ANALYTICAL REPORT

For:
NW Pipe

ASL Report #: M1935
Project ID: 358932.TT.05
Attn: Pat Heins/PDX
cc:
Tina Rice/tina.rice@critigen.com

Authorized and Released By:

Kathy McKinley

Laboratory Project Manager
Kathy McKinley
(541) 758-0235 ext.23144
June 05, 2013

This data package meets standards requested by client and is not intended or implied to meet any other standard.

All analyses performed by CH2M HILL are clearly indicated. Any subcontracted analyses are included as appended reports as received from the subcontracted laboratory. The results included in this report only relate to the samples listed on the following Sample Cross-Reference page. This report shall not be reproduced except in full, without the written approval of the laboratory.

Any unusual difficulties encountered during the analysis of your samples are discussed in the attached case narratives.

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Sample Receipt Comments

We certify that the test results meet all standard ASL requirements except those listed below:

Some analyses were performed by an outside laboratory and their report is attached.

Sample Cross-Reference

ASL Sample ID	Client Sample ID	Date/Time Collected	Date Received
M193501	SW03-052213-SCE	05/22/13 12:30	05/23/13
M193502	SW04-0502213-SCE	05/22/13 12:45	05/23/13

CASE NARRATIVE
GC/MS VOLATILES ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: M1935

Project: NW Pipe Project #: 358932.TT.05

I. Method(s):

Analysis: E624
Preparation: SW5030

II. Receipt/Holding Times:

All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):

All acceptance criteria were met.

B. Calibration Verification(s):

All acceptance criteria were met.

C. Blank(s):

All acceptance criteria were met.

D. Laboratory Control Sample(s):

All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):

Analyzed in accordance with standard operating procedure.

F. Surrogate Standard(s):

All acceptance criteria were met.

G. BFB Tune Verification(s):

All acceptance criteria were met.

H. Internal Standard(s):

All acceptance criteria were met.

I. Analytical Exception(s):

None.

IV. Documentation Exception(s):

None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: _____ Date: 6/5/13

Reviewed by: _____ Date: 6/5/13

CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Client Sample ID: SW03-052213-SCE

Project Name: NW Pipe
Sample Date: 05/22/13
Sample Time: 12:30
Type: Grab
Matrix: Water

Lab Information

Lab Sample ID: M193501

Date Received: 05/23/13
Dilution Factor: 1
Report Revision No.: 0

Analyte	CAS#	DL	RL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
GC/MS Volatiles								
Dichlorodifluoromethane	75-71-8	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Chloromethane	74-87-3	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Vinyl Chloride	75-01-4	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Bromomethane	74-83-9	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Chloroethane	75-00-3	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Trichlorofluoromethane	75-69-4	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Acrolein	107-02-8	0.50	2.00	0.50	U	ug/L	E624	05/24/13
1,1-Dichloroethene	75-35-4	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Acrylonitrile	107-13-1	0.50	2.00	0.50	U	ug/L	E624	05/24/13
Methylene chloride	75-09-2	0.20	0.50	0.20	U	ug/L	E624	05/24/13
trans-1,2-Dichloroethene	156-60-5	0.20	0.50	0.20	U	ug/L	E624	05/24/13
1,1-Dichloroethane	75-34-3	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Chloroform	67-66-3	0.15	0.50	0.15	U	ug/L	E624	05/24/13
1,2-Dichloroethane	107-06-2	0.20	0.50	0.20	U	ug/L	E624	05/24/13
1,1,1-Trichloroethane	71-55-6	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Carbon tetrachloride	56-23-5	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Benzene	71-43-2	0.20	0.50	0.20	U	ug/L	E624	05/24/13
1,2-Dichloropropane	78-87-5	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Trichloroethene (TCE)	79-01-6	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Bromodichloromethane	75-27-4	0.20	0.50	0.20	U	ug/L	E624	05/24/13
2-Chloroethylvinyl ether	110-75-8	0.50	1.00	0.50	U	ug/L	E624	05/24/13
cis-1,3-Dichloropropene	10061-01-5	0.20	0.50	0.20	U	ug/L	E624	05/24/13
trans-1,3-Dichloropropene	10061-02-6	0.20	0.50	0.20	U	ug/L	E624	05/24/13
1,1,2-Trichloroethane	79-00-5	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Toluene	108-88-3	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Dibromochloromethane	124-48-1	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Tetrachloroethene (PCE)	127-18-4	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Chlorobenzene	108-90-7	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Ethylbenzene	100-41-4	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Bromoform	75-25-2	0.20	0.50	0.20	U	ug/L	E624	05/24/13
1,1,2,2-Tetrachloroethane	79-34-5	0.20	0.50	0.20	U	ug/L	E624	05/24/13

*=See case narrative
U=Not detected at specified detection limit
E=Estimated value above calibration range
J=Estimated value below reporting limit

CH2M HILL ASL
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CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Client Sample ID: SW03-052213-SCE

Project Name: NW Pipe
Sample Date: 05/22/13
Sample Time: 12:30
Type: Grab
Matrix: Water

Lab Information

Lab Sample ID: M193501

Date Received: 05/23/13
Dilution Factor: 1
Report Revision No.: 0

Analyte	CAS#	DL	RL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
GC/MS Volatiles								

Surrogate	% Recovery	Control Limits	Qualifier
Dibromofluoromethane	101	75-125	
1,2-Dichloroethane-d4	107	75-125	
Toluene-d8	100	75-125	
4-Bromofluorobenzene	90	75-125	

*=See case narrative
U=Not detected at specified detection limit
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CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Client Sample ID: SW04-0502213-SCE

Project Name: NW Pipe
Sample Date: 05/22/13
Sample Time: 12:45
Type: Grab
Matrix: Water

Lab Information

Lab Sample ID: M193502

Date Received: 05/23/13
Dilution Factor: 1
Report Revision No.: 0

Analyte	CAS#	DL	RL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
GC/MS Volatiles								
Dichlorodifluoromethane	75-71-8	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Chloromethane	74-87-3	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Vinyl Chloride	75-01-4	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Bromomethane	74-83-9	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Chloroethane	75-00-3	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Trichlorofluoromethane	75-69-4	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Acrolein	107-02-8	0.50	2.00	0.50	U	ug/L	E624	05/24/13
1,1-Dichloroethene	75-35-4	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Acrylonitrile	107-13-1	0.50	2.00	0.50	U	ug/L	E624	05/24/13
Methylene chloride	75-09-2	0.20	0.50	0.20	U	ug/L	E624	05/24/13
trans-1,2-Dichloroethene	156-60-5	0.20	0.50	0.20	U	ug/L	E624	05/24/13
1,1-Dichloroethane	75-34-3	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Chloroform	67-66-3	0.15	0.50	0.15	U	ug/L	E624	05/24/13
1,2-Dichloroethane	107-06-2	0.20	0.50	0.20	U	ug/L	E624	05/24/13
1,1,1-Trichloroethane	71-55-6	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Carbon tetrachloride	56-23-5	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Benzene	71-43-2	0.20	0.50	0.20	U	ug/L	E624	05/24/13
1,2-Dichloropropane	78-87-5	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Trichloroethene (TCE)	79-01-6	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Bromodichloromethane	75-27-4	0.20	0.50	0.20	U	ug/L	E624	05/24/13
2-Chloroethylvinyl ether	110-75-8	0.50	1.00	0.50	U	ug/L	E624	05/24/13
cis-1,3-Dichloropropene	10061-01-5	0.20	0.50	0.20	U	ug/L	E624	05/24/13
trans-1,3-Dichloropropene	10061-02-6	0.20	0.50	0.20	U	ug/L	E624	05/24/13
1,1,2-Trichloroethane	79-00-5	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Toluene	108-88-3	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Dibromochloromethane	124-48-1	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Tetrachloroethene (PCE)	127-18-4	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Chlorobenzene	108-90-7	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Ethylbenzene	100-41-4	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Bromoform	75-25-2	0.20	0.50	0.20	U	ug/L	E624	05/24/13
1,1,2,2-Tetrachloroethane	79-34-5	0.20	0.50	0.20	U	ug/L	E624	05/24/13

*=See case narrative
U=Not detected at specified detection limit
E=Estimated value above calibration range
J=Estimated value below reporting limit

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CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Client Sample ID: SW04-0502213-SCE

Project Name: NW Pipe
Sample Date: 05/22/13
Sample Time: 12:45
Type: Grab
Matrix: Water

Lab Information

Lab Sample ID: M193502

Date Received: 05/23/13
Dilution Factor: 1
Report Revision No.: 0

Analyte	CAS#	DL	RL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
GC/MS Volatiles								

Surrogate	% Recovery	Control Limits	Qualifier
Dibromofluoromethane	104	75-125	
1,2-Dichloroethane-d4	109	75-125	
Toluene-d8	102	75-125	
4-Bromofluorobenzene	93	75-125	

*=See case narrative
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CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Client Sample ID: WB1-0524

Project Name: NW Pipe
Sample Date: N/A
Sample Time: N/A
Type: QC
Matrix: Water

Lab Information

Lab Sample ID: WB1-0524

Date Received: N/A
Dilution Factor: 1
Report Revision No.: 0

Analyte	CAS#	DL	RL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
GC/MS Volatiles								
Dichlorodifluoromethane	75-71-8	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Chloromethane	74-87-3	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Vinyl Chloride	75-01-4	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Bromomethane	74-83-9	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Chloroethane	75-00-3	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Trichlorofluoromethane	75-69-4	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Acrolein	107-02-8	0.50	2.00	0.50	U	ug/L	E624	05/24/13
1,1-Dichloroethene	75-35-4	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Acrylonitrile	107-13-1	0.50	2.00	0.50	U	ug/L	E624	05/24/13
Methylene chloride	75-09-2	0.20	0.50	0.20	U	ug/L	E624	05/24/13
trans-1,2-Dichloroethene	156-60-5	0.20	0.50	0.20	U	ug/L	E624	05/24/13
1,1-Dichloroethane	75-34-3	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Chloroform	67-66-3	0.15	0.50	0.15	U	ug/L	E624	05/24/13
1,2-Dichloroethane	107-06-2	0.20	0.50	0.20	U	ug/L	E624	05/24/13
1,1,1-Trichloroethane	71-55-6	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Carbon tetrachloride	56-23-5	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Benzene	71-43-2	0.20	0.50	0.20	U	ug/L	E624	05/24/13
1,2-Dichloropropane	78-87-5	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Trichloroethene (TCE)	79-01-6	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Bromodichloromethane	75-27-4	0.20	0.50	0.20	U	ug/L	E624	05/24/13
2-Chloroethylvinyl ether	110-75-8	0.50	1.00	0.50	U	ug/L	E624	05/24/13
cis-1,3-Dichloropropene	10061-01-5	0.20	0.50	0.20	U	ug/L	E624	05/24/13
trans-1,3-Dichloropropene	10061-02-6	0.20	0.50	0.20	U	ug/L	E624	05/24/13
1,1,2-Trichloroethane	79-00-5	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Toluene	108-88-3	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Dibromochloromethane	124-48-1	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Tetrachloroethene (PCE)	127-18-4	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Chlorobenzene	108-90-7	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Ethylbenzene	100-41-4	0.20	0.50	0.20	U	ug/L	E624	05/24/13
Bromoform	75-25-2	0.20	0.50	0.20	U	ug/L	E624	05/24/13
1,1,2,2-Tetrachloroethane	79-34-5	0.20	0.50	0.20	U	ug/L	E624	05/24/13

*=See case narrative
U=Not detected at specified detection limit
E=Estimated value above calibration range
J=Estimated value below reporting limit

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CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Client Sample ID: WB1-0524

Project Name: NW Pipe
Sample Date: N/A
Sample Time: N/A
Type: QC
Matrix: Water
Basis: As Received

Lab Information

Lab Sample ID: WB1-0524

Date Received: N/A
Dilution Factor: 1
Report Revision No.: 0

Analyte	CAS#	DL	RL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
GC/MS Volatiles								

Surrogate	% Recovery	Control Limits	Qualifier
Dibromofluoromethane	103	75-125	
1,2-Dichloroethane-d4	111	75-125	
Toluene-d8	104	75-125	
4-Bromofluorobenzene	94	75-125	

*=See case narrative
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J=Estimated value below reporting limit

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CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Project Name: NW Pipe
Type: QC
Matrix: Water

Lab Information

LCS ID: BS1W0524
Report Revision No.: 0
Dilution Factor: 1

Analyte	CAS#	Spike Amount	Sample Result	Units	%Recovery	Analysis Method	Date Analyzed
GC/MS Volatiles							
Dichlorodifluoromethane	75-71-8	20.0	19.1	ug/L	96	E624	05/24/13
Chloromethane	74-87-3	20.0	17.5	ug/L	88	E624	05/24/13
Vinyl Chloride	75-01-4	20.0	18.0	ug/L	90	E624	05/24/13
Bromomethane	74-83-9	20.0	19.1	ug/L	95	E624	05/24/13
Chloroethane	75-00-3	20.0	19.6	ug/L	98	E624	05/24/13
Trichlorofluoromethane	75-69-4	20.0	20.5	ug/L	102	E624	05/24/13
Acrolein	107-02-8	20.0	19.7	ug/L	98	E624	05/24/13
1,1-Dichloroethene	75-35-4	20.0	18.6	ug/L	93	E624	05/24/13
Acrylonitrile	107-13-1	20.0	18.0	ug/L	90	E624	05/24/13
Methylene chloride	75-09-2	20.0	19.2	ug/L	96	E624	05/24/13
trans-1,2-Dichloroethene	156-60-5	20.0	18.9	ug/L	94	E624	05/24/13
1,1-Dichloroethane	75-34-3	20.0	18.5	ug/L	92	E624	05/24/13
Chloroform	67-66-3	20.0	20.0	ug/L	100	E624	05/24/13
1,2-Dichloroethane	107-06-2	20.0	21.0	ug/L	105	E624	05/24/13
1,1,1-Trichloroethane	71-55-6	20.0	21.8	ug/L	109	E624	05/24/13
Carbon tetrachloride	56-23-5	20.0	24.0	ug/L	120	E624	05/24/13
Benzene	71-43-2	20.0	18.5	ug/L	92	E624	05/24/13
1,2-Dichloropropane	78-87-5	20.0	18.1	ug/L	91	E624	05/24/13
Trichloroethene (TCE)	79-01-6	20.0	19.7	ug/L	99	E624	05/24/13
Bromodichloromethane	75-27-4	20.0	21.1	ug/L	105	E624	05/24/13
2-Chloroethylvinyl ether	110-75-8	20.0	17.9	ug/L	89	E624	05/24/13
cis-1,3-Dichloropropene	10061-01-5	20.0	21.2	ug/L	106	E624	05/24/13
trans-1,3-Dichloropropene	10061-02-6	20.0	20.7	ug/L	103	E624	05/24/13
1,1,2-Trichloroethane	79-00-5	20.0	18.9	ug/L	95	E624	05/24/13
Toluene	108-88-3	20.0	19.5	ug/L	97	E624	05/24/13
Dibromochloromethane	124-48-1	20.0	21.4	ug/L	107	E624	05/24/13
Tetrachloroethene (PCE)	127-18-4	20.0	18.3	ug/L	92	E624	05/24/13
Chlorobenzene	108-90-7	20.0	17.4	ug/L	87	E624	05/24/13
Ethylbenzene	100-41-4	20.0	19.2	ug/L	96	E624	05/24/13
Bromoform	75-25-2	20.0	23.8	ug/L	119	E624	05/24/13
1,1,2,2-Tetrachloroethane	79-34-5	20.0	18.0	ug/L	90	E624	05/24/13

*=See case narrative
U=Not detected at specified detection limit
E=Estimated value above calibration range
J=Estimated value below reporting limit

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CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Project Name: NW Pipe
Type: QC
Matrix: Water

Lab Information

LCS ID: BS1W0524
Report Revision No.: 0
Dilution Factor: 1

Analyte	CAS#	Spike Amount	Sample Result	Units	%Recovery	Analysis Method	Date Analyzed
GC/MS Volatiles							

Surrogate	% Recovery	Control Limits	Qualifier
Dibromofluoromethane	98	75-125	
1,2-Dichloroethane-d4	102	75-125	
Toluene-d8	99	75-125	
4-Bromofluorobenzene	94	75-125	

*=See case narrative
U=Not detected at specified detection limit
E=Estimated value above calibration range
J=Estimated value below reporting limit

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CASE NARRATIVE
GC/MS SEMI-VOLATILES ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: M1935

Project: NW Pipe Project #: 358932.TT.05

I. Method(s):
Analysis: SW8270C
Preparation: SW3510

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blank(s):
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Analyzed in accordance with standard operating procedure.

F. Surrogate Standard(s):
All acceptance criteria were met.

G. DFTPP Tune Verification(s):
All acceptance criteria were met.

H. Internal Standard(s):
All acceptance criteria were met.

I. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: _____ Date: 6/3/13

Reviewed by: _____ Date: 6/5/13

CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Client Sample ID: SW03-052213-SCE

Project Name: NW Pipe
Sample Date: 05/22/13
Sample Time: 12:30
Type: Grab
Matrix: Water

Lab Information

Lab Sample ID: M193501

Date Received: 05/23/13
Dilution Factor: 1
Report Revision No.: 0

Analyte	CAS#	DL	RL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
GC/MS Semi-Volatiles								
Dimethylphthalate	131-11-3	2.04	5.10	2.04	U	ug/L	SW8270C	05/31/13
Diethylphthalate	84-66-2	2.04	5.10	2.04	U	ug/L	SW8270C	05/31/13
Di-n-butylphthalate	84-74-2	2.04	5.10	2.04	U	ug/L	SW8270C	05/31/13
Butylbenzylphthalate	85-68-7	2.04	5.10	2.04	U	ug/L	SW8270C	05/31/13
bis(2-Ethylhexyl)phthalate	117-81-7	2.04	5.10	2.04	U	ug/L	SW8270C	05/31/13
Di-n-octylphthalate	117-84-0	2.04	5.10	2.04	U	ug/L	SW8270C	05/31/13

Surrogate	% Recovery	Control Limits	Qualifier
Nitrobenzene-d5	67	35-114	
2-Fluorobiphenyl	48	43-116	
Terphenyl-d14	77	33-141	

*=See case narrative
U=Not detected at specified detection limit
E=Estimated value above calibration range
J=Estimated value below reporting limit

CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Client Sample ID: SW04-0502213-SCE

Project Name: NW Pipe
Sample Date: 05/22/13
Sample Time: 12:45
Type: Grab
Matrix: Water

Lab Information

Lab Sample ID: M193502

Date Received: 05/23/13
Dilution Factor: 1
Report Revision No.: 0

Analyte	CAS#	DL	RL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
GC/MS Semi-Volatiles								
Dimethylphthalate	131-11-3	2.04	5.09	2.04	U	ug/L	SW8270C	05/31/13
Diethylphthalate	84-66-2	2.04	5.09	2.04	U	ug/L	SW8270C	05/31/13
Di-n-butylphthalate	84-74-2	2.04	5.09	2.04	U	ug/L	SW8270C	05/31/13
Butylbenzylphthalate	85-68-7	2.04	5.09	2.04	U	ug/L	SW8270C	05/31/13
bis(2-Ethylhexyl)phthalate	117-81-7	2.04	5.09	2.04	U	ug/L	SW8270C	05/31/13
Di-n-octylphthalate	117-84-0	2.04	5.09	4.59	J	ug/L	SW8270C	05/31/13

Surrogate	% Recovery	Control Limits	Qualifier
Nitrobenzene-d5	72	35-114	
2-Fluorobiphenyl	52	43-116	
Terphenyl-d14	84	33-141	

*=See case narrative
U=Not detected at specified detection limit
E=Estimated value above calibration range
J=Estimated value below reporting limit

CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Client Sample ID: WB2-0529

Project Name: NW Pipe
Sample Date: N/A
Sample Time: N/A
Type: QC
Matrix: Water

Lab Information

Lab Sample ID: WB2-0529

Date Received: N/A
Dilution Factor: 1
Report Revision No.: 0

Analyte	CAS#	DL	RL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
GC/MS Semi-Volatiles								
Dimethylphthalate	131-11-3	2.00	5.00	2.00	U	ug/L	SW8270C	05/31/13
Diethylphthalate	84-66-2	2.00	5.00	2.00	U	ug/L	SW8270C	05/31/13
Di-n-butylphthalate	84-74-2	2.00	5.00	2.00	U	ug/L	SW8270C	05/31/13
Butylbenzylphthalate	85-68-7	2.00	5.00	2.00	U	ug/L	SW8270C	05/31/13
bis(2-Ethylhexyl)phthalate	117-81-7	2.00	5.00	2.00	U	ug/L	SW8270C	05/31/13
Di-n-octylphthalate	117-84-0	2.00	5.00	2.00	U	ug/L	SW8270C	05/31/13

Surrogate	% Recovery	Control Limits	Qualifier
Nitrobenzene-d5	72	35-114	
2-Fluorobiphenyl	44	43-116	
Terphenyl-d14	88	33-141	

*=See case narrative
U=Not detected at specified detection limit
E=Estimated value above calibration range
J=Estimated value below reporting limit

CH2M HILL ASL

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CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Project Name: NW Pipe
Type: QC
Matrix: Water

Lab Information

LCS ID: BS2W0529
Report Revision No.: 0
Dilution Factor: 1

Analyte	CAS#	Spike Amount	Sample Result	Units	%Recovery	Analysis Method	Date Analyzed
GC/MS Semi-Volatiles							
Dimethylphthalate	131-11-3	80.0	68.2	ug/L	85	SW8270C	05/31/13
Diethylphthalate	84-66-2	80.0	70.5	ug/L	88	SW8270C	05/31/13
Di-n-butylphthalate	84-74-2	80.0	73.1	ug/L	91	SW8270C	05/31/13
Butylbenzylphthalate	85-68-7	80.0	72.6	ug/L	91	SW8270C	05/31/13
bis(2-Ethylhexyl)phthalate	117-81-7	80.0	75.8	ug/L	95	SW8270C	05/31/13
Di-n-octylphthalate	117-84-0	80.0	68.0	ug/L	85	SW8270C	05/31/13

Surrogate	% Recovery	Control Limits	Qualifier
Nitrobenzene-d5	71	35-114	
2-Fluorobiphenyl	59	43-116	
Terphenyl-d14	79	33-141	

*=See case narrative
U=Not detected at specified detection limit
E=Estimated value above calibration range
J=Estimated value below reporting limit

CH2M HILL ASL

1100 NE Circle Blvd., Suite 300
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Tel 541-768-3120 Fax 541-752-0276

CASE NARRATIVE
GC/MS SEMI-VOLATILES ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: M1935

Project: NW Pipe Project #: 358932.TT.05

I. Method(s):
Analysis: SW8270SIM
Preparation: SW3510

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blank(s):
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Analyzed in accordance with standard operating procedure.

F. Surrogate Standard(s):
All acceptance criteria were met.

G. DFTPP Tune Verification(s):
All acceptance criteria were met.

H. Internal Standard(s):
All acceptance criteria were met.

I. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: _____ Date: 6/4/13

Reviewed by: _____ Date: 6/5/13

CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Client Sample ID: SW03-052213-SCE

Project Name: NW Pipe
Sample Date: 05/22/13
Sample Time: 12:30
Type: Grab
Matrix: Water

Lab Information

Lab Sample ID: M193501

Date Received: 05/23/13
Dilution Factor: 1
Report Revision No.: 0

Analyte	CAS#	DL	RL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
GC/MS Semi-Volatiles								
Naphthalene	91-20-3	0.0042	0.010	0.0051	J	ug/L	SW8270SIM	06/03/13
2-Methylnaphthalene	91-57-6	0.0025	0.010	0.0035	J	ug/L	SW8270SIM	06/03/13
1-Methylnaphthalene	90-12-0	0.0031	0.010	0.0031	U	ug/L	SW8270SIM	06/03/13
Acenaphthylene	208-96-8	0.0014	0.010	0.0021	J	ug/L	SW8270SIM	06/03/13
Acenaphthene	83-32-9	0.0018	0.010	0.0018	U	ug/L	SW8270SIM	06/03/13
Fluorene	86-73-7	0.0014	0.010	0.0019	J	ug/L	SW8270SIM	06/03/13
Phenanthrene	85-01-8	0.0016	0.010	0.029		ug/L	SW8270SIM	06/03/13
Anthracene	120-12-7	0.0020	0.010	0.011		ug/L	SW8270SIM	06/03/13
Fluoranthene	206-44-0	0.0033	0.010	0.17		ug/L	SW8270SIM	06/03/13
Pyrene	129-00-0	0.0039	0.010	0.19		ug/L	SW8270SIM	06/03/13
Benzo(a)anthracene	56-55-3	0.0020	0.010	0.094		ug/L	SW8270SIM	06/03/13
Chrysene	218-01-9	0.0025	0.010	0.15		ug/L	SW8270SIM	06/03/13
Benzo(b)fluoroanthene	205-99-2	0.0031	0.010	0.16		ug/L	SW8270SIM	06/03/13
Benzo(k)fluoranthene	207-08-9	0.0035	0.010	0.16		ug/L	SW8270SIM	06/03/13
Benzo(a)pyrene	50-32-8	0.0026	0.010	0.12		ug/L	SW8270SIM	06/03/13
Indeno(1,2,3-c,d)pyrene	193-39-5	0.0020	0.010	0.088		ug/L	SW8270SIM	06/03/13
Dibenzo(a,h)anthracene	53-70-3	0.0035	0.010	0.059		ug/L	SW8270SIM	06/03/13
Benzo(g,h,i)perylene	191-24-2	0.0024	0.010	0.063		ug/L	SW8270SIM	06/03/13

Surrogate	% Recovery	Control Limits	Qualifier
Terphenyl-d14	107	33-141	

*=See case narrative
U=Not detected at specified detection limit
E=Estimated value above calibration range
J=Estimated value below reporting limit

CH2M HILL ASL

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CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Client Sample ID: SW04-0502213-SCE

Project Name: NW Pipe
Sample Date: 05/22/13
Sample Time: 12:45
Type: Grab
Matrix: Water

Lab Information

Lab Sample ID: M193502

Date Received: 05/23/13
Dilution Factor: 1
Report Revision No.: 0

Analyte	CAS#	DL	RL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
GC/MS Semi-Volatiles								
Naphthalene	91-20-3	0.0042	0.010	0.0044	J	ug/L	SW8270SIM	06/03/13
2-Methylnaphthalene	91-57-6	0.0025	0.010	0.0031	J	ug/L	SW8270SIM	06/03/13
1-Methylnaphthalene	90-12-0	0.0030	0.010	0.0030	U	ug/L	SW8270SIM	06/03/13
Acenaphthylene	208-96-8	0.0014	0.010	0.0019	J	ug/L	SW8270SIM	06/03/13
Acenaphthene	83-32-9	0.0018	0.010	0.0023	J	ug/L	SW8270SIM	06/03/13
Fluorene	86-73-7	0.0014	0.010	0.0014	U	ug/L	SW8270SIM	06/03/13
Phenanthrene	85-01-8	0.0016	0.010	0.010		ug/L	SW8270SIM	06/03/13
Anthracene	120-12-7	0.0020	0.010	0.0041	J	ug/L	SW8270SIM	06/03/13
Fluoranthene	206-44-0	0.0033	0.010	0.033		ug/L	SW8270SIM	06/03/13
Pyrene	129-00-0	0.0038	0.010	0.036		ug/L	SW8270SIM	06/03/13
Benzo(a)anthracene	56-55-3	0.0020	0.010	0.016		ug/L	SW8270SIM	06/03/13
Chrysene	218-01-9	0.0025	0.010	0.024		ug/L	SW8270SIM	06/03/13
Benzo(b)fluoroanthene	205-99-2	0.0031	0.010	0.034		ug/L	SW8270SIM	06/03/13
Benzo(k)fluoranthene	207-08-9	0.0035	0.010	0.058		ug/L	SW8270SIM	06/03/13
Benzo(a)pyrene	50-32-8	0.0026	0.010	0.057		ug/L	SW8270SIM	06/03/13
Indeno(1,2,3-c,d)pyrene	193-39-5	0.0020	0.010	0.053		ug/L	SW8270SIM	06/03/13
Dibenzo(a,h)anthracene	53-70-3	0.0035	0.010	0.048		ug/L	SW8270SIM	06/03/13
Benzo(g,h,i)perylene	191-24-2	0.0024	0.010	0.020		ug/L	SW8270SIM	06/03/13

Surrogate	% Recovery	Control Limits	Qualifier
Terphenyl-d14	106	33-141	

*=See case narrative
U=Not detected at specified detection limit
E=Estimated value above calibration range
J=Estimated value below reporting limit

CH2M HILL ASL

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CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Client Sample ID: WB1-0524

Project Name: NW Pipe
Sample Date: N/A
Sample Time: N/A
Type: QC
Matrix: Water

Lab Information

Lab Sample ID: WB1-0524

Date Received: N/A
Dilution Factor: 1
Report Revision No.: 0

Analyte	CAS#	DL	RL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
GC/MS Semi-Volatiles								
Naphthalene	91-20-3	0.0041	0.010	0.0041	U	ug/L	SW8270SIM	06/03/13
2-Methylnaphthalene	91-57-6	0.0025	0.010	0.0029	J	ug/L	SW8270SIM	06/03/13
1-Methylnaphthalene	90-12-0	0.0030	0.010	0.0030	U	ug/L	SW8270SIM	06/03/13
Acenaphthylene	208-96-8	0.0014	0.010	0.0014	U	ug/L	SW8270SIM	06/03/13
Acenaphthene	83-32-9	0.0018	0.010	0.0018	U	ug/L	SW8270SIM	06/03/13
Fluorene	86-73-7	0.0014	0.010	0.0014	U	ug/L	SW8270SIM	06/03/13
Phenanthrene	85-01-8	0.0015	0.010	0.0016	J	ug/L	SW8270SIM	06/03/13
Anthracene	120-12-7	0.0020	0.010	0.0020	U	ug/L	SW8270SIM	06/03/13
Fluoranthene	206-44-0	0.0033	0.010	0.0033	U	ug/L	SW8270SIM	06/03/13
Pyrene	129-00-0	0.0038	0.010	0.0038	U	ug/L	SW8270SIM	06/03/13
Benzo(a)anthracene	56-55-3	0.0019	0.010	0.0019	U	ug/L	SW8270SIM	06/03/13
Chrysene	218-01-9	0.0024	0.010	0.0024	U	ug/L	SW8270SIM	06/03/13
Benzo(b)fluoroanthene	205-99-2	0.0031	0.010	0.0031	U	ug/L	SW8270SIM	06/03/13
Benzo(k)fluoranthene	207-08-9	0.0035	0.010	0.0035	U	ug/L	SW8270SIM	06/03/13
Benzo(a)pyrene	50-32-8	0.0026	0.010	0.0026	U	ug/L	SW8270SIM	06/03/13
Indeno(1,2,3-c,d)pyrene	193-39-5	0.0019	0.010	0.0019	U	ug/L	SW8270SIM	06/03/13
Dibenzo(a,h)anthracene	53-70-3	0.0034	0.010	0.0034	U	ug/L	SW8270SIM	06/03/13
Benzo(g,h,i)perylene	191-24-2	0.0024	0.010	0.0024	U	ug/L	SW8270SIM	06/03/13

Surrogate	% Recovery	Control Limits	Qualifier
Terphenyl-d14	95	33-141	

*=See case narrative
U=Not detected at specified detection limit
E=Estimated value above calibration range
J=Estimated value below reporting limit

CH2M HILL ASL

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CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Project Name: NW Pipe
Type: QC
Matrix: Water

Lab Information

LCS ID: BS1W0524
Report Revision No.: 0
Dilution Factor: 1

Analyte	CAS#	Spike Amount	Sample Result	Units	%Recovery	Analysis Method	Date Analyzed
GC/MS Semi-Volatiles							
Naphthalene	91-20-3	0.50	0.38	ug/L	77	SW8270SIM	06/03/13
2-Methylnaphthalene	91-57-6	0.50	0.36	ug/L	72	SW8270SIM	06/03/13
1-Methylnaphthalene	90-12-0	0.50	0.35	ug/L	70	SW8270SIM	06/03/13
Acenaphthylene	208-96-8	0.50	0.43	ug/L	85	SW8270SIM	06/03/13
Acenaphthene	83-32-9	0.50	0.43	ug/L	87	SW8270SIM	06/03/13
Fluorene	86-73-7	0.50	0.41	ug/L	81	SW8270SIM	06/03/13
Phenanthrene	85-01-8	0.50	0.41	ug/L	82	SW8270SIM	06/03/13
Anthracene	120-12-7	0.50	0.44	ug/L	88	SW8270SIM	06/03/13
Fluoranthene	206-44-0	0.50	0.46	ug/L	93	SW8270SIM	06/03/13
Pyrene	129-00-0	0.50	0.47	ug/L	94	SW8270SIM	06/03/13
Benzo(a)anthracene	56-55-3	0.50	0.48	ug/L	96	SW8270SIM	06/03/13
Chrysene	218-01-9	0.50	0.46	ug/L	91	SW8270SIM	06/03/13
Benzo(b)fluoroanthene	205-99-2	0.50	0.47	ug/L	94	SW8270SIM	06/03/13
Benzo(k)fluoranthene	207-08-9	0.50	0.43	ug/L	85	SW8270SIM	06/03/13
Benzo(a)pyrene	50-32-8	0.50	0.40	ug/L	80	SW8270SIM	06/03/13
Indeno(1,2,3-c,d)pyrene	193-39-5	0.50	0.39	ug/L	78	SW8270SIM	06/03/13
Dibenzo(a,h)anthracene	53-70-3	0.50	0.39	ug/L	77	SW8270SIM	06/03/13
Benzo(g,h,i)perylene	191-24-2	0.50	0.40	ug/L	81	SW8270SIM	06/03/13

Surrogate	% Recovery	Control Limits	Qualifier
Terphenyl-d14	101	33-141	

*=See case narrative
U=Not detected at specified detection limit
E=Estimated value above calibration range
J=Estimated value below reporting limit

CH2M HILL ASL

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CASE NARRATIVE
METALS ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: M1935

Project: NW Pipe Project #: 358932.TT.05

I. Method(s):
Analysis: SW6010B, SW7470A
Preparation: METHOD, SW3010

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
All acceptance criteria were met.

F. Interference Check Sample(s):
All acceptance criteria were met.

G. Serial Dilution(s):
Analyzed in accordance with standard operating procedure.

H. Digestion Exception(s):
None.

I. Analytical Exception(s):
All analyses were performed in accordance with 40 CFR Part 136.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: _____ Date: 5-30-13

Reviewed by: _____ Date: 6-5-13

CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Client Sample ID: SW03-052213-SCE

Project Name: NW Pipe
Sample Date: 05/22/13
Sample Time: 12:30
Type: Grab
Matrix: Water

Lab Information

Lab Sample ID: M193501

Date Received: 05/23/13
Report Revision No.: 0

Analyte	CAS#	Dilution Factor	DL	RL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
Metals									
Aluminum	7429-90-5	1	17.6	100	292		ug/L	SW6010B	05/28/13
Antimony	7440-36-0	1	3.45	10.0	3.45	U	ug/L	SW6010B	05/28/13
Arsenic	7440-38-2	1	6.32	25.0	6.32	U	ug/L	SW6010B	05/28/13
Cadmium	7440-43-9	1	0.17	5.00	0.25	J	ug/L	SW6010B	05/28/13
Chromium	7440-47-3	1	0.73	10.0	1.49	J	ug/L	SW6010B	05/28/13
Copper	7440-50-8	1	1.19	10.0	7.47	J	ug/L	SW6010B	05/28/13
Lead	7439-92-1	1	1.36	10.0	1.36	U	ug/L	SW6010B	05/28/13
Mercury	7439-97-6	1	0.015	0.10	0.015	U	ug/L	SW7470A	05/29/13
Nickel	7440-02-0	1	1.23	20.0	1.23	U	ug/L	SW6010B	05/28/13
Selenium	7782-49-2	1	10.5	30.0	10.5	U	ug/L	SW6010B	05/28/13
Silver	7440-22-4	1	1.30	10.0	1.30	U	ug/L	SW6010B	05/28/13
Zinc	7440-66-6	1	2.78	20.0	60.2		ug/L	SW6010B	05/28/13

U=Not detected at specified detection limit
J=Estimated value below reporting limit
E=Estimated value above calibration range
*=See case narrative

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Corvallis, OR 97330
Tel 541-768-3120 Fax 541-752-0276

CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Client Sample ID: SW04-0502213-SCE

Project Name: NW Pipe
Sample Date: 05/22/13
Sample Time: 12:45
Type: Grab
Matrix: Water

Lab Information

Lab Sample ID: M193502

Date Received: 05/23/13
Report Revision No.: 0

Analyte	CAS#	Dilution Factor	DL	RL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
Metals									
Aluminum	7429-90-5	1	17.6	100	184		ug/L	SW6010B	05/28/13
Antimony	7440-36-0	1	3.45	10.0	3.45	U	ug/L	SW6010B	05/28/13
Arsenic	7440-38-2	1	6.32	25.0	7.60	J	ug/L	SW6010B	05/28/13
Cadmium	7440-43-9	1	0.17	5.00	0.17	U	ug/L	SW6010B	05/28/13
Chromium	7440-47-3	1	0.73	10.0	2.13	J	ug/L	SW6010B	05/28/13
Copper	7440-50-8	1	1.19	10.0	6.79	J	ug/L	SW6010B	05/28/13
Lead	7439-92-1	1	1.36	10.0	1.42	J	ug/L	SW6010B	05/28/13
Mercury	7439-97-6	1	0.015	0.10	0.015	U	ug/L	SW7470A	05/29/13
Nickel	7440-02-0	1	1.23	20.0	2.84	J	ug/L	SW6010B	05/28/13
Selenium	7782-49-2	1	10.5	30.0	10.5	U	ug/L	SW6010B	05/28/13
Silver	7440-22-4	1	1.30	10.0	1.30	U	ug/L	SW6010B	05/28/13
Zinc	7440-66-6	1	2.78	20.0	48.5		ug/L	SW6010B	05/28/13

U=Not detected at specified detection limit
J=Estimated value below reporting limit
E=Estimated value above calibration range
*=See case narrative

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CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Client Sample ID: WB1-0524

Project Name: NW Pipe
Sample Date: N/A
Sample Time: N/A
Type: QC
Matrix: Water

Lab Information

Lab Sample ID: WB1-0524

Date Received: N/A
Report Revision No.: 0

Analyte	CAS#	Dilution Factor	DL	RL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
Metals									
Aluminum	7429-90-5	1	17.6	100	17.6	U	ug/L	SW6010B	05/28/13
Antimony	7440-36-0	1	3.45	10.0	3.45	U	ug/L	SW6010B	05/28/13
Arsenic	7440-38-2	1	6.32	25.0	6.32	U	ug/L	SW6010B	05/28/13
Cadmium	7440-43-9	1	0.17	5.00	0.46	J	ug/L	SW6010B	05/28/13
Chromium	7440-47-3	1	0.73	10.0	0.73	U	ug/L	SW6010B	05/28/13
Copper	7440-50-8	1	1.19	10.0	1.19	U	ug/L	SW6010B	05/28/13
Lead	7439-92-1	1	1.36	10.0	1.36	U	ug/L	SW6010B	05/28/13
Nickel	7440-02-0	1	1.23	20.0	1.23	U	ug/L	SW6010B	05/28/13
Selenium	7782-49-2	1	10.5	30.0	10.5	U	ug/L	SW6010B	05/28/13
Silver	7440-22-4	1	1.30	10.0	1.30	U	ug/L	SW6010B	05/28/13
Zinc	7440-66-6	1	2.78	20.0	2.78	U	ug/L	SW6010B	05/28/13

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E=Estimated value above calibration range
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CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Client Sample ID: WB1-0529

Project Name: NW Pipe
Sample Date: N/A
Sample Time: N/A
Type: QC
Matrix: Water

Lab Information

Lab Sample ID: WB1-0529

Date Received: N/A
Report Revision No.: 0

Analyte	CAS#	Dilution Factor	DL	RL	Sample Result	Qualifier	Units	Analysis Method	Date Analyzed
Metals									
Mercury	7439-97-6	1	0.015	0.10	0.015	U	ug/L	SW7470A	05/29/13

U=Not detected at specified detection limit
J=Estimated value below reporting limit
E=Estimated value above calibration range
*=See case narrative

CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Project Name: NW Pipe
Type: QC
Matrix: Water

Lab Information

LCS ID: BS1W0524

Report Revision No.: 0
Dilution Factor: 1

Analyte	CAS#	Spike Amount	Sample Result	Units	%Recovery	Analysis Method	Date Analyzed
Metals							
Aluminum	7429-90-5	500	550	ug/L	110	SW6010B	05/28/13
Antimony	7440-36-0	500	509	ug/L	102	SW6010B	05/28/13
Arsenic	7440-38-2	500	515	ug/L	103	SW6010B	05/28/13
Cadmium	7440-43-9	500	497	ug/L	99	SW6010B	05/28/13
Chromium	7440-47-3	500	503	ug/L	101	SW6010B	05/28/13
Copper	7440-50-8	500	497	ug/L	99	SW6010B	05/28/13
Lead	7439-92-1	500	508	ug/L	102	SW6010B	05/28/13
Nickel	7440-02-0	500	486	ug/L	97	SW6010B	05/28/13
Selenium	7782-49-2	500	515	ug/L	103	SW6010B	05/28/13
Silver	7440-22-4	250	240	ug/L	96	SW6010B	05/28/13
Zinc	7440-66-6	500	500	ug/L	100	SW6010B	05/28/13

*=See case narrative
U=Not detected at specified detection limit
E=Estimated value above calibration range
J=Estimated value below reporting limit

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CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Project Name: NW Pipe
Type: QC
Matrix: Water

Lab Information

LCS ID: BS1W0529

Report Revision No.: 0
Dilution Factor: 1

Analyte	CAS#	Spike Amount	Sample Result	Units	%Recovery	Analysis Method	Date Analyzed
Metals							
Mercury	7439-97-6	1.00	1.0	ug/L	100	SW7470A	05/29/13

*=See case narrative
U=Not detected at specified detection limit
E=Estimated value above calibration range
J=Estimated value below reporting limit

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CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: M1935

Project: NW Pipe Project #: 358932.TT.05

I. Method(s):
Analysis: SM5310B

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Analyzed in accordance with standard operating procedure.

F. Analytical Exception(s):
None.

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: Edyna Kaemmerer Date: 6/5/13

Reviewed by: Kathy McKinney Date: 6/5/13

CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Project Name: NW Pipe

Date Received: 05/23/13
Type: See C.O.C.
Matrix: Water

Lab Information

Lab Batch ID: M1935

Analysis Method: SM5310B
Units: mg/L
Report Revision No.: 0

Client Sample ID	Lab Sample ID	Dilution Factor	Total Organic Carbon DL	RL	Result	Qualifier	Date Analyzed
General Chemistry							
SW03-052213-SCE	M193501	1	0.047	0.50	3.04		06/04/13
SW04-0502213-SCE	M193502	1	0.047	0.50	2.25		06/04/13
WB1-0604	WB1-0604	1	0.047	0.50	0.29	J	06/04/13

U=Not detected at specified detection limit
J=Estimated value below reporting limit
E=Estimated value above calibration range
*=See case narrative

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CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Project Name: NW Pipe
Type: QC
Matrix: Water

Lab Information

Lab Batch ID: M1935

Report Revision No.: 0

LCS ID	Analyte	Spike Amount	Sample Result	Units	% Recovery	Analysis Method	Date Analyzed
General Chemistry							
BS1W0604	Total Organic Carbon	5.00	4.68	mg/L	94	SM5310B	06/04/13

*=See case narrative
U=Not detected at specified detection limit
E=Estimated value above calibration range
J=Estimated value below reporting limit

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CASE NARRATIVE
GENERAL CHEMISTRY ANALYSIS

Lab Name: CH2M HILL/LAB/CVO ASL SDG#: M1935

Project: NW Pipe Project #: 358932.TT.05

I. Method(s):
Analysis: SM2540D

II. Receipt/Holding Times:
All acceptance criteria were met.

III. Analysis:

A. Initial Calibration(s):
All acceptance criteria were met.

B. Calibration Verification(s):
All acceptance criteria were met.

C. Blanks:
All acceptance criteria were met.

D. Laboratory Control Sample(s):
All acceptance criteria were met.

E. Matrix Spike/Matrix Spike Duplicate Sample(s):
Analyzed in accordance with standard operating procedure.

F. Analytical Exception(s):
All analyses were performed in accordance with 40 CFR Part 136.
The laboratory control sample (LCS) did not meet acceptance criteria (82.9 to 110 mg/L).

IV. Documentation Exception(s):
None.

V. I certify that this data package is in compliance with the terms and conditions agreed to by the client and CH2M HILL, both technically and for completeness, except for the conditions detailed above. Release of the data contained in this hardcopy data package has been authorized by the Laboratory Manager or designee, as verified by the following signatures.

Prepared by: _____ Date: 5-30-13

Reviewed by: Kathy McCance Date: 6/5/13

CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Project Name: NW Pipe

Date Received: 05/23/13
Type: See C.O.C.
Matrix: Water

Lab Information

Lab Batch ID: M1935

Analysis Method: SM2540D
Units: mg/L
Report Revision No.: 0

Client Sample ID	Lab Sample ID	Dilution Factor	Total Suspended Solids (TSS) DL	RL	Result	Qualifier	Date Analyzed
General Chemistry							
SW03-052213-SCE	M193501	1	0.6	5.0	1.6	J	05/28/13
SW04-0502213-SCE	M193502	1	0.6	5.0	2.2	J	05/28/13
WB1-052813	WB1-052813	1	0.6	5.0	0.6	U	05/28/13

U=Not detected at specified detection limit
J=Estimated value below reporting limit
E=Estimated value above calibration range
*=See case narrative

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CH2M HILL Applied Sciences Laboratory (ASL)

Client Information

Project Name: NW Pipe
Type: QC
Matrix: Water

Lab Information

Lab Batch ID: M1935

Report Revision No.: 0

LCS ID	Analyte	Spike Amount	Sample Result	Units	% Recovery	Analysis Method	Date Analyzed
General Chemistry							
BS1W-052813	Total Suspended Solids (TSS)	100	82.0	mg/L	82	SM2540D	05/30/13

*=See case narrative
U=Not detected at specified detection limit
E=Estimated value above calibration range
J=Estimated value below reporting limit

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CH2MHILL Applied Sciences Lab
CHAIN OF CUSTODY RECORD
AND AGREEMENT TO PERFORM SERVICES

1100 NE Circle Blvd., Suite 300
Corvallis, OR 97330
(541) 768-3120 FAX (541) 752-0276

5.8°C

COC #

Project # or Purchase Order # 359932.TT.05

Project Name: NW Pipe Source Control

Company Name or Home Address/Phone Number:

Email Address for Reporting: Pat Heins

Report Copy to: Ting Rice

Turnaround Time: ☐24 hours ☐48 hours ☐72 hours ☐7 days ☐14 days ☒21 days (STD)

Drinking Water? Yes ☐ No ☒

Sample Disposal: Dispose ☒ Return ☐

TOTAL # OF CONTAINERS

Sampling Date	Sampling Time	Type COMP	Type GRAB	Matrix WATER	Matrix SOIL	Matrix AIR	CLIENT SAMPLE ID	TOTAL # OF CONTAINERS	Requested Analytical Method # / Preservative: PAH & Phthalates 8270 SIM (UNPRES)	Total Organic Carbon SM 5310 (H2SO4)	Invrs 6010/7470 (HNO3)	VOC SW 8260 (HCl)	Total suspended solids (NaOH)	PCB Aroclors SW 8082 (ZnAc/NaOH)	Chloro pesticides SW 8081	Field pH
5/22/13	12:30		X	X			SW03-052213-SCE	12	X2	1X3	X1	X2	X1	X2	X2	7.42
5/22/13	12:45		X	X			SW04-052213-SCE	13	X2	1X2	1X2	X2	X2	X2	X2	7.03

THIS AREA FOR LAB USE ONLY

Lab # M1935 | Page | of

EPA Tier QC Level: 1 (Screening) 2 3 4

Canister ID	Lab ID
	2

Possible Hazard Identification: ☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Volatile Contaminants/Odorous ☐ Biohazard ☐ Other

Relinquished By: Pat Heins	Date/Time: 5/22/13 3:00	Received By: / Date/Time
Sampled By and Title / (Please sign and print name)	Date/Time	Relinquished By (Please sign and print name) / Date/Time
Received By (Please sign and print name)	Date/Time: 5/23/13 10:20	Relinquished By (Please sign and print name) / Date/Time
Received By (Please sign and print name)	Date/Time	Shipped Via UPS Fed-Ex Other / Tracking #

Special Instructions: Al, Sb, As, Cd, Cr, Cu, Pb, Hg, Ni, Se, Ag, Zn

Page 5 of 7

Instructions and Agreement Provisions on Reverse Side

DISTRIBUTION: Original – LAB, Yellow – LAB, Pink – Client
Rev 10/2011 LAB FORM 340

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Record

SDG ID: M1935 Date Received: 5-23-13

Client/Project: NW Pipe Checked By: CB

Packing Material: (Ice) Blue Ice Box (Bubble Wrap) HD (circle all that apply) Checked By: _____

Shipping ID: _____ -- or -- (On File) COC HD USPS (circle one)

VERIFICATION OF SAMPLE CONDITIONS (verify all items), HD = Client Hand delivered Samples	NA	YES	NO
Were custody seals intact and on the outside of the cooler?		✓	
Radiological Screening for DoD	✓		
Temp OK? (<6C) Therm ID TH173 Exp. 6/13 5.8 °C		✓	
Was a Chain of Custody (CoC) Provided?		✓	
Was the CoC correctly filled out (If No, document in the SRER)		✓	
Did sample labels agree with COC? No, document in SRER		✓	
Did the CoC list a correct bottle count and the preservative types (Y=OK, N=Corrected on CoC)		✓	
Were the sample containers in good condition (broken or leaking)?		✓	
Was enough sample volume provided for analysis? No, document in SRER		✓	
Containers supplied by ASL?		✓	
Any sample with < 1/2 holding time remaining? If so contact LPM	✓		
Samples have multi-phase? If yes, document on SRER	✓		
All VOCs free of air bubbles? No, document on SRER		✓	
pH of all samples met criteria on receipt? If "No", preserve and document below or on SRER		✓	
Dissolved/Soluble metals filtered in the field?	✓		
Dissolved/Soluble metals have sediment in bottom of container? Document in SRER	✓		

Sample ID	Reagent	Reagent Lot Number	Volume Added	Initials

CH2MHILL
Applied Sciences Laboratory (ASL)

Sample Receipt Exception Report

Sample Batch Number: M1935 **Client/Project** NW Pipe

The following exceptions were noted:		Comments (write number of exception description and the impacted sample numbers)
	1. No custody seal as required by project	One vial, SW03-052213-SCE amber, was recieved broken, ~~only 2 VOA vials were received for VOC pH not checked.~~ BR Roy 5-23-13
	2. No chain-of-custody provided	
	3. Analysis, description, date of collection not provided	
	4. Samples broken or leaking on receipt.	
	5. Temperature of samples inappropriate for analysis requested	
	6. Container inappropriate for analysis requested	
	7. Inadequate sample volume.	
	8. Preservation inappropriate for analysis requested	
	9. Samples received out of holding time for analysis requested	
	10. Discrepancies between COC form and container labels.	
	11. Other.	

ACTION TAKEN:

Originator: Carmen Bell Date: 5/23/13

Client was notified on: (Date/Time) Client Contact:

Client Services: