-Xylene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
Propionitrile	1.3	U	5.0	1.3	ug/L			05/23/23 14:47	1
sec-Butylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
Styrene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
Tert-amyl methyl ether	0.60	U	3.0	0.60	ug/L			05/25/23 00:54	1
Tert-butyl ethyl ether	0.40	U	2.0	0.40	ug/L			05/25/23 00:54	1
Tetrachloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
Tetrahydrofuran	1.4	U	5.0	1.4	ug/L			05/25/23 00:54	1
Toluene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
trans-1,2-Dichloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
trans-1,3-Dichloropropene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
trans-1,4-Dichloro-2-butene	1.4	U	5.0	1.4	ug/L			05/23/23 14:47	1

Eurofins Cleveland

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-15-05192023

Lab Sample ID: 240-185687-3

Date Collected: 05/19/23 14:20

Matrix: Water

Date Received: 05/19/23 19:08

Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
Ethyl bromide	0.10	U	0.50	0.10	ug/L			05/25/23 00:54	1
Trichlorofluoromethane	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
Vinyl acetate	2.0	U	5.0	2.0	ug/L			05/25/23 00:54	1
Vinyl chloride	0.20	U	0.20	0.20	ug/L			05/25/23 00:54	1
Xylenes, Total	0.50	U	0.50	0.50	ug/L			05/25/23 00:54	1
tert-Butylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 00:54	1
Ethylene Dibromide	0.20	U	0.20	0.20	ug/L			05/25/23 00:54	1
Butadiene	0.50	U	5.0	0.50	ug/L			05/25/23 00:54	1
Benzyl chloride	0.40	U	0.50	0.40	ug/L			05/25/23 00:54	1
Pentachloroethane	1.1	U	2.0	1.1	ug/L			05/23/23 14:47	1
n-Butyl acrylate	0.50	U	1.0	0.50	ug/L			05/25/23 00:54	1
Methyl acrylate	0.80	U	1.0	0.80	ug/L			05/23/23 14:47	1
2-Ethylhexyl acrylate	0.50	U	0.50	0.50	ug/L			05/25/23 00:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	94		70 - 130		05/23/23 14:47	1
Toluene-d8 (Surr)	88		70 - 130		05/25/23 00:54	1
Toluene-d8 (Surr)	88		70 - 130		05/25/23 00:54	1
1,2-Dichlorobenzene-d4 (Surr)	93		70 - 130		05/23/23 14:47	1
1,2-Dichlorobenzene-d4 (Surr)	73		70 - 130		05/25/23 00:54	1
1,2-Dichlorobenzene-d4 (Surr)	89		70 - 130		05/25/23 00:54	1
4-Bromofluorobenzene (Surr)	91		70 - 130		05/23/23 14:47	1
4-Bromofluorobenzene (Surr)	75		70 - 130		05/25/23 00:54	1
4-Bromofluorobenzene (Surr)	74		70 - 130		05/25/23 00:54	1
1,2-Dichloroethane-d4 (Surr)	101		70 - 130		05/23/23 14:47	1
1,2-Dichloroethane-d4 (Surr)	94		70 - 130		05/25/23 00:54	1
1,2-Dichloroethane-d4 (Surr)	93		70 - 130		05/25/23 00:54	1

Method: EPA 525.2 - Semivolatile Organic Compounds (GC/MS) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.020	U	0.10	0.020	ug/L		05/24/23 05:35	05/25/23 02:49	1
2-Methylnaphthalene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 02:49	1
Acenaphthene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 02:49	1
Acenaphthylene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 02:49	1
Anthracene	0.010	U *	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 02:49	1
Benzo[a]anthracene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 02:49	1
Benzo[a]pyrene	0.012	U	0.020	0.012	ug/L		05/24/23 05:35	05/25/23 02:49	1
Benzo[b]fluoranthene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 02:49	1
Benzo[g,h,i]perylene	0.020	U	0.10	0.020	ug/L		05/24/23 05:35	05/25/23 02:49	1
Benzo[k]fluoranthene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 02:49	1
Butylbenzylphthalate	0.020	U	1.0	0.020	ug/L		05/24/23 05:35	05/25/23 02:49	1
Chrysene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 02:49	1
Di (2-ethylhexyl)phthalate	0.10	U	0.60	0.10	ug/L		05/24/23 05:35	05/25/23 02:49	1
Di-n-butyl phthalate	0.070	U	2.0	0.070	ug/L		05/24/23 05:35	05/25/23 02:49	1
Di-n-octyl phthalate	0.020	U	2.0	0.020	ug/L		05/24/23 05:35	05/25/23 02:49	1
Dibenz(a,h)anthracene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 02:49	1
Diethylphthalate	0.020	U	1.0	0.020	ug/L		05/24/23 05:35	05/25/23 02:49	1
Fluoranthene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 02:49	1
Fluorene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 02:49	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-15-05192023

Lab Sample ID: 240-185687-3

Date Collected: 05/19/23 14:20

Matrix: Water

Date Received: 05/19/23 19:08

Method: EPA 525.2 - Semivolatile Organic Compounds (GC/MS) - RE (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachlorobenzene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 02:49	1
Hexachlorocyclopentadiene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 02:49	1
Isophorone	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 02:49	1
Indeno[1,2,3-cd]pyrene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 02:49	1
Naphthalene	0.013	J	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 02:49	1
Phenanthrene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 02:49	1
Pyrene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 02:49	1
2,6-Dinitrotoluene	0.040	U	0.10	0.040	ug/L		05/24/23 05:35	05/25/23 02:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene (Surr)	105		70 - 130				05/24/23 05:35	05/25/23 02:49	1
Perylene-d12 (Surr)	96		70 - 130				05/24/23 05:35	05/25/23 02:49	1
Triphenylphosphate (Surr)	106		70 - 130				05/24/23 05:35	05/25/23 02:49	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dinitrotoluene	2.1	U	5.0	2.1	ug/L		05/22/23 10:43	05/23/23 23:52	1
3 & 4 Methylphenol	0.19	U	2.0	0.19	ug/L		05/22/23 10:43	05/23/23 23:52	1
3,3'-Dichlorobenzidine	1.2	U	5.0	1.2	ug/L		05/22/23 10:43	05/23/23 23:52	1
Benzoic acid	12	U	50	12	ug/L		05/22/23 10:43	05/23/23 23:52	1
Phenol	0.13	U	1.0	0.13	ug/L		05/22/23 10:43	05/23/23 23:52	1
4-Nitrophenol	2.2	U	10	2.2	ug/L		05/22/23 10:43	05/23/23 23:52	1
2-Butoxyethanol	1.1	U	4.0	1.1	ug/L		05/22/23 10:43	05/23/23 23:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	104		31 - 140				05/22/23 10:43	05/23/23 23:52	1
Phenol-d5 (Surr)	25		18 - 120				05/22/23 10:43	05/23/23 23:52	1
Nitrobenzene-d5 (Surr)	80		13 - 120				05/22/23 10:43	05/23/23 23:52	1
2-Fluorophenol (Surr)	41		12 - 120				05/22/23 10:43	05/23/23 23:52	1
2-Fluorobiphenyl (Surr)	87		23 - 120				05/22/23 10:43	05/23/23 23:52	1
2,4,6-Tribromophenol (Surr)	80		10 - 126				05/22/23 10:43	05/23/23 23:52	1

Method: SW846 8015D - Nonhalogenated Organic Compounds - Direct Injection (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Propylene glycol	20	U *	25	20	mg/L			05/28/23 06:50	1
Dipropylene glycol	20	U *	25	20	mg/L			05/28/23 06:50	1
Diethylene glycol	20	U *	25	20	mg/L			05/28/23 06:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-(2-Butoxyethoxy)ethanol	147		50 - 150					05/28/23 06:50	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-FB-003-05192023

Lab Sample ID: 240-185687-4

Date Collected: 05/19/23 13:30

Matrix: Water

Date Received: 05/19/23 19:08

Method: EPA-DW 524.2 Ext - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	5.0	U	10	5.0	ug/L			05/22/23 16:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene-d4 (Surr)	97		70 - 130		05/22/23 16:21	1
1,2-Dichloroethane-d4 (Surr)	99		70 - 130		05/22/23 16:21	1
Toluene-d8 (Surr)	97		70 - 130		05/22/23 16:21	1
4-Bromofluorobenzene (Surr)	93		70 - 130		05/22/23 16:21	1

Method: EPA-DW 524.2 - Total Trihalomethanes

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trihalomethanes, Total	0.20	U	0.50	0.20	ug/L			05/23/23 14:04	1

Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.30	U	0.50	0.30	ug/L			05/25/23 01:17	1
1,1,1-Trichloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
1,1,2,2-Tetrachloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.30	U	0.50	0.30	ug/L			05/25/23 01:17	1
1,1,2-Trichloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
1,1-Dichloroethane	0.10	U	0.50	0.10	ug/L			05/25/23 01:17	1
1,1-Dichloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
1,1-Dichloropropene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
1,2,3-Trichlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
1,2,3-Trichloropropane	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
1,2,3-Trimethylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
1,2,4-Trichlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
1,2,4-Trimethylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
1,2-Dibromo-3-Chloropropane	0.20	U	0.20	0.20	ug/L			05/25/23 01:17	1
Chloroacetonitrile	2.0	U	5.0	2.0	ug/L			05/23/23 15:12	1
1,2-Dichlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
1,2-Dichloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
1,2-Dichloropropane	0.20	U	0.25	0.20	ug/L			05/25/23 01:17	1
1-Chlorobutane	0.70	U	5.0	0.70	ug/L			05/23/23 15:12	1
1,3,5-Trimethylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
1,3-Dichlorobenzene	0.10	U	0.50	0.10	ug/L			05/25/23 01:17	1
1,3-Dichloropropane	0.10	U	0.50	0.10	ug/L			05/25/23 01:17	1
1,3-Dichloropropene, Total	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
1,4-Dichlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
Bis(2-chloroethyl)ether	0.80	U	2.0	0.80	ug/L			05/25/23 01:17	1
1,4-Dioxane	2.0	U	5.0	2.0	ug/L			05/25/23 01:17	1
Dibromochloromethane	0.10	U	0.50	0.10	ug/L			05/25/23 01:17	1
2-Butanone (MEK)	2.0	U	5.0	2.0	ug/L			05/25/23 01:17	1
2-Chloro-1,3-butadiene	0.40	U	5.0	0.40	ug/L			05/25/23 01:17	1
2-Chlorotoluene	0.10	U	0.50	0.10	ug/L			05/25/23 01:17	1
2-Hexanone	1.2	U	5.0	1.2	ug/L			05/25/23 01:17	1
2-Nitropropane	0.90	U	2.0	0.90	ug/L			05/23/23 15:12	1
3-Chloro-1-propene	1.1	U	5.0	1.1	ug/L			05/23/23 15:12	1
4-Chlorotoluene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
4-Isopropyltoluene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
4-Methyl-2-pentanone (MIBK)	1.5	U	2.0	1.5	ug/L			05/25/23 01:17	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-FB-003-05192023

Lab Sample ID: 240-185687-4

Date Collected: 05/19/23 13:30

Matrix: Water

Date Received: 05/19/23 19:08

Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	2.0	U	5.0	2.0	ug/L			05/25/23 01:17	1
Acrylonitrile	0.90	U	1.0	0.90	ug/L			05/23/23 15:12	1
Benzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
Bromobenzene	0.10	U	0.50	0.10	ug/L			05/25/23 01:17	1
Bromoform	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
Bromomethane	0.40	U	0.50	0.40	ug/L			05/25/23 01:17	1
Carbon disulfide	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
Epichlorohydrin	0.80	U	1.0	0.80	ug/L			05/25/23 01:17	1
Carbon tetrachloride	0.10	U	0.50	0.10	ug/L			05/25/23 01:17	1
Chlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
Chloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
Chloroform	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
Chloromethane	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
cis-1,2-Dichloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
cis-1,3-Dichloropropene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
Hexachloroethane	1.1	U	2.0	1.1	ug/L			05/23/23 15:12	1
Cyclohexanone	2.0	U	5.0	2.0	ug/L			05/25/23 01:17	1
Dibromomethane	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
Chlorobromomethane	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
Dichlorodifluoromethane	0.30	U	0.50	0.30	ug/L			05/25/23 01:17	1
Dichlorobromomethane	0.10	U	0.50	0.10	ug/L			05/25/23 01:17	1
2-Methyl-2-propanol	0.60	U	2.0	0.60	ug/L			05/25/23 01:17	1
Ethyl acrylate	0.40	U	1.0	0.40	ug/L			05/25/23 01:17	1
Ethyl ether	0.30	U	2.0	0.30	ug/L			05/23/23 15:12	1
Ethyl methacrylate	1.0	U	1.0	1.0	ug/L			05/23/23 15:12	1
Ethylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
Hexachlorobutadiene	0.20	U	0.25	0.20	ug/L			05/25/23 01:17	1
Isopropyl ether	0.50	U	0.50	0.50	ug/L			05/25/23 01:17	1
Isopropylbenzene	0.20	U	0.25	0.20	ug/L			05/25/23 01:17	1
Methacrylonitrile	1.7	U	5.0	1.7	ug/L			05/23/23 15:12	1
Methyl methacrylate	1.0	U	1.0	1.0	ug/L			05/23/23 15:12	1
Methyl tert-butyl ether	0.40	U	0.50	0.40	ug/L			05/25/23 01:17	1
Methylene Chloride	0.40	U	0.50	0.40	ug/L			05/25/23 01:17	1
m-Xylene & p-Xylene	0.50	U	0.50	0.50	ug/L			05/25/23 01:17	1
Naphthalene	0.30	U	0.50	0.30	ug/L			05/25/23 01:17	1
n-Butylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
N-Propylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
o-Xylene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
Propionitrile	1.3	U	5.0	1.3	ug/L			05/23/23 15:12	1
sec-Butylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
Styrene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
Tert-amyl methyl ether	0.60	U	3.0	0.60	ug/L			05/25/23 01:17	1
Tert-butyl ethyl ether	0.40	U	2.0	0.40	ug/L			05/25/23 01:17	1
Tetrachloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
Tetrahydrofuran	1.4	U	5.0	1.4	ug/L			05/25/23 01:17	1
Toluene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
trans-1,2-Dichloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
trans-1,3-Dichloropropene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
trans-1,4-Dichloro-2-butene	1.4	U	5.0	1.4	ug/L			05/23/23 15:12	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-FB-003-05192023

Lab Sample ID: 240-185687-4

Date Collected: 05/19/23 13:30

Matrix: Water

Date Received: 05/19/23 19:08

Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
Ethyl bromide	0.10	U	0.50	0.10	ug/L			05/25/23 01:17	1
Trichlorofluoromethane	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
Vinyl acetate	2.0	U	5.0	2.0	ug/L			05/25/23 01:17	1
Vinyl chloride	0.20	U	0.20	0.20	ug/L			05/25/23 01:17	1
Xylenes, Total	0.50	U	0.50	0.50	ug/L			05/25/23 01:17	1
tert-Butylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:17	1
Ethylene Dibromide	0.20	U	0.20	0.20	ug/L			05/25/23 01:17	1
Butadiene	0.50	U	5.0	0.50	ug/L			05/25/23 01:17	1
Benzyl chloride	0.40	U	0.50	0.40	ug/L			05/25/23 01:17	1
Pentachloroethane	1.1	U	2.0	1.1	ug/L			05/23/23 15:12	1
n-Butyl acrylate	0.50	U	1.0	0.50	ug/L			05/25/23 01:17	1
Methyl acrylate	0.80	U	1.0	0.80	ug/L			05/23/23 15:12	1
2-Ethylhexyl acrylate	0.50	U	0.50	0.50	ug/L			05/25/23 01:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	94		70 - 130		05/23/23 15:12	1
Toluene-d8 (Surr)	90		70 - 130		05/25/23 01:17	1
Toluene-d8 (Surr)	90		70 - 130		05/25/23 01:17	1
1,2-Dichlorobenzene-d4 (Surr)	88		70 - 130		05/23/23 15:12	1
1,2-Dichlorobenzene-d4 (Surr)	75		70 - 130		05/25/23 01:17	1
1,2-Dichlorobenzene-d4 (Surr)	90		70 - 130		05/25/23 01:17	1
4-Bromofluorobenzene (Surr)	90		70 - 130		05/23/23 15:12	1
4-Bromofluorobenzene (Surr)	77		70 - 130		05/25/23 01:17	1
4-Bromofluorobenzene (Surr)	77		70 - 130		05/25/23 01:17	1
1,2-Dichloroethane-d4 (Surr)	100		70 - 130		05/23/23 15:12	1
1,2-Dichloroethane-d4 (Surr)	97		70 - 130		05/25/23 01:17	1
1,2-Dichloroethane-d4 (Surr)	96		70 - 130		05/25/23 01:17	1

Method: EPA 525.2 - Semivolatile Organic Compounds (GC/MS) - RE

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.020	U	0.10	0.020	ug/L		05/24/23 05:35	05/25/23 03:15	1
2-Methylnaphthalene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 03:15	1
Acenaphthene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 03:15	1
Acenaphthylene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 03:15	1
Anthracene	0.010	U *-	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 03:15	1
Benzo[a]anthracene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 03:15	1
Benzo[a]pyrene	0.012	U	0.020	0.012	ug/L		05/24/23 05:35	05/25/23 03:15	1
Benzo[b]fluoranthene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 03:15	1
Benzo[g,h,i]perylene	0.020	U	0.10	0.020	ug/L		05/24/23 05:35	05/25/23 03:15	1
Benzo[k]fluoranthene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 03:15	1
Butylbenzylphthalate	0.020	U	1.0	0.020	ug/L		05/24/23 05:35	05/25/23 03:15	1
Chrysene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 03:15	1
Di (2-ethylhexyl)phthalate	0.10	U	0.61	0.10	ug/L		05/24/23 05:35	05/25/23 03:15	1
Di-n-butyl phthalate	0.071	U	2.0	0.071	ug/L		05/24/23 05:35	05/25/23 03:15	1
Di-n-octyl phthalate	0.020	U	2.0	0.020	ug/L		05/24/23 05:35	05/25/23 03:15	1
Dibenz(a,h)anthracene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 03:15	1
Diethylphthalate	0.020	U	1.0	0.020	ug/L		05/24/23 05:35	05/25/23 03:15	1
Fluoranthene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 03:15	1
Fluorene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 03:15	1

Eurofins Cleveland

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-FB-003-05192023

Lab Sample ID: 240-185687-4

Date Collected: 05/19/23 13:30

Matrix: Water

Date Received: 05/19/23 19:08

Method: EPA 525.2 - Semivolatile Organic Compounds (GC/MS) - RE (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Hexachlorobenzene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 03:15	1
Hexachlorocyclopentadiene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 03:15	1
Isophorone	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 03:15	1
Indeno[1,2,3-cd]pyrene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 03:15	1
Naphthalene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 03:15	1
Phenanthrene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 03:15	1
Pyrene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/25/23 03:15	1
2,6-Dinitrotoluene	0.041	U	0.10	0.041	ug/L		05/24/23 05:35	05/25/23 03:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene (Surr)	104		70 - 130	05/24/23 05:35	05/25/23 03:15	1
Perylene-d12 (Surr)	101		70 - 130	05/24/23 05:35	05/25/23 03:15	1
Triphenylphosphate (Surr)	103		70 - 130	05/24/23 05:35	05/25/23 03:15	1

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dinitrotoluene	2.0	U	4.8	2.0	ug/L		05/22/23 10:43	05/24/23 00:17	1
3 & 4 Methylphenol	0.18	U	1.9	0.18	ug/L		05/22/23 10:43	05/24/23 00:17	1
3,3'-Dichlorobenzidine	1.1	U	4.8	1.1	ug/L		05/22/23 10:43	05/24/23 00:17	1
Benzoic acid	11	U	48	11	ug/L		05/22/23 10:43	05/24/23 00:17	1
Phenol	0.12	U	0.95	0.12	ug/L		05/22/23 10:43	05/24/23 00:17	1
4-Nitrophenol	2.1	U	9.5	2.1	ug/L		05/22/23 10:43	05/24/23 00:17	1
2-Butoxyethanol	1.0	U	3.8	1.0	ug/L		05/22/23 10:43	05/24/23 00:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	123		31 - 140	05/22/23 10:43	05/24/23 00:17	1
Phenol-d5 (Surr)	25		18 - 120	05/22/23 10:43	05/24/23 00:17	1
Nitrobenzene-d5 (Surr)	83		13 - 120	05/22/23 10:43	05/24/23 00:17	1
2-Fluorophenol (Surr)	40		12 - 120	05/22/23 10:43	05/24/23 00:17	1
2-Fluorobiphenyl (Surr)	89		23 - 120	05/22/23 10:43	05/24/23 00:17	1
2,4,6-Tribromophenol (Surr)	84		10 - 126	05/22/23 10:43	05/24/23 00:17	1

Method: SW846 8015D - Nonhalogenated Organic Compounds - Direct Injection (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Propylene glycol	20	U *	25	20	mg/L			05/28/23 07:12	1
Dipropylene glycol	20	U *	25	20	mg/L			05/28/23 07:12	1
Diethylene glycol	20	U *	25	20	mg/L			05/28/23 07:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-(2-Butoxyethoxy)ethanol	148		50 - 150		05/28/23 07:12	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-TB-001-05192023

Lab Sample ID: 240-185687-5

Date Collected: 05/19/23 00:00

Matrix: Water

Date Received: 05/19/23 19:08

Method: EPA-DW 524.2 Ext - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	5.0	U	10	5.0	ug/L			05/22/23 16:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene-d4 (Surr)	102		70 - 130		05/22/23 16:45	1
1,2-Dichloroethane-d4 (Surr)	104		70 - 130		05/22/23 16:45	1
Toluene-d8 (Surr)	99		70 - 130		05/22/23 16:45	1
4-Bromofluorobenzene (Surr)	105		70 - 130		05/22/23 16:45	1

Method: EPA-DW 524.2 - Total Trihalomethanes

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trihalomethanes, Total	0.20	U	0.50	0.20	ug/L			05/23/23 14:04	1

Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.30	U	0.50	0.30	ug/L			05/25/23 01:41	1
1,1,1-Trichloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
1,1,2,2-Tetrachloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.30	U	0.50	0.30	ug/L			05/25/23 01:41	1
1,1,2-Trichloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
1,1-Dichloroethane	0.10	U	0.50	0.10	ug/L			05/25/23 01:41	1
1,1-Dichloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
1,1-Dichloropropene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
1,2,3-Trichlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
1,2,3-Trichloropropane	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
1,2,3-Trimethylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
1,2,4-Trichlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
1,2,4-Trimethylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
1,2-Dibromo-3-Chloropropane	0.20	U	0.20	0.20	ug/L			05/25/23 01:41	1
Chloroacetonitrile	2.0	U	5.0	2.0	ug/L			05/23/23 15:36	1
1,2-Dichlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
1,2-Dichloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
1,2-Dichloropropane	0.20	U	0.25	0.20	ug/L			05/25/23 01:41	1
1-Chlorobutane	0.70	U	5.0	0.70	ug/L			05/23/23 15:36	1
1,3,5-Trimethylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
1,3-Dichlorobenzene	0.10	U	0.50	0.10	ug/L			05/25/23 01:41	1
1,3-Dichloropropane	0.10	U	0.50	0.10	ug/L			05/25/23 01:41	1
1,3-Dichloropropene, Total	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
1,4-Dichlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
Bis(2-chloroethyl)ether	0.80	U	2.0	0.80	ug/L			05/25/23 01:41	1
1,4-Dioxane	2.0	U	5.0	2.0	ug/L			05/25/23 01:41	1
Dibromochloromethane	0.10	U	0.50	0.10	ug/L			05/25/23 01:41	1
2-Butanone (MEK)	2.0	U	5.0	2.0	ug/L			05/25/23 01:41	1
2-Chloro-1,3-butadiene	0.40	U	5.0	0.40	ug/L			05/25/23 01:41	1
2-Chlorotoluene	0.10	U	0.50	0.10	ug/L			05/25/23 01:41	1
2-Hexanone	1.2	U	5.0	1.2	ug/L			05/25/23 01:41	1
2-Nitropropane	0.90	U	2.0	0.90	ug/L			05/23/23 15:36	1
3-Chloro-1-propene	1.1	U	5.0	1.1	ug/L			05/23/23 15:36	1
4-Chlorotoluene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
4-Isopropyltoluene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
4-Methyl-2-pentanone (MIBK)	1.5	U	2.0	1.5	ug/L			05/25/23 01:41	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-TB-001-05192023

Lab Sample ID: 240-185687-5

Date Collected: 05/19/23 00:00

Matrix: Water

Date Received: 05/19/23 19:08

Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	34		5.0	2.0	ug/L			05/25/23 01:41	1
Acrylonitrile	0.90	U	1.0	0.90	ug/L			05/23/23 15:36	1
Benzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
Bromobenzene	0.10	U	0.50	0.10	ug/L			05/25/23 01:41	1
Bromoform	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
Bromomethane	0.40	U	0.50	0.40	ug/L			05/25/23 01:41	1
Carbon disulfide	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
Epichlorohydrin	0.80	U	1.0	0.80	ug/L			05/25/23 01:41	1
Carbon tetrachloride	0.10	U	0.50	0.10	ug/L			05/25/23 01:41	1
Chlorobenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
Chloroethane	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
Chloroform	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
Chloromethane	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
cis-1,2-Dichloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
cis-1,3-Dichloropropene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
Hexachloroethane	1.1	U	2.0	1.1	ug/L			05/23/23 15:36	1
Cyclohexanone	2.0	U	5.0	2.0	ug/L			05/25/23 01:41	1
Dibromomethane	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
Chlorobromomethane	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
Dichlorodifluoromethane	0.30	U	0.50	0.30	ug/L			05/25/23 01:41	1
Dichlorobromomethane	0.10	U	0.50	0.10	ug/L			05/25/23 01:41	1
2-Methyl-2-propanol	0.60	U	2.0	0.60	ug/L			05/25/23 01:41	1
Ethyl acrylate	0.40	U	1.0	0.40	ug/L			05/25/23 01:41	1
Ethyl ether	0.30	U	2.0	0.30	ug/L			05/23/23 15:36	1
Ethyl methacrylate	1.0	U	1.0	1.0	ug/L			05/23/23 15:36	1
Ethylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
Hexachlorobutadiene	0.20	U	0.25	0.20	ug/L			05/25/23 01:41	1
Isopropyl ether	0.50	U	0.50	0.50	ug/L			05/25/23 01:41	1
Isopropylbenzene	0.20	U	0.25	0.20	ug/L			05/25/23 01:41	1
Methacrylonitrile	1.7	U	5.0	1.7	ug/L			05/23/23 15:36	1
Methyl methacrylate	1.0	U	1.0	1.0	ug/L			05/23/23 15:36	1
Methyl tert-butyl ether	0.40	U	0.50	0.40	ug/L			05/25/23 01:41	1
Methylene Chloride	0.40	U	0.50	0.40	ug/L			05/25/23 01:41	1
m-Xylene & p-Xylene	0.50	U	0.50	0.50	ug/L			05/25/23 01:41	1
Naphthalene	0.30	U	0.50	0.30	ug/L			05/25/23 01:41	1
n-Butylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
N-Propylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
o-Xylene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
Propionitrile	1.3	U	5.0	1.3	ug/L			05/23/23 15:36	1
sec-Butylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
Styrene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
Tert-amyl methyl ether	0.60	U	3.0	0.60	ug/L			05/25/23 01:41	1
Tert-butyl ethyl ether	0.40	U	2.0	0.40	ug/L			05/25/23 01:41	1
Tetrachloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
Tetrahydrofuran	1.4	U	5.0	1.4	ug/L			05/25/23 01:41	1
Toluene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
trans-1,2-Dichloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
trans-1,3-Dichloropropene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
trans-1,4-Dichloro-2-butene	1.4	U	5.0	1.4	ug/L			05/23/23 15:36	1

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Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-TB-001-05192023

Lab Sample ID: 240-185687-5

Date Collected: 05/19/23 00:00

Matrix: Water

Date Received: 05/19/23 19:08

Method: EPA-DW 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Trichloroethene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
Ethyl bromide	0.10	U	0.50	0.10	ug/L			05/25/23 01:41	1
Trichlorofluoromethane	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
Vinyl acetate	2.0	U	5.0	2.0	ug/L			05/25/23 01:41	1
Vinyl chloride	0.20	U	0.20	0.20	ug/L			05/25/23 01:41	1
Xylenes, Total	0.50	U	0.50	0.50	ug/L			05/25/23 01:41	1
tert-Butylbenzene	0.20	U	0.50	0.20	ug/L			05/25/23 01:41	1
Ethylene Dibromide	0.20	U	0.20	0.20	ug/L			05/25/23 01:41	1
Butadiene	0.50	U	5.0	0.50	ug/L			05/25/23 01:41	1
Benzyl chloride	0.40	U	0.50	0.40	ug/L			05/25/23 01:41	1
Pentachloroethane	1.1	U	2.0	1.1	ug/L			05/23/23 15:36	1
n-Butyl acrylate	0.50	U	1.0	0.50	ug/L			05/25/23 01:41	1
Methyl acrylate	0.80	U	1.0	0.80	ug/L			05/23/23 15:36	1
2-Ethylhexyl acrylate	0.50	U	0.50	0.50	ug/L			05/25/23 01:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	95		70 - 130		05/23/23 15:36	1
Toluene-d8 (Surr)	91		70 - 130		05/25/23 01:41	1
Toluene-d8 (Surr)	90		70 - 130		05/25/23 01:41	1
1,2-Dichlorobenzene-d4 (Surr)	91		70 - 130		05/23/23 15:36	1
1,2-Dichlorobenzene-d4 (Surr)	75		70 - 130		05/25/23 01:41	1
1,2-Dichlorobenzene-d4 (Surr)	89		70 - 130		05/25/23 01:41	1
4-Bromofluorobenzene (Surr)	109		70 - 130		05/23/23 15:36	1
4-Bromofluorobenzene (Surr)	82		70 - 130		05/25/23 01:41	1
4-Bromofluorobenzene (Surr)	82		70 - 130		05/25/23 01:41	1
1,2-Dichloroethane-d4 (Surr)	105		70 - 130		05/23/23 15:36	1
1,2-Dichloroethane-d4 (Surr)	97		70 - 130		05/25/23 01:41	1
1,2-Dichloroethane-d4 (Surr)	96		70 - 130		05/25/23 01:41	1

Client Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-TB-002-05192023

Lab Sample ID: 240-185687-6

Date Collected: 05/19/23 00:00

Matrix: Water

Date Received: 05/19/23 19:08

Method: SW846 8015D - Nonhalogenated Organic Compounds - Direct Injection (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Propylene glycol	20	U **	25	20	mg/L			06/02/23 06:32	1
Dipropylene glycol	20	U **	25	20	mg/L			06/02/23 06:32	1
Diethylene glycol	20	U **	25	20	mg/L			06/02/23 06:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
2-(2-Butoxyethoxy)ethanol	145		50 - 150					06/02/23 06:32	1

Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Method: 524.2 - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)							
		TOL (70-130)	TOL (70-130)	DCZ (70-130)	DCZ (70-130)	BFB (70-130)	BFB (70-130)	DCA (70-130)	DCA (70-130)
240-185687-1	SMW-13-05192023	98	98	101	101	100	100	103	103
240-185687-1	SMW-13-05192023	90	90	75	75	77	77	97	97
240-185687-2	SMW-14-05192023	95	95	94	94	101	101	103	103
240-185687-2	SMW-14-05192023	90	90	75	75	74	74	94	94
240-185687-3	SMW-15-05192023	94	94	93	93	91	91	101	101
240-185687-3	SMW-15-05192023	88	88	73	73	75	75	94	94
240-185687-4	SMW-FB-003-05192023	94	94	88	88	90	90	100	100
240-185687-4	SMW-FB-003-05192023	90	90	75	75	77	77	97	97
240-185687-5	SMW-TB-001-05192023	95	95	91	91	109	109	105	105
240-185687-5	SMW-TB-001-05192023	91	91	75	75	82	82	97	97
MB 810-59975/4	Method Blank	96	96	99	99	95	95	103	103
MB 810-60221/6	Method Blank	92	92	75	75	78	78	94	94
MB 810-60285/6	Method Blank	91	91	89	89	77	77	92	92

Surrogate Legend

TOL = Toluene-d8 (Surr)
DCZ = 1,2-Dichlorobenzene-d4 (Surr)
BFB = 4-Bromofluorobenzene (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)

Method: 524.2 Ext - Volatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)			
		DCZ (70-130)	DCA (70-130)	TOL (70-130)	BFB (70-130)
240-185687-1	SMW-13-05192023	100	101	98	96
240-185687-2	SMW-14-05192023	97	100	97	93
240-185687-3	SMW-15-05192023	101	101	99	94
240-185687-4	SMW-FB-003-05192023	97	99	97	93
240-185687-5	SMW-TB-001-05192023	102	104	99	105
MB 810-59802/3	Method Blank	97	106	100	99

Surrogate Legend

DCZ = 1,2-Dichlorobenzene-d4 (Surr)
DCA = 1,2-Dichloroethane-d4 (Surr)
TOL = Toluene-d8 (Surr)
BFB = 4-Bromofluorobenzene (Surr)

Method: 525.2 - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

Lab Sample ID	Client Sample ID	Percent Surrogate Recovery (Acceptance Limits)		
		2NMX (70-130)	PRY (70-130)	TPP (70-130)
240-185687-1 - RE	SMW-13-05192023	103	97	99
240-185687-2 - RE	SMW-14-05192023	99	98	99
240-185687-3 - RE	SMW-15-05192023	105	96	106
240-185687-4 - RE	SMW-FB-003-05192023	104	101	103
LCS 810-60076/1-A	Lab Control Sample	105	104	104
LLCS 810-60076/3-A	Lab Control Sample	102	102	98

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Surrogate Summary

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)		
Lab Sample ID	Client Sample ID	2NMX (70-130)	PRY (70-130)	TPP (70-130)
MB 810-60076/2-A	Method Blank	100	94	117
Surrogate Legend				
2NMX = 2-Nitro-m-xylene (Surr)				
PRY = Perylene-d12 (Surr)				
TPP = Triphenylphosphate (Surr)				

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)					
Lab Sample ID	Client Sample ID	TPHL (31-140)	PHL (18-120)	NBZ (13-120)	2FP (12-120)	FBP (23-120)	TBP (10-126)
240-185687-1	SMW-13-05192023	111	25	84	42	92	90
240-185687-2	SMW-14-05192023	109	26	81	43	89	88
240-185687-3	SMW-15-05192023	104	25	80	41	87	80
240-185687-4	SMW-FB-003-05192023	123	25	83	40	89	84
LCS 240-574296/2-A	Lab Control Sample	109	41	89	61	89	100
MB 240-574296/1-A	Method Blank	120	36	80	53	86	89
Surrogate Legend							
TPHL = Terphenyl-d14 (Surr)							
PHL = Phenol-d5 (Surr)							
NBZ = Nitrobenzene-d5 (Surr)							
2FP = 2-Fluorophenol (Surr)							
FBP = 2-Fluorobiphenyl (Surr)							
TBP = 2,4,6-Tribromophenol (Surr)							

Method: 8015D - Nonhalogenated Organic Compounds - Direct Injection (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	xyethoxy (50-150)	
240-185687-1	SMW-13-05192023	161 S1+	
240-185687-2	SMW-14-05192023	147	
240-185687-3	SMW-15-05192023	147	
240-185687-4	SMW-FB-003-05192023	148	
240-185687-6	SMW-TB-002-05192023	145	
LCS 400-626972/3	Lab Control Sample	152 S1+	
LCSD 400-626972/4	Lab Control Sample Dup	158 S1+	
MB 400-626972/7	Method Blank	145	
Surrogate Legend			
2-(2-Butoxyethoxy)ethanol = 2-(2-Butoxyethoxy)ethanol			

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Method: 524.2 - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 810-59975/4

Matrix: Water

Analysis Batch: 59975

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloroacetonitrile	2.0	U	5.0	2.0	ug/L			05/23/23 12:30	1
1-Chlorobutane	0.70	U	5.0	0.70	ug/L			05/23/23 12:30	1
2-Nitropropane	0.90	U	2.0	0.90	ug/L			05/23/23 12:30	1
3-Chloro-1-propene	1.1	U	5.0	1.1	ug/L			05/23/23 12:30	1
Acrylonitrile	0.90	U	1.0	0.90	ug/L			05/23/23 12:30	1
Hexachloroethane	1.1	U	2.0	1.1	ug/L			05/23/23 12:30	1
Ethyl ether	0.30	U	2.0	0.30	ug/L			05/23/23 12:30	1
Ethyl methacrylate	1.0	U	1.0	1.0	ug/L			05/23/23 12:30	1
Methacrylonitrile	1.7	U	5.0	1.7	ug/L			05/23/23 12:30	1
Methyl methacrylate	1.0	U	1.0	1.0	ug/L			05/23/23 12:30	1
Propionitrile	1.3	U	5.0	1.3	ug/L			05/23/23 12:30	1
trans-1,4-Dichloro-2-butene	1.4	U	5.0	1.4	ug/L			05/23/23 12:30	1
Pentachloroethane	1.1	U	2.0	1.1	ug/L			05/23/23 12:30	1
Methyl acrylate	0.80	U	1.0	0.80	ug/L			05/23/23 12:30	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	96		70 - 130		05/23/23 12:30	1
1,2-Dichlorobenzene-d4 (Surr)	99		70 - 130		05/23/23 12:30	1
4-Bromofluorobenzene (Surr)	95		70 - 130		05/23/23 12:30	1
1,2-Dichloroethane-d4 (Surr)	103		70 - 130		05/23/23 12:30	1

Lab Sample ID: MB 810-60221/6

Matrix: Water

Analysis Batch: 60221

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	0.30	U	0.50	0.30	ug/L			05/24/23 23:45	1
1,1,1-Trichloroethane	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
1,1,2,2-Tetrachloroethane	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
1,1,2-Trichloro-1,2,2-trifluoroethane	0.30	U	0.50	0.30	ug/L			05/24/23 23:45	1
1,1,2-Trichloroethane	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
1,1-Dichloroethane	0.10	U	0.50	0.10	ug/L			05/24/23 23:45	1
1,1-Dichloroethene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
1,1-Dichloropropene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
1,2,3-Trichlorobenzene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
1,2,3-Trichloropropane	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
1,2,3-Trimethylbenzene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
1,2,4-Trichlorobenzene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
1,2,4-Trimethylbenzene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
1,2-Dibromo-3-Chloropropane	0.20	U	0.20	0.20	ug/L			05/24/23 23:45	1
1,2-Dichlorobenzene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
1,2-Dichloroethane	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
1,2-Dichloropropane	0.20	U	0.25	0.20	ug/L			05/24/23 23:45	1
1,3,5-Trimethylbenzene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
1,3-Dichlorobenzene	0.10	U	0.50	0.10	ug/L			05/24/23 23:45	1
1,3-Dichloropropane	0.10	U	0.50	0.10	ug/L			05/24/23 23:45	1
1,3-Dichloropropene, Total	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
1,4-Dichlorobenzene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Method: 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 810-60221/6
Matrix: Water
Analysis Batch: 60221

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Dibromochloromethane	0.10	U	0.50	0.10	ug/L			05/24/23 23:45	1
2-Butanone (MEK)	2.0	U	5.0	2.0	ug/L			05/24/23 23:45	1
2-Chlorotoluene	0.10	U	0.50	0.10	ug/L			05/24/23 23:45	1
2-Hexanone	1.2	U	5.0	1.2	ug/L			05/24/23 23:45	1
4-Chlorotoluene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
4-Isopropyltoluene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
4-Methyl-2-pentanone (MIBK)	1.5	U	2.0	1.5	ug/L			05/24/23 23:45	1
Acetone	2.0	U	5.0	2.0	ug/L			05/24/23 23:45	1
Benzene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
Bromobenzene	0.10	U	0.50	0.10	ug/L			05/24/23 23:45	1
Bromoform	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
Bromomethane	0.40	U	0.50	0.40	ug/L			05/24/23 23:45	1
Carbon disulfide	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
Carbon tetrachloride	0.10	U	0.50	0.10	ug/L			05/24/23 23:45	1
Chlorobenzene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
Chloroethane	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
Chloroform	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
Chloromethane	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
cis-1,2-Dichloroethene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
cis-1,3-Dichloropropene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
Dibromomethane	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
Chlorobromomethane	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
Dichlorodifluoromethane	0.30	U	0.50	0.30	ug/L			05/24/23 23:45	1
Dichlorobromomethane	0.10	U	0.50	0.10	ug/L			05/24/23 23:45	1
Ethylbenzene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
Hexachlorobutadiene	0.20	U	0.25	0.20	ug/L			05/24/23 23:45	1
Isopropyl ether	0.50	U	0.50	0.50	ug/L			05/24/23 23:45	1
Isopropylbenzene	0.20	U	0.25	0.20	ug/L			05/24/23 23:45	1
Methyl tert-butyl ether	0.40	U	0.50	0.40	ug/L			05/24/23 23:45	1
Methylene Chloride	0.40	U	0.50	0.40	ug/L			05/24/23 23:45	1
m-Xylene & p-Xylene	0.50	U	0.50	0.50	ug/L			05/24/23 23:45	1
Naphthalene	0.30	U	0.50	0.30	ug/L			05/24/23 23:45	1
n-Butylbenzene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
N-Propylbenzene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
o-Xylene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
sec-Butylbenzene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
Styrene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
Tert-amyl methyl ether	0.60	U	3.0	0.60	ug/L			05/24/23 23:45	1
Tert-butyl ethyl ether	0.40	U	2.0	0.40	ug/L			05/24/23 23:45	1
Tetrachloroethene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
Tetrahydrofuran	1.4	U	5.0	1.4	ug/L			05/24/23 23:45	1
Toluene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
trans-1,2-Dichloroethene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
trans-1,3-Dichloropropene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
Trichloroethene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
Ethyl bromide	0.10	U	0.50	0.10	ug/L			05/24/23 23:45	1
Trichlorofluoromethane	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
Vinyl chloride	0.20	U	0.20	0.20	ug/L			05/24/23 23:45	1
Xylenes, Total	0.50	U	0.50	0.50	ug/L			05/24/23 23:45	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Method: 524.2 - Volatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 810-60221/6

Matrix: Water

Analysis Batch: 60221

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
tert-Butylbenzene	0.20	U	0.50	0.20	ug/L			05/24/23 23:45	1
Ethylene Dibromide	0.20	U	0.20	0.20	ug/L			05/24/23 23:45	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	92		70 - 130					05/24/23 23:45	1
1,2-Dichlorobenzene-d4 (Surr)	75		70 - 130					05/24/23 23:45	1
4-Bromofluorobenzene (Surr)	78		70 - 130					05/24/23 23:45	1
1,2-Dichloroethane-d4 (Surr)	94		70 - 130					05/24/23 23:45	1

Lab Sample ID: MB 810-60285/6

Matrix: Water

Analysis Batch: 60285

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-chloroethyl)ether	0.80	U	2.0	0.80	ug/L			05/24/23 23:45	1
1,4-Dioxane	2.0	U	5.0	2.0	ug/L			05/24/23 23:45	1
2-Chloro-1,3-butadiene	0.40	U	5.0	0.40	ug/L			05/24/23 23:45	1
Epichlorohydrin	0.80	U	1.0	0.80	ug/L			05/24/23 23:45	1
Cyclohexanone	2.0	U	5.0	2.0	ug/L			05/24/23 23:45	1
2-Methyl-2-propanol	0.60	U	2.0	0.60	ug/L			05/24/23 23:45	1
Ethyl acrylate	0.40	U	1.0	0.40	ug/L			05/24/23 23:45	1
Vinyl acetate	2.0	U	5.0	2.0	ug/L			05/24/23 23:45	1
Butadiene	0.50	U	5.0	0.50	ug/L			05/24/23 23:45	1
Benzyl chloride	0.40	U	0.50	0.40	ug/L			05/24/23 23:45	1
n-Butyl acrylate	0.50	U	1.0	0.50	ug/L			05/24/23 23:45	1
2-Ethylhexyl acrylate	0.50	U	0.50	0.50	ug/L			05/24/23 23:45	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
Toluene-d8 (Surr)	91		70 - 130					05/24/23 23:45	1
1,2-Dichlorobenzene-d4 (Surr)	89		70 - 130					05/24/23 23:45	1
4-Bromofluorobenzene (Surr)	77		70 - 130					05/24/23 23:45	1
1,2-Dichloroethane-d4 (Surr)	92		70 - 130					05/24/23 23:45	1

Method: 524.2 Ext - Volatile Organic Compounds (GC/MS)

Lab Sample ID: MB 810-59802/3

Matrix: Water

Analysis Batch: 59802

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	5.0	U	10	5.0	ug/L			05/22/23 10:50	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,2-Dichlorobenzene-d4 (Surr)	97		70 - 130					05/22/23 10:50	1
1,2-Dichloroethane-d4 (Surr)	106		70 - 130					05/22/23 10:50	1
Toluene-d8 (Surr)	100		70 - 130					05/22/23 10:50	1
4-Bromofluorobenzene (Surr)	99		70 - 130					05/22/23 10:50	1

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Method: 525.2 - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 810-60076/2-A

Matrix: Water

Analysis Batch: 60199

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 60076

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1-Methylnaphthalene	0.0307	J	0.10	0.020	ug/L		05/24/23 05:35	05/24/23 21:34	1
2-Methylnaphthalene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/24/23 21:34	1
Acenaphthene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/24/23 21:34	1
Acenaphthylene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/24/23 21:34	1
Anthracene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/24/23 21:34	1
Benzo[a]anthracene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/24/23 21:34	1
Benzo[a]pyrene	0.012	U	0.020	0.012	ug/L		05/24/23 05:35	05/24/23 21:34	1
Benzo[b]fluoranthene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/24/23 21:34	1
Benzo[g,h,i]perylene	0.020	U	0.10	0.020	ug/L		05/24/23 05:35	05/24/23 21:34	1
Benzo[k]fluoranthene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/24/23 21:34	1
Butylbenzylphthalate	0.020	U	1.0	0.020	ug/L		05/24/23 05:35	05/24/23 21:34	1
Chrysene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/24/23 21:34	1
Di (2-ethylhexyl)phthalate	0.10	U	0.60	0.10	ug/L		05/24/23 05:35	05/24/23 21:34	1
Di-n-butyl phthalate	0.070	U	2.0	0.070	ug/L		05/24/23 05:35	05/24/23 21:34	1
Di-n-octyl phthalate	0.020	U	2.0	0.020	ug/L		05/24/23 05:35	05/24/23 21:34	1
Dibenz(a,h)anthracene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/24/23 21:34	1
Diethylphthalate	0.020	U	1.0	0.020	ug/L		05/24/23 05:35	05/24/23 21:34	1
Fluoranthene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/24/23 21:34	1
Fluorene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/24/23 21:34	1
Hexachlorobenzene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/24/23 21:34	1
Hexachlorocyclopentadiene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/24/23 21:34	1
Isophorone	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/24/23 21:34	1
Indeno[1,2,3-cd]pyrene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/24/23 21:34	1
Naphthalene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/24/23 21:34	1
Phenanthrene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/24/23 21:34	1
Pyrene	0.010	U	0.10	0.010	ug/L		05/24/23 05:35	05/24/23 21:34	1
2,6-Dinitrotoluene	0.040	U	0.10	0.040	ug/L		05/24/23 05:35	05/24/23 21:34	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Nitro-m-xylene (Surr)	100		70 - 130	05/24/23 05:35	05/24/23 21:34	1
Perylene-d12 (Surr)	94		70 - 130	05/24/23 05:35	05/24/23 21:34	1
Triphenylphosphate (Surr)	117		70 - 130	05/24/23 05:35	05/24/23 21:34	1

Lab Sample ID: LCS 810-60076/1-A

Matrix: Water

Analysis Batch: 60199

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 60076

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1-Methylnaphthalene	1.96	1.82		ug/L		93	70 - 130
2-Methylnaphthalene	1.96	1.87		ug/L		96	70 - 130
Acenaphthene	1.96	1.89		ug/L		97	70 - 130
Acenaphthylene	1.96	2.04		ug/L		104	70 - 130
Anthracene	1.96	1.14	*-	ug/L		58	70 - 130
Benzo[a]anthracene	1.96	1.84		ug/L		94	70 - 130
Benzo[a]pyrene	1.96	1.70		ug/L		87	70 - 130
Benzo[b]fluoranthene	1.96	2.10		ug/L		107	70 - 130
Benzo[g,h,i]perylene	1.96	2.04		ug/L		104	70 - 130
Benzo[k]fluoranthene	1.96	2.13		ug/L		109	70 - 130

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QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Method: 525.2 - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 810-60076/1-A

Matrix: Water

Analysis Batch: 60199

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 60076

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Butylbenzylphthalate	1.96	2.11		ug/L		108	70 - 130
Chrysene	1.96	1.87		ug/L		95	70 - 130
Di (2-ethylhexyl)phthalate	1.96	1.95		ug/L		100	70 - 130
Di-n-butyl phthalate	1.96	2.21		ug/L		113	70 - 130
Di-n-octyl phthalate	1.96	1.85	J	ug/L		95	60 - 122
Dibenz(a,h)anthracene	1.96	1.96		ug/L		100	70 - 130
Diethylphthalate	1.96	1.99		ug/L		102	70 - 130
Fluoranthene	1.96	1.99		ug/L		101	70 - 130
Fluorene	1.96	2.05		ug/L		105	70 - 130
Hexachlorobenzene	1.96	2.12		ug/L		108	70 - 130
Hexachlorocyclopentadiene	1.96	1.77		ug/L		90	70 - 130
Isophorone	1.96	2.06		ug/L		105	70 - 130
Indeno[1,2,3-cd]pyrene	1.96	2.00		ug/L		102	70 - 130
Naphthalene	1.96	2.08		ug/L		106	70 - 130
Phenanthrene	1.96	1.92		ug/L		98	70 - 130
Pyrene	1.96	1.94		ug/L		99	70 - 130
2,6-Dinitrotoluene	1.96	1.70		ug/L		87	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Nitro-m-xylene (Surr)	105		70 - 130
Perylene-d12 (Surr)	104		70 - 130
Triphenylphosphate (Surr)	104		70 - 130

Lab Sample ID: LLCS 810-60076/3-A

Matrix: Water

Analysis Batch: 60199

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 60076

Analyte	Spike Added	LLCS Result	LLCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzo[a]pyrene	0.0200	0.0154	J	ug/L		77	50 - 150
Di (2-ethylhexyl)phthalate	0.599	0.560	J	ug/L		93	50 - 150
Hexachlorobenzene	0.0999	0.0990	J	ug/L		99	50 - 150
Hexachlorocyclopentadiene	0.0999	0.0785	J	ug/L		79	50 - 150

Surrogate	LLCS %Recovery	LLCS Qualifier	Limits
2-Nitro-m-xylene (Surr)	102		70 - 130
Perylene-d12 (Surr)	102		70 - 130
Triphenylphosphate (Surr)	98		70 - 130

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 240-574296/1-A

Matrix: Water

Analysis Batch: 574513

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 574296

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-Dinitrotoluene	2.1	U	5.0	2.1	ug/L		05/22/23 10:43	05/23/23 16:50	1
3 & 4 Methylphenol	0.19	U	2.0	0.19	ug/L		05/22/23 10:43	05/23/23 16:50	1
3,3'-Dichlorobenzidine	1.2	U	5.0	1.2	ug/L		05/22/23 10:43	05/23/23 16:50	1

Eurofins Cleveland

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 240-574296/1-A

Matrix: Water

Analysis Batch: 574513

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 574296

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzoic acid	12	U	50	12	ug/L		05/22/23 10:43	05/23/23 16:50	1
Phenol	0.13	U	1.0	0.13	ug/L		05/22/23 10:43	05/23/23 16:50	1
4-Nitrophenol	2.2	U	10	2.2	ug/L		05/22/23 10:43	05/23/23 16:50	1
2-Butoxyethanol	1.1	U	4.0	1.1	ug/L		05/22/23 10:43	05/23/23 16:50	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
Terphenyl-d14 (Surr)	120		31 - 140	05/22/23 10:43	05/23/23 16:50	1
Phenol-d5 (Surr)	36		18 - 120	05/22/23 10:43	05/23/23 16:50	1
Nitrobenzene-d5 (Surr)	80		13 - 120	05/22/23 10:43	05/23/23 16:50	1
2-Fluorophenol (Surr)	53		12 - 120	05/22/23 10:43	05/23/23 16:50	1
2-Fluorobiphenyl (Surr)	86		23 - 120	05/22/23 10:43	05/23/23 16:50	1
2,4,6-Tribromophenol (Surr)	89		10 - 126	05/22/23 10:43	05/23/23 16:50	1

Lab Sample ID: LCS 240-574296/2-A

Matrix: Water

Analysis Batch: 574513

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 574296

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4-Dinitrotoluene	20.0	19.6		ug/L		98	58 - 125
3 & 4 Methylphenol	20.0	14.3		ug/L		71	40 - 120
3,3'-Dichlorobenzidine	40.0	39.8		ug/L		100	51 - 154
Benzoic acid	40.0	14.8	J	ug/L		37	10 - 120
Phenol	20.0	7.94		ug/L		40	10 - 120
4-Nitrophenol	40.0	20.1		ug/L		50	10 - 120
2-Butoxyethanol	20.0	11.4		ug/L		57	21 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Terphenyl-d14 (Surr)	109		31 - 140
Phenol-d5 (Surr)	41		18 - 120
Nitrobenzene-d5 (Surr)	89		13 - 120
2-Fluorophenol (Surr)	61		12 - 120
2-Fluorobiphenyl (Surr)	89		23 - 120
2,4,6-Tribromophenol (Surr)	100		10 - 126

Method: 8015D - Nonhalogenated Organic Compounds - Direct Injection (GC)

Lab Sample ID: MB 400-626972/7

Matrix: Water

Analysis Batch: 626972

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Propylene glycol	20	U	25	20	mg/L			05/27/23 23:31	1
Dipropylene glycol	20	U	25	20	mg/L			05/27/23 23:31	1
Diethylene glycol	20	U	25	20	mg/L			05/27/23 23:31	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-(2-Butoxyethoxy)ethanol	145		50 - 150		05/27/23 23:31	1

Eurofins Cleveland

QC Sample Results

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Method: 8015D - Nonhalogenated Organic Compounds - Direct Injection (GC) (Continued)

Lab Sample ID: LCS 400-626972/3

Matrix: Water

Analysis Batch: 626972

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Propylene glycol	103	173	*+	mg/L		167	80 - 126
Dipropylene glycol	98.3	155	*+	mg/L		157	70 - 130
Diethylene glycol	100	162	*+	mg/L		162	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-(2-Butoxyethoxy)ethanol	152	S1+	50 - 150

Lab Sample ID: LCSD 400-626972/4

Matrix: Water

Analysis Batch: 626972

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Propylene glycol	103	174	*+	mg/L		169	80 - 126	1	50
Dipropylene glycol	98.3	157	*+	mg/L		159	70 - 130	1	50
Diethylene glycol	100	169	*+	mg/L		169	70 - 130	4	50

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-(2-Butoxyethoxy)ethanol	158	S1+	50 - 150

Lab Sample ID: MB 400-627400/36

Matrix: Water

Analysis Batch: 627400

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Propylene glycol	20	U	25	20	mg/L			06/02/23 03:51	1
Dipropylene glycol	20	U	25	20	mg/L			06/02/23 03:51	1
Diethylene glycol	20	U	25	20	mg/L			06/02/23 03:51	1

Lab Sample ID: LCS 400-627400/32

Matrix: Water

Analysis Batch: 627400

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Propylene glycol	103	136	*+	mg/L		132	80 - 126
Dipropylene glycol	98.3	169	*+	mg/L		172	70 - 130
Diethylene glycol	100	158	*+	mg/L		158	70 - 130

Lab Sample ID: LCSD 400-627400/33

Matrix: Water

Analysis Batch: 627400

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Propylene glycol	103	113		mg/L		110	80 - 126	18	50
Dipropylene glycol	98.3	157	*+	mg/L		160	70 - 130	7	50
Diethylene glycol	100	162	*+	mg/L		162	70 - 130	3	50

Eurofins Cleveland

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

GC/MS VOA

Analysis Batch: 59802

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-185687-1	SMW-13-05192023	Total/NA	Water	524.2 Ext	
240-185687-2	SMW-14-05192023	Total/NA	Water	524.2 Ext	
240-185687-3	SMW-15-05192023	Total/NA	Water	524.2 Ext	
240-185687-4	SMW-FB-003-05192023	Total/NA	Water	524.2 Ext	
240-185687-5	SMW-TB-001-05192023	Total/NA	Water	524.2 Ext	
MB 810-59802/3	Method Blank	Total/NA	Water	524.2 Ext	

Analysis Batch: 59975

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-185687-1	SMW-13-05192023	Total/NA	Water	524.2	
240-185687-2	SMW-14-05192023	Total/NA	Water	524.2	
240-185687-3	SMW-15-05192023	Total/NA	Water	524.2	
240-185687-4	SMW-FB-003-05192023	Total/NA	Water	524.2	
240-185687-5	SMW-TB-001-05192023	Total/NA	Water	524.2	
MB 810-59975/4	Method Blank	Total/NA	Water	524.2	

Analysis Batch: 60003

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-185687-1	SMW-13-05192023	Total/NA	Water	524.2	
240-185687-2	SMW-14-05192023	Total/NA	Water	524.2	
240-185687-3	SMW-15-05192023	Total/NA	Water	524.2	
240-185687-4	SMW-FB-003-05192023	Total/NA	Water	524.2	
240-185687-5	SMW-TB-001-05192023	Total/NA	Water	524.2	

Analysis Batch: 60221

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-185687-1	SMW-13-05192023	Total/NA	Water	524.2	
240-185687-2	SMW-14-05192023	Total/NA	Water	524.2	
240-185687-3	SMW-15-05192023	Total/NA	Water	524.2	
240-185687-4	SMW-FB-003-05192023	Total/NA	Water	524.2	
240-185687-5	SMW-TB-001-05192023	Total/NA	Water	524.2	
MB 810-60221/6	Method Blank	Total/NA	Water	524.2	

Analysis Batch: 60285

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-185687-1	SMW-13-05192023	Total/NA	Water	524.2	
240-185687-2	SMW-14-05192023	Total/NA	Water	524.2	
240-185687-3	SMW-15-05192023	Total/NA	Water	524.2	
240-185687-4	SMW-FB-003-05192023	Total/NA	Water	524.2	
240-185687-5	SMW-TB-001-05192023	Total/NA	Water	524.2	
MB 810-60285/6	Method Blank	Total/NA	Water	524.2	

GC/MS Semi VOA

Prep Batch: 60076

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-185687-1 - RE	SMW-13-05192023	Total/NA	Water	525.2	
240-185687-2 - RE	SMW-14-05192023	Total/NA	Water	525.2	
240-185687-3 - RE	SMW-15-05192023	Total/NA	Water	525.2	
240-185687-4 - RE	SMW-FB-003-05192023	Total/NA	Water	525.2	
MB 810-60076/2-A	Method Blank	Total/NA	Water	525.2	

Eurofins Cleveland

QC Association Summary

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

GC/MS Semi VOA (Continued)

Prep Batch: 60076 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 810-60076/1-A	Lab Control Sample	Total/NA	Water	525.2	
LLCS 810-60076/3-A	Lab Control Sample	Total/NA	Water	525.2	

Analysis Batch: 60199

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-185687-1 - RE	SMW-13-05192023	Total/NA	Water	525.2	60076
240-185687-2 - RE	SMW-14-05192023	Total/NA	Water	525.2	60076
240-185687-3 - RE	SMW-15-05192023	Total/NA	Water	525.2	60076
240-185687-4 - RE	SMW-FB-003-05192023	Total/NA	Water	525.2	60076
MB 810-60076/2-A	Method Blank	Total/NA	Water	525.2	60076
LCS 810-60076/1-A	Lab Control Sample	Total/NA	Water	525.2	60076
LLCS 810-60076/3-A	Lab Control Sample	Total/NA	Water	525.2	60076

Prep Batch: 574296

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-185687-1	SMW-13-05192023	Total/NA	Water	3510C	
240-185687-2	SMW-14-05192023	Total/NA	Water	3510C	
240-185687-3	SMW-15-05192023	Total/NA	Water	3510C	
240-185687-4	SMW-FB-003-05192023	Total/NA	Water	3510C	
MB 240-574296/1-A	Method Blank	Total/NA	Water	3510C	
LCS 240-574296/2-A	Lab Control Sample	Total/NA	Water	3510C	

Analysis Batch: 574513

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-185687-1	SMW-13-05192023	Total/NA	Water	8270E	574296
240-185687-2	SMW-14-05192023	Total/NA	Water	8270E	574296
240-185687-3	SMW-15-05192023	Total/NA	Water	8270E	574296
240-185687-4	SMW-FB-003-05192023	Total/NA	Water	8270E	574296
MB 240-574296/1-A	Method Blank	Total/NA	Water	8270E	574296
LCS 240-574296/2-A	Lab Control Sample	Total/NA	Water	8270E	574296

GC Semi VOA

Analysis Batch: 626972

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-185687-1	SMW-13-05192023	Total/NA	Water	8015D	
240-185687-2	SMW-14-05192023	Total/NA	Water	8015D	
240-185687-3	SMW-15-05192023	Total/NA	Water	8015D	
240-185687-4	SMW-FB-003-05192023	Total/NA	Water	8015D	
MB 400-626972/7	Method Blank	Total/NA	Water	8015D	
LCS 400-626972/3	Lab Control Sample	Total/NA	Water	8015D	
LCSD 400-626972/4	Lab Control Sample Dup	Total/NA	Water	8015D	

Analysis Batch: 627400

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
240-185687-6	SMW-TB-002-05192023	Total/NA	Water	8015D	
MB 400-627400/36	Method Blank	Total/NA	Water	8015D	
LCS 400-627400/32	Lab Control Sample	Total/NA	Water	8015D	
LCSD 400-627400/33	Lab Control Sample Dup	Total/NA	Water	8015D	

Eurofins Cleveland

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-13-05192023

Lab Sample ID: 240-185687-1

Date Collected: 05/19/23 09:55

Matrix: Water

Date Received: 05/19/23 19:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	524.2		1	60221	DC	EA SB	05/25/23 00:08
Total/NA	Analysis	524.2		1	60285	DC	EA SB	05/25/23 00:08
Total/NA	Analysis	524.2		1	60003	RD	EA SB	05/23/23 14:04
Total/NA	Analysis	524.2		1	59975	CM	EA SB	05/23/23 13:59
Total/NA	Analysis	524.2 Ext		1	59802	TD	EA SB	05/22/23 15:09
Total/NA	Prep	525.2	RE		60076	AM	EA SB	05/24/23 05:35
Total/NA	Analysis	525.2	RE	1	60199	CG	EA SB	05/25/23 01:56
Total/NA	Prep	3510C			574296	SDE	EET CLE	05/22/23 10:43
Total/NA	Analysis	8270E		1	574513	JMG	EET CLE	05/23/23 23:03
Total/NA	Analysis	8015D		1	626972	RS	EET PEN	05/28/23 06:06

Client Sample ID: SMW-14-05192023

Lab Sample ID: 240-185687-2

Date Collected: 05/19/23 12:05

Matrix: Water

Date Received: 05/19/23 19:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	524.2		1	60221	DC	EA SB	05/25/23 00:31
Total/NA	Analysis	524.2		1	60285	DC	EA SB	05/25/23 00:31
Total/NA	Analysis	524.2		1	60003	RD	EA SB	05/23/23 14:04
Total/NA	Analysis	524.2		1	59975	CM	EA SB	05/23/23 14:23
Total/NA	Analysis	524.2 Ext		1	59802	TD	EA SB	05/22/23 15:33
Total/NA	Prep	525.2	RE		60076	AM	EA SB	05/24/23 05:35
Total/NA	Analysis	525.2	RE	1	60199	CG	EA SB	05/25/23 02:22
Total/NA	Prep	3510C			574296	SDE	EET CLE	05/22/23 10:43
Total/NA	Analysis	8270E		1	574513	JMG	EET CLE	05/23/23 23:27
Total/NA	Analysis	8015D		1	626972	RS	EET PEN	05/28/23 06:28

Client Sample ID: SMW-15-05192023

Lab Sample ID: 240-185687-3

Date Collected: 05/19/23 14:20

Matrix: Water

Date Received: 05/19/23 19:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	524.2		1	60221	DC	EA SB	05/25/23 00:54
Total/NA	Analysis	524.2		1	60285	DC	EA SB	05/25/23 00:54
Total/NA	Analysis	524.2		1	60003	RD	EA SB	05/23/23 14:04
Total/NA	Analysis	524.2		1	59975	CM	EA SB	05/23/23 14:47
Total/NA	Analysis	524.2 Ext		1	59802	TD	EA SB	05/22/23 15:57
Total/NA	Prep	525.2	RE		60076	AM	EA SB	05/24/23 05:35
Total/NA	Analysis	525.2	RE	1	60199	CG	EA SB	05/25/23 02:49
Total/NA	Prep	3510C			574296	SDE	EET CLE	05/22/23 10:43
Total/NA	Analysis	8270E		1	574513	JMG	EET CLE	05/23/23 23:52
Total/NA	Analysis	8015D		1	626972	RS	EET PEN	05/28/23 06:50

Eurofins Cleveland

Lab Chronicle

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Client Sample ID: SMW-FB-003-05192023

Lab Sample ID: 240-185687-4

Date Collected: 05/19/23 13:30

Matrix: Water

Date Received: 05/19/23 19:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	524.2		1	60221	DC	EA SB	05/25/23 01:17
Total/NA	Analysis	524.2		1	60285	DC	EA SB	05/25/23 01:17
Total/NA	Analysis	524.2		1	60003	RD	EA SB	05/23/23 14:04
Total/NA	Analysis	524.2		1	59975	CM	EA SB	05/23/23 15:12
Total/NA	Analysis	524.2 Ext		1	59802	TD	EA SB	05/22/23 16:21
Total/NA	Prep	525.2	RE		60076	AM	EA SB	05/24/23 05:35
Total/NA	Analysis	525.2	RE	1	60199	CG	EA SB	05/25/23 03:15
Total/NA	Prep	3510C			574296	SDE	EET CLE	05/22/23 10:43
Total/NA	Analysis	8270E		1	574513	JMG	EET CLE	05/24/23 00:17
Total/NA	Analysis	8015D		1	626972	RS	EET PEN	05/28/23 07:12

Client Sample ID: SMW-TB-001-05192023

Lab Sample ID: 240-185687-5

Date Collected: 05/19/23 00:00

Matrix: Water

Date Received: 05/19/23 19:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	524.2		1	60221	DC	EA SB	05/25/23 01:41
Total/NA	Analysis	524.2		1	60285	DC	EA SB	05/25/23 01:41
Total/NA	Analysis	524.2		1	60003	RD	EA SB	05/23/23 14:04
Total/NA	Analysis	524.2		1	59975	CM	EA SB	05/23/23 15:36
Total/NA	Analysis	524.2 Ext		1	59802	TD	EA SB	05/22/23 16:45

Client Sample ID: SMW-TB-002-05192023

Lab Sample ID: 240-185687-6

Date Collected: 05/19/23 00:00

Matrix: Water

Date Received: 05/19/23 19:08

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	8015D		1	627400	LHB	EET PEN	06/02/23 06:32

Laboratory References:

EA SB = Eurofins Eaton Analytical South Bend, 110 S Hill Street, South Bend, IN 46617, TEL (574)233-4777

EET CLE = Eurofins Cleveland, 180 S. Van Buren Avenue, Barberton, OH 44203, TEL (330)497-9396

EET PEN = Eurofins Pensacola, 3355 McLemore Drive, Pensacola, FL 32514, TEL (850)474-1001

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Laboratory: Eurofins Cleveland

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
California	State	2927	02-27-24
Connecticut	State	PH-0590	06-29-23
Florida	NELAP	E87225	05-24-23
Georgia	State	4062	02-28-24
Illinois	NELAP	200004	07-31-23
Iowa	State	421	05-31-23
Kentucky (UST)	State	112225	02-28-24
Kentucky (WW)	State	KY98016	12-31-23
Michigan	State	9135	02-27-24
Minnesota	NELAP	039-999-348	12-31-23
Minnesota (Petrofund)	State	3506	08-01-23
New Jersey	NELAP	OH001	06-30-23
New York	NELAP	10975	04-01-24
Ohio	State	8303	02-27-24
Ohio VAP	State	ORELAP 4062	02-27-24
Oregon	NELAP	4062	05-24-23
Pennsylvania	NELAP	68-00340	08-31-23
Texas	NELAP	T104704517-22-17	08-31-23
Virginia	NELAP	460175	09-14-23
West Virginia DEP	State	210	12-31-23

Laboratory: Eurofins Eaton Analytical South Bend

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
A2LA	ISO/IEC 17025	5794.01	07-31-24
Alabama	State	40700	06-30-23
Alaska	State	IN00035	06-30-23
Arizona	State	AZ0432	07-26-23
Arkansas (DW)	State	EPA IN00035	06-30-23
California	State	2920	06-30-23
Colorado	State	IN00035	02-29-24
Connecticut	State	PH-0132	03-31-22 *
Delaware (DW)	State	IN00035	06-30-23
Florida	NELAP	E87775	06-30-23
Georgia (DW)	State	929	06-30-23
Hawaii	State	IN035	06-30-23
Idaho (DW)	State	IN00035	12-31-23
IL Dept. of Public Health (Micro)	State	17767	06-30-23
Illinois	NELAP	200001	09-30-23
Indiana	State	C-71-01	12-31-25
Indiana (Micro)	State	M-76-07	12-31-25
Iowa	State	IA Lab #098	11-01-23
Kansas	NELAP	E-10233	10-31-23
Kentucky (DW)	State	KY90056	12-31-23
Louisiana (DW)	State	LA014	12-31-23
Maine	State	IN00035	05-01-25
Maryland	State	209	06-30-24
Massachusetts	State	M-IN035	06-30-23
MI - RadChem Recognition	State	9926	06-30-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins Cleveland

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Laboratory: Eurofins Eaton Analytical South Bend (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Michigan	State	9926	06-30-23
Minnesota	NELAP	1989807	12-31-23
Mississippi	State	IN00035	06-30-22 *
Missouri	State	880	09-30-24
Montana (DW)	State	CERT0026	01-02-24
Nebraska	State	NE-OS-05-04	06-30-23
Nevada	State	IN000352021-2	07-31-23
New Hampshire	NELAP	2124	11-05-23
New Jersey	NELAP	IN598	06-30-23
New Mexico	State	IN00035	06-30-23
New York	NELAP	11398	04-01-24
North Carolina (DW)	State	18700	07-31-23
North Dakota	State	R-035	06-30-23
Ohio	State	87775	06-30-23
Oklahoma	NELAP	D9508	08-31-23
Oregon	NELAP	4156	09-16-23
Pennsylvania	NELAP	68-00466	04-30-24
Puerto Rico	State	IN00035	04-01-24
Rhode Island	State	LAO00343	12-30-23
South Carolina	State	95005001	06-30-23
South Dakota (DW)	State	IN00035	06-30-23
Tennessee	State	TN02973	06-30-23
Texas	NELAP	T104704187-22-16	12-31-23
Texas	TCEQ Water Supply	TX207	06-30-23
USEPA Reg X SDWA	US Federal Programs	IN00035	08-20-22 *
USEPA UCMR 5	US Federal Programs	IN00035	12-31-25
Utah	NELAP	IN00035	07-31-23
Vermont	State	VT-8775	11-15-23
Virginia	NELAP	460275	03-14-24
Washington	State	C837	01-01-24
West Virginia (DW)	State	9927 C	12-31-23
Wisconsin	State	999766900	08-31-23
Wisconsin (Micro)	State	10121	12-31-22 *
Wyoming	State	8TMS-L	06-30-23

Laboratory: Eurofins Pensacola

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Alabama	State	40150	06-30-23
ANAB	ISO/IEC 17025	L2471	02-22-26
Arkansas DEQ	State	88-0689	09-01-23
California	State	2510	06-30-23
Florida	NELAP	E81010	06-30-23
Georgia	State	E81010(FL)	06-30-23
Illinois	NELAP	200041	10-09-23
Kansas	NELAP	E-10253	10-31-23
Kentucky (UST)	State	53	06-30-23
Louisiana (All)	NELAP	30976	06-30-23
Louisiana (DW)	State	LA017	12-31-23

* Accreditation/Certification renewal pending - accreditation/certification considered valid.

Eurofins Cleveland

Accreditation/Certification Summary

Client: Norfolk Southern Corporation
Project/Site: East Palestine - Privileged & Confidential

Job ID: 240-185687-1
SDG: Sentinel

Laboratory: Eurofins Pensacola (Continued)

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Maryland	State	233	09-30-23
Michigan	State	9912	06-30-23
North Carolina (WW/SW)	State	314	12-31-23
Oklahoma	NELAP	9810	08-31-23
Pennsylvania	NELAP	68-00467	01-31-24
South Carolina	State	96026	06-30-23
Tennessee	State	TN02907	06-30-23
Texas	NELAP	T104704286	09-30-23
US Fish & Wildlife	US Federal Programs	A22340	06-30-23
USDA	US Federal Programs	FLGNV23001	01-08-26
USDA	US Federal Programs	P330-21-00056	05-17-24
Virginia	NELAP	460166	06-14-23
West Virginia DEP	State	136	03-31-24

Chain of Custody Record

643631

Environment Testing
America

PA Sentinel

Address:

TAL-8210

Regulatory Program: ☐ DW ☐ NPDES ☐ RCRA ☐ Other:

Client Contact		Project Manager: Steve Anderson		Site Contact:		Date: 05-19-2023		COC No: 643631	
Company Name: Norfolk Southern		Tel/Email: 404-989-3894		Lab Contact:		Carrier: Carter		1 of 1 COCs	
Address:		Analysis Turnaround Time		Performs MS / MSD (Y / N)		Filtered Sample (Y / N)		Sampler:	
City/State/Zip:		☐ CALENDAR DAYS ☐ WORKING DAYS		Sample Type (C=Comp, G=Grab)		# of Cont.		For Lab Use Only:	
Phone:		TAT if different from Below		Sample Date		Sample Time		Walk-in Client:	
Fax:		☐ 2 weeks ☐ 1 week ☐ 2 days ☒ 1 day		Matrix				Lab Sampling:	
Project Name: East Palestine				Sample				Job / SDG No.:	
Site: EP				Date		Time			
PO #:									
SMW-13-05192023		5-19-23	0955	G	AQ	10		X	
SMW-14-05192023		5-19-23	1205	G	AQ	10		X	
SMW-15-05192023		5-19-23	1420	G	AQ	10		X	
SMW-FB-05192023		5-19-23	1330	G	AQ	10		X	
SMW-TB-05192023		5-19-23			AQ	4		X	
SMW-TB-05192023		5-19-23			AQ	4		X	
BH 05-19-23									
240-185687 Chain of Custody									
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)									
☐ Return to Client ☒ Disposal by Lab ☐ Archive for Months									
Special Instructions/QC Requirements & Comments:									
Custody Seal No.: Therm ID No.:									
Relinquished by: Company: Eurofins Date/Time: 5-19-23 1627									
Relinquished by: Company: Waypoint Date/Time: 5-19-23 1708									
Relinquished by: Company: Date/Time:									

Eurofins - Canton Sample Receipt Form/Narrative Login # : 185687
Barberton Facility

Client Stanley Site Name _____ Cooler unpacked by: M. J. Yoon
Cooler Received on 5.19.23 Opened on 5.19.23
FedEx: 1st Grd Exp UPS FAS Clipper Client Drop Off Eurofins Courier Other Waypoint
Receipt After-hours: Drop-off Date/Time _____ **Storage Location** _____

Eurofins Cooler # 82 Foam Box Client Cooler Box Other _____
Packing material used: Bubble Wrap Foam Plastic Bag None Other _____
COOLANT: Wet Ice Blue Ice Dry Ice Water None _____

1. Cooler temperature upon receipt ☒ See Multiple Cooler Form
IR GUN # 18 (CF -0.2°C) Observed Cooler Temp. _____ °C Corrected Cooler Temp. _____ °C

2. Were tamper/custody seals on the outside of the cooler(s)? If Yes Quantity _____ Yes No
-Were the seals on the outside of the cooler(s) signed & dated? Yes No NA
-Were tamper/custody seals on the bottle(s) or bottle kits (LLHg/MeHg)? Yes No NA
-Were tamper/custody seals intact and uncompromised? Yes No NA

3. Shippers' packing slip attached to the cooler(s)? Yes No
4. Did custody papers accompany the sample(s)? Yes No
5. Were the custody papers relinquished & signed in the appropriate place? Yes No
6. Was/were the person(s) who collected the samples clearly identified on the COC? Yes No
7. Did all bottles arrive in good condition (Unbroken)? Yes No
8. Could all bottle labels (ID/Date/Time) be reconciled with the COC? Yes No
9. For each sample, does the COC specify preservatives (Y/N), # of containers (Y/N), and sample type of grab/comp (Y/N)? Yes No
10. Were correct bottle(s) used for the test(s) indicated? Yes No
11. Sufficient quantity received to perform indicated analyses? Yes No
12. Are these work share samples and all listed on the COC? Yes No

If yes, Questions 13-17 have been checked at the originating laboratory.

13. Were all preserved sample(s) at the correct pH upon receipt? Yes No NA pH Strip Lot# HC208070
14. Were VOAs on the COC? Yes No
15. Were air bubbles >6 mm in any VOA vials? Yes No NA
16. Was a VOA trip blank present in the cooler(s)? Trip Blank Lot # _____ Yes No
17. Was a LL Hg or Me Hg trip blank present? Yes No

Contacted PM _____ Date _____ by _____ via Verbal Voice Mail Other _____
Concerning _____

18. CHAIN OF CUSTODY & SAMPLE DISCREPANCIES ☐ additional next page Samples processed by: _____

19. SAMPLE CONDITION
Sample(s) _____ were received after the recommended holding time had expired.
Sample(s) _____ were received in a broken container.
Sample(s) _____ were received with bubble >6 mm in diameter. (Notify PM)

20. SAMPLE PRESERVATION
Sample(s) _____ were further preserved in the laboratory.
Time preserved: _____ Preservative(s) added/Lot number(s): _____
VOA Sample Preservation - Date/Time VOAs Frozen: _____

Eurofins - Canton Sample Receipt Multiple Cooler Form									
Cooler Description (Circle)				IR Gun # (Circle)	Observed Temp °C	Corrected Temp °C	Coolant (Circle)		
☒ EC	☐ Client	☐ Box	☐ Other	IR GUN #: 18	5.9	5.7	☒ Wet Ice	☐ Blue Ice	☐ Dry Ice
☒ EC	☐ Client	☐ Box	☐ Other	IR GUN #: 18	5.9	5.7	☒ Wet Ice	☐ Blue Ice	☐ Dry Ice
☒ EC	☐ Client	☐ Box	☐ Other	IR GUN #: 18	4.7	4.3	☒ Wet Ice	☐ Blue Ice	☐ Dry Ice
☒ EC	☐ Client	☐ Box	☐ Other	IR GUN #: 18	3.2	3.0	☒ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice
EC	☐ Client	☐ Box	☐ Other	IR GUN #: _____			☐ Wet Ice	☐ Blue Ice	☐ Dry Ice

☐ See Temperature Excursion Form

- 1
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Environment Testing

Ver: 06/08/2021

Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 240-185687-1

SDG Number: Sentinel

Login Number: 185687

List Number: 2

Creator: DePriest, Kellie

List Source: Eurofins Eaton Analytical South Bend

List Creation: 05/20/23 10:24 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Samples do not require splitting or compositing.	True	
Container provided by EEA	True	

Login Sample Receipt Checklist

Client: Norfolk Southern Corporation

Job Number: 240-185687-1

SDG Number: Sentinel

Login Number: 185687

List Number: 3

Creator: Peckinpaugh, Marshall

List Source: Eurofins Pensacola

List Creation: 05/23/23 09:57 AM

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	1.2°C IR8
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	