

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-86047-1

Client Project/Site: Northwest Pipe Company GW Monitoring

For:

CH2M Hill, Inc.
2020 SW 4th Ave
Suite 300
Portland, Oregon 97201

Attn: Bernice Kidd

Kristine D. Allen

Authorized for release by:
5/30/2019 1:52:56 PM

Kristine Allen, Manager of Project Management
(253)248-4970
kristine.allen@testamericainc.com



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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.



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Case Narrative

Client: CH2M Hill, Inc.
Project/Site: Northwest Pipe Company GW Monitoring

Job ID: 580-86047-1

Job ID: 580-86047-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

**Job Narrative
580-86047-1**

Comments

No additional comments.

Receipt

The samples were received on 5/9/2019 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 1.2° C.

Subcontract Work

Method TCE, cis 1,2-DCE, PCE, Vinyl Chloride - low level: This method was subcontracted to EMAX Laboratories Inc. The subcontract laboratory certification is different from that of the facility issuing the final report.

GC VOA

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

General Chemistry

Method(s): Chloride was detected in the method blank greater than the method detection limit but less than the reporting limit.

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

Definitions/Glossary

Client: CH2M Hill, Inc.
Project/Site: Northwest Pipe Company GW Monitoring

Job ID: 580-86047-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
B	Compound was found in the blank and sample.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
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)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
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)

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: Northwest Pipe Company GW Monitoring

Job ID: 580-86047-1

Client Sample ID: T4SIMW09-050819-0

Lab Sample ID: 580-86047-1

Date Collected: 05/08/19 08:55

Matrix: Water

Date Received: 05/09/19 09:30

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	2.4		0.99	0.25	ug/L			05/14/19 13:33	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.6	B	0.90	0.14	mg/L			05/09/19 16:39	1
NO3 as N	1.8		0.20	0.020	mg/L			05/09/19 16:39	1
Sulfate	7.0		1.2	0.26	mg/L			05/09/19 16:39	1
Total Organic Carbon	0.53		0.10	0.050	mg/L			05/15/19 06:29	1

Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Northwest Pipe Company GW Monitoring

Job ID: 580-86047-1

Client Sample ID: T4SIMW03s-050819-0

Lab Sample ID: 580-86047-2

Date Collected: 05/08/19 10:45

Matrix: Water

Date Received: 05/09/19 09:30

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	ND		0.99	0.25	ug/L			05/14/19 13:50	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1.5	B	0.90	0.14	mg/L			05/09/19 17:14	1
NO3 as N	1.4		0.20	0.020	mg/L			05/09/19 17:14	1
Sulfate	6.9		1.2	0.26	mg/L			05/09/19 17:14	1
Total Organic Carbon	0.63		0.10	0.050	mg/L			05/15/19 06:41	1

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: Northwest Pipe Company GW Monitoring

Job ID: 580-86047-1

Client Sample ID: MW02-050819-0

Lab Sample ID: 580-86047-3

Date Collected: 05/08/19 12:10

Matrix: Water

Date Received: 05/09/19 09:30

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (TCD)	7200		1000	500	ug/L			05/14/19 14:03	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2.9	B	0.90	0.14	mg/L			05/09/19 17:26	1
NO3 as N	0.044	J	0.20	0.020	mg/L			05/09/19 17:26	1
Sulfate	0.92	J	1.2	0.26	mg/L			05/09/19 17:26	1
Total Organic Carbon	1.3		0.10	0.050	mg/L			05/15/19 06:54	1



Client Sample Results

Client: CH2M Hill, Inc.
Project/Site: Northwest Pipe Company GW Monitoring

Job ID: 580-86047-1

Client Sample ID: MW04-050819-0

Lab Sample ID: 580-86047-4

Date Collected: 05/08/19 13:30

Matrix: Water

Date Received: 05/09/19 09:30

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (TCD)	1400		1000	500	ug/L			05/14/19 14:16	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.4	B	0.90	0.14	mg/L			05/09/19 17:37	1
NO3 as N	0.058	J	0.20	0.020	mg/L			05/09/19 17:37	1
Sulfate	3.7		1.2	0.26	mg/L			05/09/19 17:37	1
Total Organic Carbon	1.3		0.10	0.050	mg/L			05/15/19 08:15	1

Client Sample Results

Client: CH2M Hill, Inc.
 Project/Site: Northwest Pipe Company GW Monitoring

Job ID: 580-86047-1

Client Sample ID: T4SIMW22-050819

Lab Sample ID: 580-86047-6

Date Collected: 05/08/19 15:05

Matrix: Water

Date Received: 05/09/19 09:30

Method: RSK-175 - Dissolved Gases (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	41		0.99	0.25	ug/L			05/14/19 14:29	1

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.9	B	0.90	0.14	mg/L			05/09/19 17:49	1
NO3 as N	0.11	J	0.20	0.020	mg/L			05/09/19 17:49	1
Sulfate	11		1.2	0.26	mg/L			05/09/19 17:49	1
Total Organic Carbon	1.2		0.10	0.050	mg/L			05/15/19 08:28	1



QC Sample Results

Client: CH2M Hill, Inc.
 Project/Site: Northwest Pipe Company GW Monitoring

Job ID: 580-86047-1

Method: RSK-175 - Dissolved Gases (GC)

Lab Sample ID: MB 440-546352/8
Matrix: Water
Analysis Batch: 546352

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Methane (FID)	ND		0.99	0.25	ug/L			05/14/19 13:17	1
Methane (TCD)	ND		1000	500	ug/L			05/14/19 13:17	1

Lab Sample ID: LCS 440-546352/4
Matrix: Water
Analysis Batch: 546352

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane (TCD)	4190	4460		ug/L		106	80 - 120

Lab Sample ID: LCS 440-546352/6
Matrix: Water
Analysis Batch: 546352

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methane (FID)	83.9	80.4		ug/L		96	80 - 120

Lab Sample ID: LCSD 440-546352/5
Matrix: Water
Analysis Batch: 546352

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
Methane (TCD)	4190	4570		ug/L		109	80 - 120	2	20

Lab Sample ID: LCSD 440-546352/7
Matrix: Water
Analysis Batch: 546352

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
Methane (FID)	83.9	78.5		ug/L		94	80 - 120	2	20

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 580-300401/3
Matrix: Water
Analysis Batch: 300401

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
NO3 as N	ND		0.20	0.020	mg/L			05/09/19 16:04	1

Lab Sample ID: LCS 580-300401/4
Matrix: Water
Analysis Batch: 300401

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
NO3 as N	5.00	5.21		mg/L		104	90 - 110

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: Northwest Pipe Company GW Monitoring

Job ID: 580-86047-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCSD 580-300401/5
Matrix: Water
Analysis Batch: 300401

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
NO3 as N	5.00	5.22		mg/L		104	90 - 110	0	15

Lab Sample ID: 580-86047-1 MS
Matrix: Water
Analysis Batch: 300401

Client Sample ID: T4SIMW09-050819-0
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
NO3 as N	1.8		5.00	7.00		mg/L		105	90 - 110

Lab Sample ID: 580-86047-1 MSD
Matrix: Water
Analysis Batch: 300401

Client Sample ID: T4SIMW09-050819-0
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
NO3 as N	1.8		5.00	6.99		mg/L		105	90 - 110	0	15

Lab Sample ID: MB 580-300404/3
Matrix: Water
Analysis Batch: 300404

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	0.683	J	0.90	0.14	mg/L			05/09/19 16:04	1
Sulfate	ND		1.2	0.26	mg/L			05/09/19 16:04	1

Lab Sample ID: LCS 580-300404/4
Matrix: Water
Analysis Batch: 300404

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	50.0	52.1		mg/L		104	90 - 110
Sulfate	50.0	51.7		mg/L		103	90 - 110

Lab Sample ID: LCSD 580-300404/5
Matrix: Water
Analysis Batch: 300404

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
Chloride	50.0	52.1		mg/L		104	90 - 110	0	15
Sulfate	50.0	51.7		mg/L		103	90 - 110	0	15

Lab Sample ID: 580-86047-1 MS
Matrix: Water
Analysis Batch: 300404

Client Sample ID: T4SIMW09-050819-0
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	1.6	B	50.0	54.2		mg/L		105	90 - 110
Sulfate	7.0		50.0	59.5		mg/L		105	90 - 110

QC Sample Results

Client: CH2M Hill, Inc.
Project/Site: Northwest Pipe Company GW Monitoring

Job ID: 580-86047-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 580-86047-1 MSD
Matrix: Water
Analysis Batch: 300404

Client Sample ID: T4SIMW09-050819-0
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	1.6	B	50.0	54.2		mg/L		105	90 - 110	0	15
Sulfate	7.0		50.0	59.6		mg/L		105	90 - 110	0	15

Method: SM 5310C - TOC

Lab Sample ID: MB 440-546810/6
Matrix: Water
Analysis Batch: 546810

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Organic Carbon	ND		0.10	0.050	mg/L			05/15/19 06:18	1

Lab Sample ID: LCS 440-546810/5
Matrix: Water
Analysis Batch: 546810

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	10.0	9.97		mg/L		100	85 - 115

Lab Sample ID: MRL 440-546810/4
Matrix: Water
Analysis Batch: 546810

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	MRL Result	MRL Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	0.100	0.0749	J	mg/L		75	50 - 150

Lab Sample ID: 580-86047-1 MS
Matrix: Water
Analysis Batch: 546810

Client Sample ID: T4SIMW09-050819-0
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	0.53		10.0	10.4		mg/L		98	85 - 115

Lab Sample ID: 580-86047-1 MSD
Matrix: Water
Analysis Batch: 546810

Client Sample ID: T4SIMW09-050819-0
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Organic Carbon	0.53		10.0	10.4		mg/L		98	85 - 115	0	20

Lab Chronicle

Client: CH2M Hill, Inc.
Project/Site: Northwest Pipe Company GW Monitoring

Job ID: 580-86047-1

Client Sample ID: T4SIMW09-050819-0

Lab Sample ID: 580-86047-1

Date Collected: 05/08/19 08:55

Matrix: Water

Date Received: 05/09/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	546352	05/14/19 13:33	EI	TAL IRV
Total/NA	Analysis	300.0		1	300401	05/09/19 16:39	EMM	TAL SEA
Total/NA	Analysis	300.0		1	300404	05/09/19 16:39	EMM	TAL SEA
Total/NA	Analysis	SM 5310C		1	546810	05/15/19 06:29	YZ	TAL IRV

Client Sample ID: T4SIMW03s-050819-0

Lab Sample ID: 580-86047-2

Date Collected: 05/08/19 10:45

Matrix: Water

Date Received: 05/09/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	546352	05/14/19 13:50	EI	TAL IRV
Total/NA	Analysis	300.0		1	300401	05/09/19 17:14	EMM	TAL SEA
Total/NA	Analysis	300.0		1	300404	05/09/19 17:14	EMM	TAL SEA
Total/NA	Analysis	SM 5310C		1	546810	05/15/19 06:41	YZ	TAL IRV

Client Sample ID: MW02-050819-0

Lab Sample ID: 580-86047-3

Date Collected: 05/08/19 12:10

Matrix: Water

Date Received: 05/09/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	546352	05/14/19 14:03	EI	TAL IRV
Total/NA	Analysis	300.0		1	300401	05/09/19 17:26	EMM	TAL SEA
Total/NA	Analysis	300.0		1	300404	05/09/19 17:26	EMM	TAL SEA
Total/NA	Analysis	SM 5310C		1	546810	05/15/19 06:54	YZ	TAL IRV

Client Sample ID: MW04-050819-0

Lab Sample ID: 580-86047-4

Date Collected: 05/08/19 13:30

Matrix: Water

Date Received: 05/09/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	546352	05/14/19 14:16	EI	TAL IRV
Total/NA	Analysis	300.0		1	300401	05/09/19 17:37	EMM	TAL SEA
Total/NA	Analysis	300.0		1	300404	05/09/19 17:37	EMM	TAL SEA
Total/NA	Analysis	SM 5310C		1	546810	05/15/19 08:15	YZ	TAL IRV

Client Sample ID: T4SIMW22-050819

Lab Sample ID: 580-86047-6

Date Collected: 05/08/19 15:05

Matrix: Water

Date Received: 05/09/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	RSK-175		1	546352	05/14/19 14:29	EI	TAL IRV
Total/NA	Analysis	300.0		1	300401	05/09/19 17:49	EMM	TAL SEA
Total/NA	Analysis	300.0		1	300404	05/09/19 17:49	EMM	TAL SEA
Total/NA	Analysis	SM 5310C		1	546810	05/15/19 08:28	YZ	TAL IRV

Eurofins TestAmerica, Seattle

Lab Chronicle

Client: CH2M Hill, Inc.

Project/Site: Northwest Pipe Company GW Monitoring

Job ID: 580-86047-1

Laboratory References:

EMAX Lab. = EMAX Laboratories Inc, 1835 W. 205th Street, Torrance, CA 90501

TAL IRV = Eurofins TestAmerica, Irvine, 17461 Derian Ave, Suite 100, Irvine, CA 92614-5817, TEL (949)261-1022

TAL SEA = Eurofins TestAmerica, Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

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Accreditation/Certification Summary

Client: CH2M Hill, Inc.
Project/Site: Northwest Pipe Company GW Monitoring

Job ID: 580-86047-1

Laboratory: Eurofins TestAmerica, Seattle

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska (UST)	State Program	10	17-024	01-19-20
ANAB	DoD		L2236	01-19-22
ANAB	ISO/IEC 17025		L2236	01-19-22
California	State Program	9	2901	11-05-19
Montana (UST)	State Program	8	N/A	04-30-20
Oregon	NELAP	10	WA100007	11-05-19
US Fish & Wildlife	Federal		LE058448-0	07-31-19
USDA	Federal		P330-14-00126	02-10-20
Washington	State Program	10	C553	02-17-20

Laboratory: Eurofins TestAmerica, Irvine

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

Authority	Program	EPA Region	Identification Number	Expiration Date
Alaska	State Program	10	CA01531	06-30-19
Arizona	State Program	9	AZ0671	10-14-19
California	LA Cty Sanitation Districts	9	10256	06-30-19
California	State Program	9	CA ELAP 2706	06-30-19
Guam	State Program	9	Cert. No. 19-005R	01-23-20
Hawaii	State Program	9	N/A	01-29-20
Kansas	NELAP	7	E-10420	07-31-19
Nevada	State Program	9	CA015312018-1	07-31-19
New Mexico	State Program	6	N/A	01-29-20
Oregon	NELAP	10	4028	01-29-20
US Fish & Wildlife	Federal		058448	07-31-19
USDA	Federal		P330-18-00214	07-09-21
Washington	State Program	10	C900	09-03-19

Sample Summary

Client: CH2M Hill, Inc.
Project/Site: Northwest Pipe Company GW Monitoring

Job ID: 580-86047-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-86047-1	T4SIMW09-050819-0	Water	05/08/19 08:55	05/09/19 09:30	
580-86047-2	T4SIMW03s-050819-0	Water	05/08/19 10:45	05/09/19 09:30	
580-86047-3	MW02-050819-0	Water	05/08/19 12:10	05/09/19 09:30	
580-86047-4	MW04-050819-0	Water	05/08/19 13:30	05/09/19 09:30	
580-86047-5	Trip Blank-050819	Water	05/08/19 08:00	05/09/19 09:30	
580-86047-6	T4SIMW22-050819	Water	05/08/19 15:05	05/09/19 09:30	

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LABORATORIES, INC.®

1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889

Date: 05-29-2019
EMAX Batch No.: 19E088

Attn: Kris Allen

TestAmerica, Inc.
5755 8th Street East
Tacoma WA 98424

Subject: Laboratory Report
Project: NW PIPE COMPANY GW MONITORING

Enclosed is the Laboratory report for samples received on 05/10/19.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
T4SIMW09-050819-0 (580-86047-1)	E088-01	05/08/19	WATER	VOC SIM
T4SIMW03S-050819-0 (580-86047-2)	E088-02	05/08/19	WATER	VOC SIM
MW02-050819-0 (580-86047-3)	E088-03	05/08/19	WATER	VOC SIM
MW04-050819-0 (580-86047-4)	E088-04	05/08/19	WATER	VOC SIM
TRIP BLANK-050819 (580-86047-5)	E088-05	05/08/19	WATER	VOC SIM
T4SIMW22-050819 (580-86047-6)	E088-06	05/08/19	WATER	VOC SIM

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning these results.

Sincerely yours,

Caspar J. Pang
Laboratory Director

This report is confidential and intended solely for the use of the individual or entity to whom it is addressed. This report shall not be reproduced except in full or without the written approval of EMAX.

EMAX certifies that results included in this report meets all TNI & DOD requirements unless noted in the Case Narrative.

NELAP Accredited Certificate Number CA002912018-14
ANAB Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing
California ELAP Accredited Certificate Number 2672

SAMPLE RECEIPT FORM 1

Type of Delivery <input checked="" type="checkbox"/> Fedex <input type="checkbox"/> UPS <input type="checkbox"/> GSO <input type="checkbox"/> Others	Airbill / Tracking Number 4912 4943 5133	ECN 19E088
<input type="checkbox"/> EMAX Courier <input type="checkbox"/> Client Delivery		Recipient Mania Martinez
		Date 5-10-19 Time 9:45

COC INSPECTION

<input checked="" type="checkbox"/> Client Name	<input checked="" type="checkbox"/> Client PM/FC	<input type="checkbox"/> Sampler Name	<input checked="" type="checkbox"/> Sampling Date/Time	<input checked="" type="checkbox"/> Sample ID	<input checked="" type="checkbox"/> Matrix
<input checked="" type="checkbox"/> Address	<input type="checkbox"/> Tel # / Fax #	<input type="checkbox"/> Courier Signature	<input checked="" type="checkbox"/> Analysis Required	<input type="checkbox"/> Preservative (if any)	<input type="checkbox"/> TAT
Safety Issues (if any)	<input type="checkbox"/> High concentrations expected	<input type="checkbox"/> From Superfund Site	<input type="checkbox"/> Rad screening required		

Note: _____

PACKAGING INSPECTION

Container	<input checked="" type="checkbox"/> Cooler	<input type="checkbox"/> Box	<input type="checkbox"/> Other
Condition	<input type="checkbox"/> Custody Seal	<input type="checkbox"/> Intact	<input type="checkbox"/> Damaged
Packaging	<input type="checkbox"/> Bubble Pack	<input type="checkbox"/> Styrofoam	<input type="checkbox"/> Popcorn
Temperatures (Cool, ≤6 °C but not frozen)	<input checked="" type="checkbox"/> Cooler 1 0.4 °C	<input type="checkbox"/> Cooler 2 _____ °C	<input type="checkbox"/> Cooler 3 _____ °C
	<input type="checkbox"/> Cooler 6 _____ °C	<input type="checkbox"/> Cooler 7 _____ °C	<input type="checkbox"/> Cooler 8 _____ °C
Thermometer:	A - S/N 170324872	B - S/N 150555522	C - S/N 170324888
			D - S/N _____

Comments: Temperature is out of range. PM was informed IMMEDIATELY.

Note: _____

DISCREPANCIES

LabSampleID	LabSampleContainerID	Code	ClientSample Label ID / Information	Corrective Action
2	5	D3	Label Reads: T4S1MWO3s-	RI
1-6	1-17	D2	Label Reads: VOCs, SWB260 Sim CH4 (RSK 175) VOC	RI
<i>5/10/19</i>				

pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time.

NOTES/OBSERVATIONS:

LEGEND:

<p>Code Description- Sample Management</p> <p>D1 Analysis is not indicated in _____</p> <p>D2 Analysis mismatch COC vs label</p> <p>D3 Sample ID mismatch COC vs label</p> <p>D4 Sample ID is not indicated in _____</p> <p>D5 Container -[improper] [leaking] [broken]</p> <p>D6 Date/Time is not indicated in _____</p> <p>D7 Date/Time mismatch COC vs label</p> <p>D8 Sample listed in COC is not received</p> <p>D9 Sample received is not listed in COC</p> <p>D10 No initial/date on corrections in COC/label</p> <p>D11 Container count mismatch COC vs received</p> <p>D12 Container size mismatch COC vs received</p>	<p>Code Description-Sample Management</p> <p>D13 Out of Holding Time</p> <p>D14 Bubble is >6mm</p> <p>D15 No trip blank in cooler</p> <p>D16 Preservation not indicated in _____</p> <p>D17 Preservation mismatch COC vs label</p> <p>D18 Insufficient chemical preservative</p> <p>D19 Insufficient Sample</p> <p>D20 No filtration info for dissolved analysis</p> <p>D21 No sample for moisture determination</p> <p>D22 _____</p> <p>D23 _____</p> <p>D24 _____</p>	<p><input type="checkbox"/> Continue to next page.</p> <p>Code Description-Sample Management</p> <p>R1 Proceed as indicated in <input checked="" type="checkbox"/> COC <input type="checkbox"/> Label</p> <p>R2 Refer to attached instruction</p> <p>R3 Cancel the analysis</p> <p>R4 Use vial with smallest bubble first</p> <p>R5 Log-in with latest sampling date and time+1 min</p> <p>R6 Adjust pH as necessary</p> <p>R7 Filter and preserved as necessary</p> <p>R8 _____</p> <p>R9 _____</p> <p>R10 _____</p> <p>R11 _____</p> <p>R12 _____</p>
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REVIEWS:

Sample Labeling *Mania Martinez* SRF *Agustin* PM *Mania*

Date **5-10-19** Date **5/10/19** Date **5/10/19**

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ORIGIN ID:TCMA (253) 922-2310
SAMPLE RECEIVING
TA-SEATTLE
5755 8TH ST E

SHIP DATE: 09MAY19
ACTWGT: 1.00 LB
CAD: 989746/CAFE3211

FIFE, WA 98424
UNITED STATES US

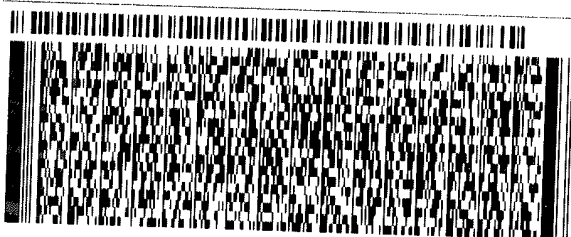
BILL SENDER

TO SHIPPING/RECEIVING
EMAX LABORATORIES INC
1835 W. 205TH STREET

TORRANCE CA 90501

(253) 922-2310
PO: NO

REF: S580-33723



FedEx
Express



TRK# 4912 4943 5133
0201

FRI - 10 MAY 10:30A
PRIORITY OVERNIGHT

92 HHRA

90501
CA-US LAX

Temp: 0.4



Ref# 158471-434 B112 EXP 12/19

SE101/DACC/104f

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than LOQ/RL but greater than LOD/MDL/DL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range or estimated value.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

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LABORATORY REPORT FOR

TESTAMERICA, INC.

NW PIPE COMPANY GW MONITORING

METHOD 5030B/8260B SIM
EDB BY GC/MS SIM

SDG#: 19E088

CASE NARRATIVE

Client : TESTAMERICA, INC.

Project: NW PIPE COMPANY GW MONITORING

SDG : 19E088

METHOD SW5030B/8260B SIM
EDB BY GC/MS SIM

A total of six (6) water samples were received on 05/10/19 to be analyzed for EDB by GC/MS SIM in accordance with Method SW5030B/8260B SIM and project specific requirements.

Holding Time

Samples were analyzed within the prescribed holding time.

Instrument Performance and Calibration

Instrument tune check was performed prior to calibration. Result was within acceptance criteria. Multi-calibration points were generated to establish initial calibration (ICAL). ICAL was verified using secondary source (ICV). Continuing calibration (CCV) was carried out at a frequency required by the project. All project calibration requirements were satisfied. Refer to calibration summary forms of ICAL, ICV and CCV for details.

Method Blank

Method blank was prepared and analyzed at the frequency required by the project. For this SDG, two (2) method blanks were analyzed. VOF5E09B and VOF5E12B were compliant to project requirement. Refer to sample result summary forms for details.

Lab Control Sample

Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, two (2) sets of LCS/LCD were analyzed. VOF5E09L/VOF5E09C and VOF5E12L/VOF5E12C were within LCS limits. Refer to LCS summary forms for details.

Matrix QC Sample

No matrix QC sample was provided on this SDG.

Surrogate

Surrogates were added on QC and field samples. All surrogate recoveries were within QC limits. Refer to sample result summary forms for details.

Sample Analysis

Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

Sample E088-04 was reported at dilution due to high concentration.

LAB CHRONICLE
EDB BY GC/MS SIM

SDG NO. : 19E088
Instrument ID : F5

Client : TESTAMERICA, INC.
Project : NW PIPE COMPANY GW MONITORING

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	WATER		Extraction Date/Time	Sample Data FN	Calibration Prep. Data FN	Notes
				Analysis Date/Time	Batch				
MBLK1W	VOF5E09B	1	NA	05/16/1912:57	05/16/1912:57	REY120	RDY169	VOF5E09	Method Blank
LCS1W	VOF5E09L	1	NA	05/16/1911:40	05/16/1911:40	REY117	RDY169	VOF5E09	Lab Control Sample (LCS)
LCD1W	VOF5E09C	1	NA	05/16/1912:06	05/16/1912:06	REY118	RDY169	VOF5E09	LCS Duplicate
TRIP BLANK-050819 (580-86047-5)	E088-05	1	NA	05/16/1913:22	05/16/1913:22	REY121	RDY169	VOF5E09	Field Sample
T4SIMW09-050819-0 (580-86047-1)	E088-01	1	NA	05/16/1916:18	05/16/1916:18	REY128	RDY169	VOF5E09	Field Sample
T4SIMW03S-050819-0 (580-86047-2)	E088-02	1	NA	05/16/1916:44	05/16/1916:44	REY129	RDY169	VOF5E09	Field Sample
MW02-050819-0 (580-86047-3)	E088-03	1	NA	05/16/1917:09	05/16/1917:09	REY130	RDY169	VOF5E09	Field Sample
T4SIMW22-050819 (580-86047-6)	E088-06	1	NA	05/16/1918:00	05/16/1918:00	REY132	RDY169	VOF5E09	Field Sample
MBLK2W	VOF5E12B	1	NA	05/21/1911:43	05/21/1911:43	REY211	RDY169	VOF5E12	Method Blank
LCS2W	VOF5E12L	1	NA	05/21/1910:52	05/21/1910:52	REY209	RDY169	VOF5E12	Lab Control Sample (LCS)
LCD2W	VOF5E12C	1	NA	05/21/1911:17	05/21/1911:17	REY210	RDY169	VOF5E12	LCS Duplicate
MW04-050819-0 (580-86047-4)	E088-04I	25	NA	05/21/1912:08	05/21/1912:08	REY212	RDY169	VOF5E12	Diluted Sample
MW04-050819-0 (580-86047-4)DL	E088-04J	50	NA	05/21/1912:34	05/21/1912:34	REY213	RDY169	VOF5E12	Diluted Sample
T4SIMW22-050819 (580-86047-6)DL	E088-06I	10	NA	05/21/1912:59	05/21/1912:59	REY214	RDY169	VOF5E12	Diluted Sample

FN - Filename
% Moist - Percent Moisture

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SAMPLE RESULTS

METHOD SW5030B/8260B SIM
EDB BY GC/MS SIM

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=====
Client      : TESTAMERICA, INC.           Date Collected: 05/08/19
Project     : NW PIPE COMPANY GW MONITORING Date Received: 05/10/19
Batch No.   : 19E088                     Date Extracted: 05/16/19 16:18
Sample ID   : T4SIMW09-050819-0 (580-86047-1) Date Analyzed: 05/16/19 16:18
Lab Samp ID: E088-01                     Dilution Factor: 1
Lab File ID: REY128                       Matrix       : WATER
Ext Btch ID: VOF5E09                     % Moisture   : NA
Calib. Ref.: RDY169                       Instrument ID : TOF5
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CIS-1,2-DICHLOROETHYLENE	ND	0.20	0.10
VINYL CHLORIDE	ND	0.10	0.020
TETRACHLOROETHENE	ND	0.20	0.10
TCE	ND	0.20	0.10

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	0.548	0.5000	110	70-130
4-BROMOFLUOROBENZENE	0.449	0.5000	89.8	70-130
TOLUENE-D8	0.439	0.5000	87.7	70-130

METHOD SW5030B/8260B SIM
EDB BY GC/MS SIM

```

=====
Client      : TESTAMERICA, INC.           Date Collected: 05/08/19
Project     : NW PIPE COMPANY GW MONITORING Date Received: 05/10/19
Batch No.   : 19E088                     Date Extracted: 05/16/19 16:44
Sample ID   : T4SIMW03S-050819-0 (580-86047-2) Date Analyzed: 05/16/19 16:44
Lab Samp ID: E088-02                     Dilution Factor: 1
Lab File ID: REY129                      Matrix          : WATER
Ext Btch ID: VOF5E09                     % Moisture      : NA
Calib. Ref.: RDY169                      Instrument ID   : TOF5
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CIS-1,2-DICHLOROETHYLENE	ND	0.20	0.10
VINYL CHLORIDE	ND	0.10	0.020
TETRACHLOROETHENE	ND	0.20	0.10
TCE	ND	0.20	0.10

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	0.575	0.5000	115	70-130
4-BROMOFLUOROBENZENE	0.454	0.5000	90.8	70-130
TOLUENE-D8	0.440	0.5000	88.0	70-130

METHOD SW5030B/8260B SIM
EDB BY GC/MS SIM

```

=====
Client      : TESTAMERICA, INC.           Date Collected: 05/08/19
Project     : NW PIPE COMPANY GW MONITORING Date Received: 05/10/19
Batch No.   : 19E088                     Date Extracted: 05/16/19 17:09
Sample ID   : MW02-050819-0 (580-86047-3) Date Analyzed: 05/16/19 17:09
Lab Samp ID: E088-03                     Dilution Factor: 1
Lab File ID: REY130                      Matrix          : WATER
Ext Btch ID: VOF5E09                     % Moisture     : NA
Calib. Ref.: RDY169                      Instrument ID   : TOF5
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CIS-1,2-DICHLOROETHYLENE	0.36	0.20	0.10
VINYL CHLORIDE	1.2	0.10	0.020
TETRACHLOROETHENE	ND	0.20	0.10
TCE	ND	0.20	0.10

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	0.568	0.5000	114	70-130
4-BROMOFLUOROBENZENE	0.455	0.5000	90.9	70-130
TOLUENE-D8	0.437	0.5000	87.4	70-130

METHOD SW5030B/8260B SIM
EDB BY GC/MS SIM

```

=====
Client       : TESTAMERICA, INC.           Date Collected: 05/08/19
Project      : NW PIPE COMPANY GW MONITORING Date Received: 05/10/19
Batch No.    : 19E088                     Date Extracted: 05/21/19 12:08 # 05/21/19 12:34
Sample ID    : MW04-050819-0 (580-86047-4) Date Analyzed: 05/21/19 12:08 # 05/21/19 12:34
Lab Samp ID  : E088-04I #E088-04J         Dilution Factor: 25 # 50
Lab File ID  : REY212 #REY213            Matrix          : WATER
Ext Btch ID  : VOF5E12 #VOF5E12          % Moisture      : NA
Calib. Ref.  : RDY169 #RDY169           Instrument ID   : TOF5
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
# CIS-1,2-DICHLOROETHYLENE	150	10	5.0
VINYL CHLORIDE	6.1	2.5	0.50
TETRACHLOROETHENE	5.4	5.0	2.5
TCE	8.4	5.0	2.5

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	13.1	12.50	105	70-130
4-BROMOFLUOROBENZENE	11.5	12.50	92.0	70-130
TOLUENE-D8	11.1	12.50	88.9	70-130
# 1,2-DICHLOROETHANE-D4	26.3	25.00	105	70-130
# 4-BROMOFLUOROBENZENE	23.3	25.00	93.4	70-130
# TOLUENE-D8	22.7	25.00	90.6	70-130

Members of the Associated File

METHOD SW5030B/8260B SIM
EDB BY GC/MS SIM

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=====
Client      : TESTAMERICA, INC.           Date Collected: 05/08/19
Project     : NW PIPE COMPANY GW MONITORING Date Received: 05/10/19
Batch No.   : 19E088                     Date Extracted: 05/21/19 12:08
Sample ID   : MW04-050819-0 (580-86047-4) Date Analyzed: 05/21/19 12:08
Lab Samp ID : E088-041                   Dilution Factor: 25
Lab File ID : REY212                     Matrix          : WATER
Ext Btch ID : VOF5E12                   % Moisture     : NA
Calib. Ref.: RDY169                     Instrument ID   : TOF5
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CIS-1,2-DICHLOROETHYLENE	140E	5.0	2.5
VINYL CHLORIDE	6.1	2.5	0.50
TETRACHLOROETHENE	5.4	5.0	2.5
TCE	8.4	5.0	2.5

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	13.1	12.50	105	70-130
4-BROMOFLUOROBENZENE	11.5	12.50	92.0	70-130
TOLUENE-D8	11.1	12.50	88.9	70-130

METHOD SW5030B/8260B SIM
EDB BY GC/MS SIM

```

=====
Client      : TESTAMERICA, INC.           Date Collected: 05/08/19
Project     : NW PIPE COMPANY GW MONITORING Date Received: 05/10/19
Batch No.   : 19E088                     Date Extracted: 05/21/19 12:34
Sample ID   : MW04-050819-0 (580-86047-4)DL Date Analyzed: 05/21/19 12:34
Lab Samp ID: E088-04J                   Dilution Factor: 50
Lab File ID: REY213                      Matrix          : WATER
Ext Btch ID: VOF5E12                     % Moisture     : NA
Calib. Ref.: RDY169                      Instrument ID   : TOF5
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CIS-1,2-DICHLOROETHYLENE	150	10	5.0
VINYL CHLORIDE	6.3	5.0	1.0
TETRACHLOROETHENE	5.6J	10	5.0
TCE	8.7J	10	5.0

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	26.3	25.00	105	70-130
4-BROMOFLUOROBENZENE	23.3	25.00	93.4	70-130
TOLUENE-D8	22.7	25.00	90.6	70-130

METHOD SW5030B/8260B SIM
EDB BY GC/MS SIM

```

=====
Client      : TESTAMERICA, INC.           Date Collected: 05/08/19
Project     : NW PIPE COMPANY GW MONITORING Date Received: 05/10/19
Batch No.   : 19E088                     Date Extracted: 05/16/19 13:22
Sample ID: TRIP BLANK-050819 (580-86047-5) Date Analyzed: 05/16/19 13:22
Lab Samp ID: E088-05                     Dilution Factor: 1
Lab File ID: REY121                      Matrix          : WATER
Ext Btch ID: VOF5E09                     % Moisture     : NA
Calib. Ref.: RDY169                      Instrument ID   : TOF5
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CIS-1,2-DICHLOROETHYLENE	ND	0.20	0.10
VINYL CHLORIDE	ND	0.10	0.020
TETRACHLOROETHENE	ND	0.20	0.10
TCE	ND	0.20	0.10

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	0.532	0.5000	106	70-130
4-BROMOFLUOROBENZENE	0.459	0.5000	91.7	70-130
TOLUENE-D8	0.448	0.5000	89.5	70-130

METHOD SW5030B/8260B SIM
EDB BY GC/MS SIM

```

=====
Client       : TESTAMERICA, INC.           Date Collected: 05/08/19
Project      : NW PIPE COMPANY GW MONITORING Date Received: 05/10/19
Batch No.    : 19E088                     Date Extracted: 05/16/19 18:00 # 05/21/19 12:59
Sample ID    : T4SIMW22-050819 (580-86047-6) Date Analyzed: 05/16/19 18:00 # 05/21/19 12:59
Lab Samp ID  : E088-06 #E088-061         Dilution Factor: 1 # 10
Lab File ID  : REY132 #REY214           Matrix          : WATER
Ext Btch ID  : VOF5E09 #VOF5E12        % Moisture      : NA
Calib. Ref.  : RDY169 #RDY169          Instrument ID   : TOF5
=====

```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
# CIS-1,2-DICHLOROETHYLENE	7.5	2.0	1.0
VINYL CHLORIDE	0.33	0.10	0.020
TETRACHLOROETHENE	1.8	0.20	0.10
# TCE	4.4	2.0	1.0

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	0.570	0.5000	114	70-130
4-BROMOFLUOROBENZENE	0.457	0.5000	91.4	70-130
TOLUENE-D8	0.444	0.5000	88.8	70-130
# 1,2-DICHLOROETHANE-D4	5.00	5.000	100	70-130
# 4-BROMOFLUOROBENZENE	4.25	5.000	84.9	70-130
# TOLUENE-D8	4.11	5.000	82.2	70-130

Members of the Associated File

METHOD SW5030B/8260B SIM
EDB BY GC/MS SIM

```

=====
Client      : TESTAMERICA, INC.           Date Collected: 05/08/19
Project     : NW PIPE COMPANY GW MONITORING Date Received: 05/10/19
Batch No.   : 19E088                     Date Extracted: 05/16/19 18:00
Sample ID   : T4SIMW22-050819 (580-86047-6) Date Analyzed: 05/16/19 18:00
Lab Samp ID: E088-06                     Dilution Factor: 1
Lab File ID: REY132                      Matrix          : WATER
Ext Btch ID: VOF5E09                     % Moisture     : NA
Calib. Ref.: RDY169                      Instrument ID   : TOF5
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CIS-1,2-DICHLOROETHYLENE	8.2E	0.20	0.10
VINYL CHLORIDE	0.33	0.10	0.020
TETRACHLOROETHENE	1.8	0.20	0.10
TCE	5.1E	0.20	0.10

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	0.570	0.5000	114	70-130
4-BROMOFLUOROBENZENE	0.457	0.5000	91.4	70-130
TOLUENE-D8	0.444	0.5000	88.8	70-130

METHOD SW5030B/8260B SIM
EDB BY GC/MS SIM

```

=====
Client      : TESTAMERICA, INC.           Date Collected: 05/08/19
Project     : NW PIPE COMPANY GW MONITORING Date Received: 05/10/19
Batch No.   : 19E088                     Date Extracted: 05/21/19 12:59
Sample ID:  T4SIMW22-050819 (580-86047-6)DL Date Analyzed: 05/21/19 12:59
Lab Samp ID: E088-061                   Dilution Factor: 10
Lab File ID: REY214                     Matrix          : WATER
Ext Btch ID: VOF5E12                    % Moisture     : NA
Calib. Ref.: RDY169                     Instrument ID   : TOF5
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CIS-1,2-DICHLOROETHYLENE	7.5	2.0	1.0
VINYL CHLORIDE	0.36J	1.0	0.20
TETRACHLOROETHENE	1.6J	2.0	1.0
TCE	4.4	2.0	1.0

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	5.00	5.000	100	70-130
4-BROMOFLUOROBENZENE	4.25	5.000	84.9	70-130
TOLUENE-D8	4.11	5.000	82.2	70-130

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QC SUMMARIES

METHOD SW5030B/8260B SIM
EDB BY GC/MS SIM

```

=====
Client      : TESTAMERICA, INC.           Date Collected: NA
Project     : NW PIPE COMPANY GW MONITORING Date Received: 05/16/19
Batch No.   : 19E088                     Date Extracted: 05/16/19 12:57
Sample ID   : MBLK1W                     Date Analyzed: 05/16/19 12:57
Lab Samp ID: VOF5E09B                   Dilution Factor: 1
Lab File ID: REY120                      Matrix       : WATER
Ext Btch ID: VOF5E09                     % Moisture   : NA
Calib. Ref.: RDY169                     Instrument ID : TOF5
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CIS-1,2-DICHLOROETHYLENE	ND	0.20	0.10
VINYL CHLORIDE	ND	0.10	0.020
TETRACHLOROETHENE	ND	0.20	0.10
TCE	ND	0.20	0.10

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	0.548	0.5000	110	70-130
4-BROMOFLUOROBENZENE	0.460	0.5000	91.9	70-130
TOLUENE-D8	0.447	0.5000	89.4	70-130

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: TESTAMERICA, INC.
PROJECT: NW PIPE COMPANY GW MONITORING
BATCH NO.: 19E088
METHOD: SW5030B/8260B SIM

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1
SAMPLE ID: MBLK1W
LAB SAMP ID: VOF5E09B VOF5E09L VOF5E09C
LAB FILE ID: REY120 REY117 REY118
DATE EXTRACTED: 05/16/1912:57 05/16/1911:40 05/16/1912:06 DATE COLLECTED: NA
DATE ANALYZED: 05/16/1912:57 05/16/1911:40 05/16/1912:06 DATE RECEIVED: 05/16/19
PREP. BATCH: VOF5E09 VOF5E09 VOF5E09
CALIB. REF: RDY169 RDY169 RDY169

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
cis-1,2-Dichloroethylene	ND	0.500	0.503	101	0.500	0.487	97	3	70-130	20
Vinyl Chloride	ND	0.500	0.395	79	0.500	0.388	78	2	60-140	20
Tetrachloroethene	ND	0.500	0.483	97	0.500	0.471	94	3	70-130	20
TCE	ND	0.500	0.527	105	0.500	0.506	101	4	70-130	20

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	0.500	0.541	108	0.500	0.491	98	70-130
4-Bromofluorobenzene	0.500	0.482	96	0.500	0.432	86	70-130
Toluene-d8	0.500	0.456	91	0.500	0.416	83	70-130

METHOD SW5030B/8260B SIM
EDB BY GC/MS SIM

```

=====
Client      : TESTAMERICA, INC.           Date Collected: NA
Project     : NW PIPE COMPANY GW MONITORING Date Received: 05/21/19
Batch No.   : 19E088                     Date Extracted: 05/21/19 11:43
Sample ID   : MBLK2W                     Date Analyzed: 05/21/19 11:43
Lab Samp ID: VOF5E12B                    Dilution Factor: 1
Lab File ID: REY211                      Matrix          : WATER
Ext Btch ID: VOF5E12                     % Moisture      : NA
Calib. Ref.: RDY169                      Instrument ID   : TOF5
=====
  
```

PARAMETERS	RESULTS (ug/L)	RL (ug/L)	MDL (ug/L)
CIS-1,2-DICHLOROETHYLENE	ND	0.20	0.10
VINYL CHLORIDE	ND	0.10	0.020
TETRACHLOROETHENE	ND	0.20	0.10
TCE	ND	0.20	0.10

SURROGATE PARAMETERS	RESULTS	SPK_AMT	% RECOVERY	QC LIMIT
1,2-DICHLOROETHANE-D4	0.515	0.5000	103	70-130
4-BROMOFLUOROBENZENE	0.463	0.5000	92.6	70-130
TOLUENE-D8	0.446	0.5000	89.3	70-130

EMAX QUALITY CONTROL DATA
LCS/LCD ANALYSIS

CLIENT: TESTAMERICA, INC.
PROJECT: NW PIPE COMPANY GW MONITORING
BATCH NO.: 19E088
METHOD: SW5030B/8260B SIM

MATRIX: WATER % MOISTURE: NA
DILUTION FACTOR: 1 1
SAMPLE ID: MBLK2W
LAB SAMP ID: VOF5E12B VOF5E12L VOF5E12C
LAB FILE ID: REY211 REY209 REY210
DATE EXTRACTED: 05/21/1911:43 05/21/1910:52 05/21/1911:17 DATE COLLECTED: NA
DATE ANALYZED: 05/21/1911:43 05/21/1910:52 05/21/1911:17 DATE RECEIVED: 05/21/19
PREP. BATCH: VOF5E12 VOF5E12 VOF5E12
CALIB. REF: RDY169 RDY169 RDY169

ACCESSION:

PARAMETER	BLNK RSLT (ug/L)	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	RPD (%)	QC LIMIT (%)	MAX RPD (%)
cis-1,2-Dichloroethylene	ND	0.500	0.518	104	0.500	0.514	103	1	70-130	20
Vinyl Chloride	ND	0.500	0.426	85	0.500	0.417	83	2	60-140	20
Tetrachloroethene	ND	0.500	0.474	95	0.500	0.477	95	1	70-130	20
TCE	ND	0.500	0.501	100	0.500	0.501	100	0	70-130	20

SURROGATE PARAMETER	SPIKE AMT (ug/L)	BS RSLT (ug/L)	BS % REC	SPIKE AMT (ug/L)	BSD RSLT (ug/L)	BSD % REC	QC LIMIT (%)
1,2-Dichloroethane-d4	0.500	0.537	107	0.500	0.536	107	70-130
4-Bromofluorobenzene	0.500	0.497	99	0.500	0.455	91	70-130
Toluene-d8	0.500	0.457	91	0.500	0.455	91	70-130

Eurofins TestAmerica, Seattle


5755 8th Street East
Tacoma, WA 98424
Phone (253) 922-2310 Fax (253) 922-5047

Chain of Custody Record

eurofins Environment Testing
TestAmerica

Client Information		Sampler: <u>LAURA TOCHKO</u>		Lab PM: <u>Allen, Kristine D</u>		Carrier Tracking No(s):		COC No: <u>580-33446-10901.3</u>																
Client Contact: <u>Bernice Kidd</u>		Phone: <u>425-891-2855</u>		E-Mail: <u>kristine.allen@testamericainc.com</u>				Page: <u>Page 3 of 5 0 F </u>																
Company: <u>CH2M Hill, Inc.</u>		Due Date Requested:		<table border="1"> <tr> <th colspan="2">Analysis Requested</th> <th rowspan="6">Total Number of Containers</th> </tr> <tr> <td colspan="2">Loc: <u>580 86047</u></td> </tr> <tr> <td colspan="2">Field Filtered Sample (Yes or No)</td> </tr> <tr> <td colspan="2">Perform MS/MSD (Yes or No)</td> </tr> <tr> <td colspan="2">EMAX 8260C_LL - TCE, cis 1,2-DCE, PCE, Vinyl Chloride</td> </tr> <tr> <td colspan="2">RSK_175 - Methane</td> </tr> <tr> <td colspan="2">300.0_28D, 300_48HR: Cl, SO4, Nitrates</td> </tr> <tr> <td colspan="2">5310C - TOC</td> </tr> </table>		Analysis Requested		Total Number of Containers	Loc: <u>580 86047</u>		Field Filtered Sample (Yes or No)		Perform MS/MSD (Yes or No)		EMAX 8260C_LL - TCE, cis 1,2-DCE, PCE, Vinyl Chloride		RSK_175 - Methane		300.0_28D, 300_48HR: Cl, SO4, Nitrates		5310C - TOC		Job #:	
Analysis Requested		Total Number of Containers																						
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300.0_28D, 300_48HR: Cl, SO4, Nitrates																								
5310C - TOC																								
Address: <u>2020 SW 4th Ave Suite 300</u>		TAT Requested (days): <u>STANDARD</u>		Preservation Codes:																				
City: <u>Portland</u>		PO #: <u>PO 682722.RI.02</u>		A - HCL M - Hexane																				
State, Zip: <u>OR, 97201</u>		WO #:		B - NaOH N - None																				
Phone: <u>530-229-3203(Tel)</u>		Project #: <u>58013218</u>		C - Zn Acetate O - AsNaO2																				
Email: <u>bernice.kidd@jacobs.com</u>		SSOW#: <u></u>		D - Nitric Acid P - Na2O4S																				
Project Name: <u>Northwest Pipe Company GW Monitoring</u>				E - NaHSO4 Q - Na2SO3																				
Site: <u></u>				F - MeOH R - Na2S2O3																				
				G - Amchlor S - H2SO4																				
				H - Ascorbic Acid T - TSP Dodecahydrate																				
				I - Ice U - Acetone																				
				J - DI Water V - MCAA																				
				K - EDTA W - pH 4-5																				
				L - EDA Z - other (specify)																				
				Other: <u></u>																				
				Special Instructions/Note:																				
				VOCs to be sent to EMAX																				

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/soil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EMAX 8260C_LL - TCE, cis 1,2-DCE, PCE, Vinyl Chloride	RSK_175 - Methane	300.0_28D, 300_48HR: Cl, SO4, Nitrates	5310C - TOC	Total Number of Containers	Special Instructions/Note:
T4SIMW#09-050819-0	5/8/19	0835	G	W	X	X	X	X			8	
T4SIMW03s-050819-0	5/8/19	1045	G	W	X	X	X	X			8	
MW02-050819-0	5/8/19	1210	G	W	X	X	X	X			8	
MW04-050819-0	5/8/19	1330	G	W	X	X	X	X			8	
TRIPBLANK-050819	5/8/19	0800	-	W	X						2	
T4SIMW22-050819	5/8/19	1505	G	W	X	X	X	X			8	



580-86047 Chain of Custody

Therm. ID: 5 Cor: 1.2 ° Unc: 1.3 °
Cooler Desc: Lg. Blue
Packing: Blue FedEx: P.O.
Cust. Seal: Yes No UPS:
Blue Ice: Wet Dry, None Lab Cour:
Other:

Login Sample Receipt Checklist

Client: CH2M Hill, Inc.

Job Number: 580-86047-1

Login Number: 86047

List Number: 1

Creator: Hobbs, Kenneth F

List Source: Eurofins TestAmerica, Seattle

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.	True	
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	
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.	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 $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

Login Sample Receipt Checklist

Client: CH2M Hill, Inc.

Job Number: 580-86047-1

Login Number: 86047
List Number: 2
Creator: Ornelas, Olga

List Source: Eurofins TestAmerica, Irvine
List Creation: 05/10/19 02:45 PM

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	N/A	Not Present
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	
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?	N/A	Received project as a subcontract.
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 <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	