

ANALYTICAL REPORT

Eurofins TestAmerica, Seattle
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Tel: (253)922-2310

Laboratory Job ID: 580-89879-1

Client Project/Site: Northwest Pipe Company GW Monitoring
Revision: 1

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

Attn: Bernice Kidd



Authorized for release by:
11/13/2019 5:36:42 PM

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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: 580-89879-1

Job ID: 580-89879-1

Laboratory: Eurofins TestAmerica, Seattle

Narrative

Job Narrative 580-89879-1

Comments

Report was revised to correct the client sample IDs and the flagging for the MS/MSD for method 300.0.

No additional comments.

Receipt

The samples were received on 10/9/2019 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.7° C.

General Chemistry

No 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: 580-89879-1

Qualifiers

General Chemistry

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.
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: 580-89879-1

Client Sample ID: MW02-100819-0

Lab Sample ID: 580-89879-1

Date Collected: 10/08/19 08:55

Matrix: Water

Date Received: 10/09/19 09:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2.9	F1	0.90	0.14	mg/L			10/22/19 13:51	1
NO3 as N	ND		0.20	0.020	mg/L			10/09/19 19:22	1
Sulfate	1.5	F1	1.2	0.26	mg/L			10/22/19 13:51	1
Total Organic Carbon	1.4		0.10	0.050	mg/L			10/16/19 07:39	1

Client Sample Results

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

Job ID: 580-89879-1

Client Sample ID: MW04-100819-0

Lab Sample ID: 580-89879-2

Date Collected: 10/08/19 10:00

Matrix: Water

Date Received: 10/09/19 09:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3.2		0.90	0.14	mg/L			10/22/19 14:26	1
NO3 as N	0.053	J	0.20	0.020	mg/L			10/09/19 19:34	1
Sulfate	3.9		1.2	0.26	mg/L			10/22/19 14:26	1
Total Organic Carbon	1.5		0.10	0.050	mg/L			10/16/19 07:53	1

Client Sample Results

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

Job ID: 580-89879-1

Client Sample ID: T4S1MW22-100819-0

Lab Sample ID: 580-89879-3

Date Collected: 10/08/19 11:40

Matrix: Water

Date Received: 10/09/19 09:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	7.3		0.90	0.14	mg/L			10/22/19 14:38	1
NO3 as N	ND		0.20	0.020	mg/L			10/09/19 19:46	1
Sulfate	16		1.2	0.26	mg/L			10/22/19 14:38	1
Total Organic Carbon	1.6		0.10	0.050	mg/L			10/15/19 14:08	1

Client Sample Results

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

Job ID: 580-89879-1

Client Sample ID: T4S1MW23-100819-0

Lab Sample ID: 580-89879-4

Date Collected: 10/08/19 13:20

Matrix: Water

Date Received: 10/09/19 09:30

General Chemistry

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	8.5		0.90	0.14	mg/L			10/22/19 14:50	1
NO3 as N	0.40		0.20	0.020	mg/L			10/09/19 19:57	1
Sulfate	6.6		1.2	0.26	mg/L			10/22/19 14:50	1
Total Organic Carbon	0.78		0.10	0.050	mg/L			10/15/19 14:22	1

QC Sample Results

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

Job ID: 580-89879-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 580-313850/20
Matrix: Water
Analysis Batch: 313850

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			10/09/19 14:39	1

Lab Sample ID: LCS 580-313850/21
Matrix: Water
Analysis Batch: 313850

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	5.09		mg/L		102	90 - 110

Lab Sample ID: LCSD 580-313850/22
Matrix: Water
Analysis Batch: 313850

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	5.09		mg/L		102	90 - 110	0	15

Lab Sample ID: MB 580-314988/3
Matrix: Water
Analysis Batch: 314988

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	ND		0.90	0.14	mg/L			10/22/19 13:04	1
Sulfate	ND		1.2	0.26	mg/L			10/22/19 13:04	1

Lab Sample ID: LCS 580-314988/4
Matrix: Water
Analysis Batch: 314988

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	51.2		mg/L		102	90 - 110
Sulfate	50.0	50.6		mg/L		101	90 - 110

Lab Sample ID: LCSD 580-314988/5
Matrix: Water
Analysis Batch: 314988

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	51.3		mg/L		103	90 - 110	0	15
Sulfate	50.0	50.6		mg/L		101	90 - 110	0	15

Lab Sample ID: 580-89879-1 MS
Matrix: Water
Analysis Batch: 314988

Client Sample ID: MW02-100819-0
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	2.9	F1	50.0	58.6	F1	mg/L		112	90 - 110
Sulfate	1.5	F1	50.0	57.0	F1	mg/L		111	90 - 110

QC Sample Results

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

Job ID: 580-89879-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 580-89879-1 MSD
Matrix: Water
Analysis Batch: 314988

Client Sample ID: MW02-100819-0
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	2.9	F1	50.0	58.7	F1	mg/L		112	90 - 110	0	15
Sulfate	1.5	F1	50.0	57.0	F1	mg/L		111	90 - 110	0	15

Method: SM 5310C - TOC

Lab Sample ID: MB 440-574648/8
Matrix: Water
Analysis Batch: 574648

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			10/15/19 07:31	1

Lab Sample ID: LCS 440-574648/7
Matrix: Water
Analysis Batch: 574648

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	5.00	4.87		mg/L		97	85 - 115

Lab Sample ID: MRL 440-574648/6
Matrix: Water
Analysis Batch: 574648

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	0.0637	J	mg/L		64	50 - 150

Lab Sample ID: MB 440-574905/8
Matrix: Water
Analysis Batch: 574905

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			10/16/19 07:25	1

Lab Sample ID: LCS 440-574905/7
Matrix: Water
Analysis Batch: 574905

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	5.00	5.13		mg/L		103	85 - 115

Lab Sample ID: MRL 440-574905/6
Matrix: Water
Analysis Batch: 574905

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	0.0538	J	mg/L		54	50 - 150

QC Sample Results

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

Job ID: 580-89879-1

Method: SM 5310C - TOC (Continued)

Lab Sample ID: 580-89879-1 MS
Matrix: Water
Analysis Batch: 574905

Client Sample ID: MW02-100819-0
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Organic Carbon	1.4		5.00	6.60		mg/L		104	85 - 115

Lab Sample ID: 580-89879-1 MSD
Matrix: Water
Analysis Batch: 574905

Client Sample ID: MW02-100819-0
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	1.4		5.00	6.61		mg/L		104	85 - 115	0	20

Lab Chronicle

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

Job ID: 580-89879-1

Client Sample ID: MW02-100819-0

Lab Sample ID: 580-89879-1

Date Collected: 10/08/19 08:55

Matrix: Water

Date Received: 10/09/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	313850	10/09/19 19:22	AAC	TAL SEA
Total/NA	Analysis	300.0		1	314988	10/22/19 13:51	AAC	TAL SEA
Total/NA	Analysis	SM 5310C		1	574905	10/16/19 07:39	YZ	TAL IRV

Client Sample ID: MW04-100819-0

Lab Sample ID: 580-89879-2

Date Collected: 10/08/19 10:00

Matrix: Water

Date Received: 10/09/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	313850	10/09/19 19:34	AAC	TAL SEA
Total/NA	Analysis	300.0		1	314988	10/22/19 14:26	AAC	TAL SEA
Total/NA	Analysis	SM 5310C		1	574905	10/16/19 07:53	YZ	TAL IRV

Client Sample ID: T4S1MW22-100819-0

Lab Sample ID: 580-89879-3

Date Collected: 10/08/19 11:40

Matrix: Water

Date Received: 10/09/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	313850	10/09/19 19:46	AAC	TAL SEA
Total/NA	Analysis	300.0		1	314988	10/22/19 14:38	AAC	TAL SEA
Total/NA	Analysis	SM 5310C		1	574648	10/15/19 14:08	YZ	TAL IRV

Client Sample ID: T4S1MW23-100819-0

Lab Sample ID: 580-89879-4

Date Collected: 10/08/19 13:20

Matrix: Water

Date Received: 10/09/19 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	300.0		1	313850	10/09/19 19:57	AAC	TAL SEA
Total/NA	Analysis	300.0		1	314988	10/22/19 14:50	AAC	TAL SEA
Total/NA	Analysis	SM 5310C		1	574648	10/15/19 14:22	YZ	TAL IRV

Laboratory References:

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

Accreditation/Certification Summary

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

Job ID: 580-89879-1

Laboratory: Eurofins TestAmerica, Seattle

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

Authority	Program	Identification Number	Expiration Date
Alaska (UST)	State	17-024	01-19-22
ANAB	Dept. of Defense ELAP	L2236	01-19-22
ANAB	ISO/IEC 17025	L2236	01-19-22
California	State	2901	11-05-19
Montana (UST)	State	NA	04-13-21
Oregon	NELAP	WA100007	11-05-19
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-17-00039	02-10-20
Washington	State	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	Identification Number	Expiration Date
Alaska	State	CA01531	06-30-20
Arizona	State	AZ0671	10-14-20
California	Los Angeles County Sanitation Districts	10256	06-30-20
California	State	2706	06-30-20
Guam	State	19-005R	01-23-20
Hawaii	State	CA01531	01-29-20
Kansas	NELAP	E-10420	07-31-20
Nevada	State	CA015312020-4	07-31-20
New Mexico	State	CA01531	01-29-20
Oregon	NELAP	4028 - 006	01-29-20
US Fish & Wildlife	US Federal Programs	058448	07-31-20
USDA	US Federal Programs	P330-18-00214	07-09-21
Washington	State	C900	09-03-20

Sample Summary

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

Job ID: 580-89879-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
580-89879-1	MW02-100819-0	Water	10/08/19 08:55	10/09/19 09:30	
580-89879-2	MW04-100819-0	Water	10/08/19 10:00	10/09/19 09:30	
580-89879-3	T4S1MW22-100819-0	Water	10/08/19 11:40	10/09/19 09:30	
580-89879-4	T4S1MW23-100819-0	Water	10/08/19 13:20	10/09/19 09:30	

- 1
- 2
- 3
- 4
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- 7
- 8
- 9
- 10
- 11

Login Sample Receipt Checklist

Client: CH2M Hill, Inc.

Job Number: 580-89879-1

Login Number: 89879

List Source: Eurofins TestAmerica, Seattle

List Number: 1

Creator: Hobbs, Kenneth F

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 <math><6\text{mm}</math> (1/4").	N/A	
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: 580-89879-1

Login Number: 89879
List Number: 2
Creator: Ornelas, Olga

List Source: Eurofins TestAmerica, Irvine
List Creation: 10/11/19 01:00 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	