



Mayor Charlie Hales  
David G. Shaff, Administrator  
1120 SW 5th Avenue, Room 600  
Portland, Oregon 97204-1926  
Information: 503-823-7404  
www.portlandoregon.gov/water



An Equal Opportunity Employer

DATE: February 7, 2013

WQ 0.10.14.4

TO: Oregon Health Authority  
Environmental Public Health  
Drinking Water Program

**SUBJECT: Monthly Report for January 2013  
Bull Run Treatment Variance  
Intake *Cryptosporidium* Results  
PWS # 4100657**

To Whom It May Concern:

Enclosed are results of laboratory analyses for *Cryptosporidium* from the Bull Run raw water intake for January 2013. Monitoring for *Cryptosporidium* at the Bull Run intake is done to comply with the conditions of Portland's Bull Run Treatment Variance (OHA Final Order, March 14, 2012). PWB is currently in Observation Monitoring. Compliance turbidity readings at the intake for the reporting month were not greater than 2.0 NTU.

Analytical Services, Inc. completed the analysis for *Cryptosporidium* (see attached report). A summary of the results for the reporting month and the previous eleven months is shown in the table below:

***Cryptosporidium* Data Summary for the Reporting Month and the Previous Eleven Months.**

Date Range		Total Field Samples	Total Field Sample Volume (L)	Total No. Oocysts Counted in Field Samples	Total Matrix Spikes	Average Matrix Spike Recovery (%)
Reporting Month:	1/1/2013-1/31/2013	10	500.00	0	1	34.7
Previous 11 Months*:	4/1/2012-12/31/2012	230	3901.22	0	27	43.1

\*Please note that because April 2012 was the first reporting month under the Bull Run Treatment Variance, this table currently summarizes less than 11 months of monitoring.

If you have any questions regarding these results, please contact me at 503-823-6135.

Sincerely,

Ann Richter  
Environmental Program Manager

**Transmitted:** Two pages (including this transmittal memo) emailed to [dwp.dmce@state.or.us](mailto:dwp.dmce@state.or.us) on this date.



Microbiological Testing, Research & Consulting  
 130 Allen Brook Ln., Williston VT 05495

**Cryptosporidium Laboratory Analysis Report**

<b>Water System Information</b>		<b>Sample Information</b>	
<b>PWS ID:</b>	OR4100657	<b>Collection Month &amp; Year:</b>	January 2013
<b>PWS Name:</b>	Portland Water Bureau 1900 N Interstate Avenue Portland, Oregon 97227	<b>Report Date:</b>	February 5, 2013
<b>County:</b>	Multnomah	<b>Monitoring Regime:</b>	Observation
		<b>Source Water:</b>	Bull Run Intake - WTP-A

**Analytical Services, Inc. (ASI)**

PWB Sample ID	Loc ID	Sample Collection Date	Sample Type	Sample Volume Filtered (L)	No. of Oocysts Spiked	No. of Oocysts Counted	No. Oocysts per Liter	Matrix Spike Recovery (%)	Analysis Method
BB24646	2P	1/1/2013	Field	50.00	0	0	0.00	-	EPA 1623
BB24665	2P	1/2/2013	Field	50.00	0	0	0.00	-	EPA 1623
BB24694	2P	1/6/2013	Field	50.00	0	0	0.00	-	EPA 1623
BB24748	2P	1/8/2013	Field	50.00	0	0	0.00	-	EPA 1623
BB24749	2P	1/8/2013	Matrix Spike	50.07	101	35	0.70	34.7	EPA 1623
BB24819	2P	1/13/2013	Field	50.00	0	0	0.00	-	EPA 1623
BB24874	2P	1/15/2013	Field	50.00	0	0	0.00	-	EPA 1623
BB25008	2P	1/20/2013	Field	50.00	0	0	0.00	-	EPA 1623
BB25050	2P	1/22/2013	Field	50.00	0	0	0.00	-	EPA 1623
BB25139	2P	1/27/2013	Field	50.00	0	0	0.00	-	EPA 1623
BB25193	2P	1/29/2013	Field	50.00	0	0	0.00	-	EPA 1623

**Notes:** NA

**ASI Data Quality Statement:**

All data reported above, unless otherwise noted, were generated in accordance with EPA Method 1623.

Reviewed by           PSWarden          

Date Reviewed:           5-Feb-2013



Mayor Charlie Hales  
David G. Shaff, Administrator  
1120 SW 5th Avenue, Room 600  
Portland, Oregon 97204-1926  
Information: 503-823-7404  
www.portlandoregon.gov/water



An Equal Opportunity Employer

DATE: March 07, 2013

WQ 0.10.14.4

TO: Oregon Health Authority  
Environmental Public Health  
Drinking Water Program

**SUBJECT: Monthly Report for February 2013  
Bull Run Treatment Variance  
Intake *Cryptosporidium* Results  
PWS # 4100657**

To Whom It May Concern:

Enclosed are results of laboratory analyses for *Cryptosporidium* from the Bull Run raw water intake for February 2013. Monitoring for *Cryptosporidium* at the Bull Run intake is done to comply with the conditions of Portland's Bull Run Treatment Variance (OHA Final Order, March 14, 2012). PWB is currently in Observation Monitoring. Compliance turbidity readings at the intake for the reporting month were not greater than 2.0 NTU.

Analytical Services, Inc. completed the analysis for *Cryptosporidium* (see attached report). A summary of the results for the reporting month and the previous eleven months is shown in the table below:

***Cryptosporidium* Data Summary for the Reporting Month and the Previous Eleven Months.**

Date Range		Total Field Samples	Total Field Sample Volume (L)	Total No. Oocysts Counted in Field Samples	Total Matrix Spikes	Average Matrix Spike Recovery (%)
Reporting Month:	2/1/2013-2/28/2013	8	399.60	0	1	36.0
Previous 11 Months*:	4/1/2012-1/31/2013	240	4401.22	0	28	42.8

\*Please note that because April 2012 was the first reporting month under the Bull Run Treatment Variance, this table currently summarizes less than 11 months of monitoring.

If you have any questions regarding these results, please contact me at 503-823-6135.

Sincerely,

Ann Richter  
Environmental Program Manager

**Transmitted:** Two pages (including this transmittal memo) emailed to [dwp.dmce@state.or.us](mailto:dwp.dmce@state.or.us) on this date.



Microbiological Testing, Research & Consulting  
 130 Allen Brook Ln., Williston VT 05495

**Cryptosporidium Laboratory Analysis Report**

<b>Water System Information</b>		<b>Sample Information</b>	
<b>PWS ID:</b>	OR4100657	<b>Collection Month &amp; Year:</b>	February 2013
<b>PWS Name:</b>	Portland Water Bureau 1900 N Interstate Avenue Portland, Oregon 97227	<b>Report Date:</b>	March 1, 2013
<b>County:</b>	Multnomah	<b>Monitoring Regime:</b>	Observation
		<b>Source Water:</b>	Bull Run Intake - WTP-A

**Analytical Services, Inc. (ASI)**

PWB Sample ID	Loc ID	Sample Collection Date	Sample Type	Sample Volume Filtered (L)	No. of Oocysts Spiked	No. of Oocysts Counted	No. Oocysts per Liter	Matrix Spike Recovery (%)	Analysis Method
BB25266	2P	2/3/2013	Field	50.00	0	0	0.00	-	EPA 1623
BB25324	2P	2/5/2013	Field	50.00	0	0	0.00	-	EPA 1623
BB25325	2P	2/5/2013	Matrix Spike	50.02	100	36	0.72	36.0	EPA 1623
BB25532	2P	2/10/2013	Field	50.00	0	0	0.00	-	EPA 1623
BB25581	2P	2/12/2013	Field	50.00	0	0	0.00	-	EPA 1623
BB25756	2P	2/17/2013	Field	50.00	0	0	0.00	-	EPA 1623
BB25828	2P	2/21/2013	Field	49.60	0	0	0.00	-	EPA 1623
BB25859	2P	2/24/2013	Field	50.00	0	0	0.00	-	EPA 1623
BB25898	2P	2/26/2013	Field	50.00	0	0	0.00	-	EPA 1623

**Notes:** NA

**ASI Data Quality Statement:**

All data reported above, unless otherwise noted, were generated in accordance with EPA Method 1623.

Reviewed by PSWarden

Date Reviewed: 1-Mar-2013



**Mayor Charlie Hales**  
 David G. Shaff, Administrator  
 1120 SW 5th Avenue, Room 600  
 Portland, Oregon 97204-1926  
 Information: 503-823-7404  
[www.portlandoregon.gov/water](http://www.portlandoregon.gov/water)



*An Equal Opportunity Employer*

**DATE:** April 05, 2013

WQ 0.10.14.4

**TO:** Oregon Health Authority  
 Environmental Public Health  
 Drinking Water Program

**SUBJECT: Monthly Report for March 2013  
 Bull Run Treatment Variance  
 Intake *Cryptosporidium* Results  
 PWS # 4100657**

To Whom It May Concern:

Enclosed are results of laboratory analyses for *Cryptosporidium* from the Bull Run raw water intake for March 2013. Monitoring for *Cryptosporidium* at the Bull Run intake is done to comply with the conditions of Portland’s Bull Run Treatment Variance (OHA Final Order, March 14, 2012). PWB is currently in Observation Monitoring. Compliance turbidity readings at the intake for the reporting month were not greater than 2.0 NTU.

Clancy Environmental – Tetra Tech, Inc. completed the analysis for *Cryptosporidium* (see attached report). A summary of the results for the reporting month and the previous eleven months is shown in the table below:

***Cryptosporidium* Data Summary for the Reporting Month and the Previous Eleven Months.**

Date Range		Total Field Samples	Total Field Sample Volume (L)	Total No. Oocysts Counted in Field Samples	Total Matrix Spikes	Average Matrix Spike Recovery (%)
Reporting Month:	3/1/2013-3/31/2013	9	450.1	0	2	63.5
Previous 11 Months:	4/1/2012-2/28/2013	248	4800.8	0	29	42.5

If you have any questions regarding these results, please contact me at 503-823-6135.

Sincerely,

Ann Richter  
 Environmental Program Manager

**Transmitted:** Two pages (including this transmittal memo) emailed to [dwp.dmce@state.or.us](mailto:dwp.dmce@state.or.us) on this date.



**Clancy Environmental – Tetra Tech**  
 20 Mapleville Depot, Saint Albans, VT 05478 USA  
 802.527.2460 Fax: 802.524.3909

**Cryptosporidium Laboratory Analysis Report**

<u>Water System Information</u>		<u>Sample Information</u>	
<b>PWS ID:</b>	OR4100657	<b>Collection Month &amp; Year:</b>	March 2013
<b>PWS Name:</b>	Portland Water Bureau 1900 N Interstate Avenue Portland, Oregon 97227	<b>Report Date:</b>	April 3, 2013
<b>County:</b>	Multnomah	<b>Monitoring Regime:</b>	Observation
		<b>Source Water:</b>	Bull Run Intake

**Clancy Environmental - a Tetra Tech, Inc. company**

PWB Sample ID	Loc ID	Sample Collection Date	Sample Type	Sample Volume Filtered (L)	No. of Oocysts Spiked	No. of Oocysts Counted	No. Oocysts per Liter	Matrix Spike Recovery (%)	Analysis Method
BB26012	2P	3/3/2013	Field	50.0	0	0	0.00	-	1623
BB26011	2P	3/3/2013	Matrix Spike	51.0	100	59	1.16	59.0	1623
BB26073	2P	3/5/2013	Field	50.0	0	0	0.00	-	1623
BB26074	2P	3/5/2013	Matrix Spike	50.8	100	68	1.34	68.0	1623
BB26199	2P	3/10/2013	Field	50.0	0	0	0.00	-	1623
BB26238	2P	3/12/2013	Field	50.0	0	0	0.00	-	1623
BB26401	2P	3/17/2013	Field	50.0	0	0	0.00	-	1623
BB26451	2P	3/19/2013	Field	50.0	0	0	0.00	-	1623
BB26549	2P	3/24/2013	Field	50.1	0	0	0.00	-	1623
BB26588	2P	3/26/2013	Field	50.0	0	0	0.00	-	1623
BB26737	2P	3/31/2013	Field	50.0	0	0	0.00	-	1623

**Notes:**

**Data Quality Statement:**

All data reported above, unless otherwise noted, were generated in accordance with EPA Method 1623.

Reviewed by: 

Date Reviewed: 3-Apr-2013



**Mayor Charlie Hales**  
 David G. Shaff, Administrator  
 1120 SW 5th Avenue, Room 600  
 Portland, Oregon 97204-1926  
 Information: 503-823-7404  
 www.portlandoregon.gov/water



*An Equal Opportunity Employer*

**DATE:** May 7, 2013

WQ 0.10.14.4

**TO:** Oregon Health Authority  
 Environmental Public Health  
 Drinking Water Program

**SUBJECT: Monthly Report for April 2013  
 Bull Run Treatment Variance  
 Intake *Cryptosporidium* Results  
 PWS # 4100657**

To Whom It May Concern:

Enclosed are results of laboratory analyses for *Cryptosporidium* from the Bull Run raw water intake for April 2013. Monitoring for *Cryptosporidium* at the Bull Run intake is done to comply with the conditions of Portland's Bull Run Treatment Variance (OHA Final Order, March 14, 2012). PWB is currently in Observation Monitoring. Compliance turbidity readings at the intake for the reporting month were not greater than 2.0 NTU.

Clancy Environmental – Tetra Tech, Inc. completed the analysis for *Cryptosporidium* (see attached report). A summary of the results for the reporting month and the previous eleven months is shown in the table below:

***Cryptosporidium* Data Summary for the Reporting Month and the Previous Eleven Months.**

Date Range		Total Field Samples	Total Field Sample Volume (L)	Total No. Oocysts Counted in Field Samples	Total Matrix Spikes	Average Matrix Spike Recovery (%)
Reporting Month:	4/1/2013-4/30/2013	9	449.9	0	2	66.0
Previous 11 Months:	5/1/2012-3/31/2013	248	4800.7	0	29	44.8

If you have any questions regarding these results, please contact me at 503-823-6135.

Sincerely,

Ann Richter  
 Environmental Program Manager

**Transmitted:** Two pages (including this transmittal memo) emailed to [dwp.dmce@state.or.us](mailto:dwp.dmce@state.or.us) on this date.



**Cryptosporidium Laboratory Analysis Report**

<u>Water System Information</u>		<u>Sample Information</u>	
<b>PWS ID:</b>	OR4100657	<b>Collection Month &amp; Year:</b>	April 2013
<b>PWS Name:</b>	Portland Water Bureau 1900 N Interstate Avenue Portland, Oregon 97227	<b>Report Date:</b>	May 2, 2013
<b>County:</b>	Multnomah	<b>Monitoring Regime:</b>	Observation
		<b>Source Water:</b>	Bull Run Intake

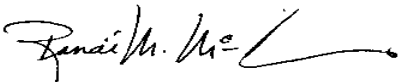
**Clancy Environmental - a Tetra Tech, Inc. company**

PWB Sample ID	Loc ID	Sample Collection Date	Sample Type	Sample Volume Filtered (L)	No. of Oocysts Spiked	No. of Oocysts Counted	No. Oocysts per Liter	Matrix Spike Recovery (%)	Analysis Method
BB26793	2P	4/2/2013	Matrix Spike	51.0	100	64	1.25	64.0	1623
BB26794	2P	4/2/2013	Field	50.0	0	0	0.00	-	1623
BB26899	2P	4/7/2013	Field	50.0	0	0	0.00	-	1623
BB26945	2P	4/9/2013	Field	50.0	0	0	0.00	-	1623
BB27101	2P	4/14/2013	Field	50.0	0	0	0.00	-	1623
BB27202	2P	4/16/2013	Field	50.0	0	0	0.00	-	1623
BB27265	2P	4/21/2013	Field	50.0	0	0	0.00	-	1623
BB27319	2P	4/23/2013	Field	50.0	0	0	0.00	-	1623
BB27467	2P	4/28/2013	Field	50.0	0	0	0.00	-	1623
BB27558	2P	4/30/2013	Field	49.9	0	0	0.00	-	1623
BB27532	2P	4/30/2013	Matrix Spike	51.50	100	68	1.32	68.0	1623

**Notes:**

**Data Quality Statement:**

All data reported above, unless otherwise noted, were generated in accordance with EPA Method 1623.

Reviewed by 

Date Reviewed: Thursday, May 02, 2013





Nick Fish, Commissioner  
David G. Shaff, Administrator  
1120 SW 5th Avenue, Room 600  
Portland, Oregon 97204-1926  
Information: 503-823-7404  
www.portlandoregon.gov/water



An Equal Opportunity Employer

DATE: June 4, 2013

WQ 0.10.14.4

TO: Oregon Health Authority  
Environmental Public Health  
Drinking Water Program

**SUBJECT: Monthly Report for May 2013  
Bull Run Treatment Variance  
Intake *Cryptosporidium* Results  
PWS # 4100657**

To Whom It May Concern:

Enclosed are results of laboratory analyses for *Cryptosporidium* from the Bull Run raw water intake for May 2013. Monitoring for *Cryptosporidium* at the Bull Run intake is done to comply with the conditions of Portland's Bull Run Treatment Variance (OHA Final Order, March 14, 2012). PWB is currently in Observation Monitoring. Compliance turbidity readings at the intake for the reporting month were not greater than 2.0 NTU.

Clancy Environmental – Tetra Tech, Inc. completed the analysis for *Cryptosporidium* (see attached report). A summary of the results for the reporting month and the previous eleven months is shown in the table below:

***Cryptosporidium* Data Summary for the Reporting Month and the Previous Eleven Months.**

Date Range		Total Field Samples	Total Field Sample Volume (L)	Total No. Oocysts Counted in Field Samples	Total Matrix Spikes	Average Matrix Spike Recovery (%)
Reporting Month:	5/1/2013-5/31/2013	8	400.1	0	2	41.0
Previous 11 Months:	6/1/2012-4/30/2013	248	4800.7	0	29	46.3

If you have any questions regarding these results, please contact me at 503-823-6135.

Sincerely,

Ann Richter  
Environmental Program Manager

**Transmitted:** Two pages (including this transmittal memo) emailed to [dwp.dmce@state.or.us](mailto:dwp.dmce@state.or.us) on this date.



**Clancy Environmental – Tetra Tech**

20 Mapleville Depot, Saint Albans, VT 05478 USA  
 802.527.2460 Fax: 802.524.3909

**Cryptosporidium Laboratory Analysis Report**

<u>Water System Information</u>		<u>Sample Information</u>	
<b>PWS ID:</b>	OR4100657	<b>Collection Month &amp; Year:</b>	May 2013
<b>PWS Name:</b>	Portland Water Bureau 1900 N Interstate Avenue Portland, Oregon 97227	<b>Report Date:</b>	May 31, 2013
<b>County:</b>	Multnomah	<b>Monitoring Regime:</b>	Observation
		<b>Source Water:</b>	Bull Run Intake

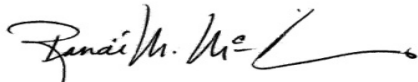
**Clancy Environmental - a Tetra Tech, Inc. company**

PWB Sample ID	Loc ID	Sample Collection Date	Sample Type	Sample Volume Filtered (L)	No. of Oocysts Spiked	No. of Oocysts Counted	No. Oocysts per Liter	Matrix Spike Recovery (%)	Analysis Method
BB27598	2P	5/5/2013	Field	50.1	0	0	0.00	-	1623
BB27659	2P	5/7/2013	Field	50.0	0	0	0.00	-	1623
BB27826	2P	5/12/2013	Field	50.0	0	0	0.00	-	1623
BB27809	2P	5/14/2013	Field	50.0	0	0	0.00	-	1623
BB27810	2P	5/14/2013	Matrix Spike	51.0	100	50	0.98	50.0	1623
BB28024	2P	5/19/2013	Field	50.0	0	0	0.00	-	1623
BB28164	2P	5/21/2013	Field	50.0	0	0	0.00	-	1623
BB28333	2P	5/27/2013	Field	50.0	0	0	0.00	-	1623
BB28312	2P	5/28/2013	Field	50.0	0	0	0.00	-	1623
BB28313	2P	5/28/2013	Matrix Spike	51.0	100	32	0.63	32.0	1623

**Notes:**

**Data Quality Statement:**

All data reported above, unless otherwise noted, were generated in accordance with EPA Method 1623.

Reviewed by 

Date Reviewed: Friday, May 31, 2013



Nick Fish, Commissioner  
David G. Shaff, Administrator  
1120 SW 5th Avenue, Room 600  
Portland, Oregon 97204-1926  
Information: 503-823-7404  
www.portlandoregon.gov/water



An Equal Opportunity Employer

DATE: July 9, 2013

WQ 0.10.14.4

TO: Oregon Health Authority  
Environmental Public Health  
Drinking Water Program

**SUBJECT: Monthly Report for June 2013  
Bull Run Treatment Variance  
Intake *Cryptosporidium* Results  
PWS # 4100657**

To Whom It May Concern:

Enclosed are results of laboratory analyses for *Cryptosporidium* from the Bull Run raw water intake for June 2013. Monitoring for *Cryptosporidium* at the Bull Run intake is done to comply with the conditions of Portland's Bull Run Treatment Variance (OHA Final Order, March 14, 2012). PWB is currently in Observation Monitoring. Compliance turbidity readings at the intake for the reporting month were not greater than 2.0 NTU.

Clancy Environmental – Tetra Tech, Inc. completed the analysis for *Cryptosporidium* (see attached report). A summary of the results for the reporting month and the previous eleven months is shown in the table below:

***Cryptosporidium* Data Summary for the Reporting Month and the Previous Eleven Months.**

Date Range		Total Field Samples	Total Field Sample Volume (L)	Total No. Oocysts Counted in Field Samples	Total Matrix Spikes	Average Matrix Spike Recovery (%)
Reporting Month:	6/1/2013-6/30/2013	9	450.0	0	2	39.0
Previous 11 Months:	7/1/2012-5/31/2013	248	4800.7	0	29	46.2

If you have any questions regarding these results, please contact me at 503-823-6135.

Sincerely,

Ann Richter  
Environmental Program Manager

**Transmitted:** Two pages (including this transmittal memo) emailed to [dwp.dmce@state.or.us](mailto:dwp.dmce@state.or.us) on this date.



**Cryptosporidium Laboratory Analysis Report**

<u>Water System Information</u>		<u>Sample Information</u>	
<b>PWS ID:</b>	OR4100657	<b>Collection Month &amp; Year:</b>	June 2013
<b>PWS Name:</b>	Portland Water Bureau 1900 N Interstate Avenue Portland, Oregon 97227	<b>Report Date:</b>	July 3, 2013
<b>County:</b>	Multnomah	<b>Monitoring Regime:</b>	Observation
		<b>Source Water:</b>	Bull Run Intake

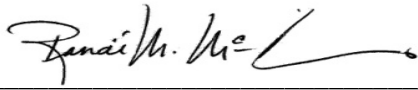
**Clancy Environmental - a Tetra Tech, Inc. company**

PWB Sample ID	Loc ID	Sample Collection Date	Sample Type	Sample Volume Filtered (L)	No. of Oocysts Spiked	No. of Oocysts Counted	No. Oocysts per Liter	Matrix Spike Recovery (%)	Analysis Method
BB28483	2P	6/2/2013	Field	50.0	0	0	0.00	-	1623
BB28546	2P	6/4/2013	Field	50.0	0	0	0.00	-	1623
BB28707	2P	6/9/2013	Field	50.0	0	0	0.00	-	1623
BB28767	2P	6/11/2013	Field	50.0	0	0	0.00	-	1623
BB28768	2P	6/11/2013	Matrix Spike	51.0	100	36	0.71	36.0	1623
BB28909	2P	6/16/2013	Field	50.0	0	0	0.00	-	1623
BB28990	2P	6/18/2013	Field	50.0	0	0	0.00	-	1623
BB29154	2P	6/23/2013	Field	50.0	0	0	0.00	-	1623
BB29217	2P	6/25/2013	Field	50.0	0	0	0.00	-	1623
BB29218	2P	6/25/2013	Matrix Spike	51.2	100	42	0.82	42.0	1623
BB29365	2P	6/30/2013	Field	50.0	0	0	0.00	-	1623

**Notes:**

**Data Quality Statement:**

All data reported above, unless otherwise noted, were generated in accordance with EPA Method 1623.

Reviewed by 

Date Reviewed: Wednesday, July 03, 2013



Nick Fish, Commissioner  
David G. Shaff, Administrator

1120 SW 5th Avenue, Room 600  
Portland, Oregon 97204-1926  
Information: 503-823-7404  
www.portlandoregon.gov/water



An Equal Opportunity Employer

DATE: August 7, 2013

WQ 0.10.14.4

TO: Oregon Health Authority  
Environmental Public Health  
Drinking Water Program

**SUBJECT: Monthly Report for July 2013  
Bull Run Treatment Variance  
Intake *Cryptosporidium* Results  
PWS # 4100657**

To Whom It May Concern:

Enclosed are results of laboratory analyses for *Cryptosporidium* from the Bull Run raw water intake for July 2013. Monitoring for *Cryptosporidium* at the Bull Run intake is done to comply with the conditions of Portland's Bull Run Treatment Variance (OHA Final Order, March 14, 2012). PWB is currently in Observation Monitoring. Compliance turbidity readings at the intake for the reporting month were not greater than 2.0 NTU.

Clancy Environmental – Tetra Tech, Inc. completed the analysis for *Cryptosporidium* (see attached report). Please note that PWB switched to the Modified 1623 (Precoat) method on July 9, 2013. This method modification has been validated for PWB's source water in order to improve *Cryptosporidium* recovery during seasonal matrix changes. A summary of the results for the reporting month and the previous eleven months is shown in the table below:

***Cryptosporidium* Data Summary for the Reporting Month and the Previous Eleven Months.**

Date Range		Total Field Samples	Total Field Sample Volume (L)	Total No. Oocysts Counted in Field Samples	Total Matrix Spikes	Average Matrix Spike Recovery (%)
Reporting Month:	7/1/2013-7/31/2013	37	493.8	0	4	60.3
Previous 11 Months:	8/1/2012-6/30/2013	219	4750.3	0	27	45.0

If you have any questions regarding these results, please contact me at 503-823-6135.

Sincerely,

Ann Richter  
Environmental Program Manager

**Transmitted:** Three pages (including this transmittal memo) emailed to [dwp.dmce@state.or.us](mailto:dwp.dmce@state.or.us) on this date.



# Clancy Environmental – Tetra Tech

20 Mapleville Depot, Saint Albans, VT 05478 USA  
 802.527.2460 Fax: 802.524.3909

## Cryptosporidium Laboratory Analysis Report

<u>Water System Information</u>		<u>Sample Information</u>	
<b>PWS ID:</b>	OR4100657	<b>Collection Month &amp; Year:</b>	July 2013
<b>PWS Name:</b>	Portland Water Bureau 1900 N Interstate Avenue Portland, Oregon 97227	<b>Report Date:</b>	August 5, 2013
<b>County:</b>	Multnomah	<b>Monitoring Regime:</b>	Observation
		<b>Source Water:</b>	Bull Run Intake

### Clancy Environmental - a Tetra Tech, Inc. company

PWB Sample ID	Loc ID	Sample Collection Date	Sample Type	Sample Volume Filtered (L)	No. of Oocysts Spiked	No. of Oocysts Counted	No. Oocysts per Liter	Matrix Spike Recovery (%)	Analysis Method
BB29443	2P	7/1/2013	Field	50.0	0	0	0.00	-	1623
BB29601	2P	7/7/2013	Field	50.0	0	0	0.00	-	1623
BB29696	2P	7/9/2013	Field	11.2	0	0	0.00	-	Modified 1623
BB29697	2P	7/9/2013	Matrix Spike	11.5	100	59	5.13	59.0	Modified 1623
BB29698	2P	7/9/2013	Field	11.5	0	0	0.00	-	Modified 1623
BB29699	2P	7/9/2013	Field	11.5	0	0	0.00	-	Modified 1623
BB29700	2P	7/9/2013	Field	11.5	0	0	0.00	-	Modified 1623
BB29701	2P	7/9/2013	Field	11.5	0	0	0.00	-	Modified 1623
BB29774	2P	7/14/2013	Field	11.5	0	0	0.00	-	Modified 1623
BB29775	2P	7/14/2013	Field	11.5	0	0	0.00	-	Modified 1623
BB29776	2P	7/14/2013	Field	11.0	0	0	0.00	-	Modified 1623
BB29777	2P	7/14/2013	Field	11.5	0	0	0.00	-	Modified 1623
BB29778	2P	7/14/2013	Field	11.5	0	0	0.00	-	Modified 1623
BB29926	2P	7/16/2013	Field	11.2	0	0	0.00	-	Modified 1623
BB29931	2P	7/16/2013	Matrix Spike	10.9	100	52	4.77	52.0	Modified 1623
BB29927	2P	7/16/2013	Field	11.0	0	0	0.00	-	Modified 1623
BB29928	2P	7/16/2013	Field	11.0	0	0	0.00	-	Modified 1623
BB29929	2P	7/16/2013	Field	11.0	0	0	0.00	-	Modified 1623
BB29930	2P	7/16/2013	Field	11.0	0	0	0.00	-	Modified 1623
BB30080	2P	7/21/2013	Field	11.3	0	0	0.00	-	Modified 1623
BB30081	2P	7/21/2013	Field	11.1	0	0	0.00	-	Modified 1623
BB30082	2P	7/21/2013	Field	11.3	0	0	0.00	-	Modified 1623
BB30083	2P	7/21/2013	Field	11.1	0	0	0.00	-	Modified 1623
BB30084	2P	7/21/2013	Field	11.0	0	0	0.00	-	Modified 1623
BB30156	2P	7/23/2013	Field	11.2	0	0	0.00	-	Modified 1623
BB30157	2P	7/23/2013	Matrix Spike	11.4	100	74	6.49	74.0	Modified 1623
BB30158	2P	7/23/2013	Field	11.4	0	0	0.00	-	Modified 1623
BB30159	2P	7/23/2013	Field	11.4	0	0	0.00	-	Modified 1623
BB30160	2P	7/23/2013	Field	11.4	0	0	0.00	-	Modified 1623
BB30161	2P	7/23/2013	Field	11.1	0	0	0.00	-	Modified 1623
BB30337	2P	7/28/2013	Field	11.0	0	0	0.00	-	Modified 1623
BB30338	2P	7/28/2013	Field	11.3	0	0	0.00	-	Modified 1623
BB30339	2P	7/28/2013	Field	11.3	0	0	0.00	-	Modified 1623
BB30340	2P	7/28/2013	Field	11.0	0	0	0.00	-	Modified 1623



**Clancy Environmental – Tetra Tech**

20 Mapleville Depot, Saint Albans, VT 05478 USA  
 802.527.2460 Fax: 802.524.3909

**Cryptosporidium Laboratory Analysis Report**

<u>Water System Information</u>		<u>Sample Information</u>	
<b>PWS ID:</b>	OR4100657	<b>Collection Month &amp; Year:</b>	July 2013
<b>PWS Name:</b>	Portland Water Bureau 1900 N Interstate Avenue Portland, Oregon 97227	<b>Report Date:</b>	August 5, 2013
<b>County:</b>	Multnomah	<b>Monitoring Regime:</b>	Observation
		<b>Source Water:</b>	Bull Run Intake

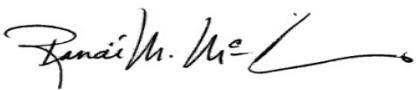
**Clancy Environmental - a Tetra Tech, Inc. company**

PWB Sample ID	Loc ID	Sample Collection Date	Sample Type	Sample Volume Filtered (L)	No. of Oocysts Spiked	No. of Oocysts Counted	No. Oocysts per Liter	Matrix Spike Recovery (%)	Analysis Method
BB30341	2P	7/28/2013	Field	11.0	0	0	0.00	-	Modified 1623
BB30459	2P	7/30/2013	Field	11.1	0	0	0.00	-	Modified 1623
BB30464	2P	7/30/2013	Matrix Spike	11.5	100	56	4.87	56.0	Modified 1623
BB30460	2P	7/30/2013	Field	11.0	0	0	0.00	-	Modified 1623
BB30461	2P	7/30/2013	Field	11.5	0	0	0.00	-	Modified 1623
BB30462	2P	7/30/2013	Field	11.4	0	0	0.00	-	Modified 1623
BB30463	2P	7/30/2013	Field	11.5	0	0	0.00	-	Modified 1623

**Notes:** "Modified 1623" involves precoating the HV filter and modified elution solution (CEC Doc # CEC119.001).

**Data Quality Statement:**

All data reported above, unless otherwise noted, were generated in accordance with EPA Method 1623.

Reviewed by 

Date Reviewed: Monday, August 05, 2013







Nick Fish, Commissioner  
David G. Shaff, Administrator  
1120 SW 5th Avenue, Room 600  
Portland, Oregon 97204-1926  
Information: 503-823-7404  
www.portlandoregon.gov/water



An Equal Opportunity Employer

DATE: September 4, 2013

WQ 0.10.14.4

TO: Oregon Health Authority  
Environmental Public Health  
Drinking Water Program

**SUBJECT: Monthly Report for August 2013  
Bull Run Treatment Variance  
Intake *Cryptosporidium* Results  
PWS # 4100657**

To Whom It May Concern:

Enclosed are results of laboratory analyses for *Cryptosporidium* from the Bull Run raw water intake for August 2013. Monitoring for *Cryptosporidium* at the Bull Run intake is done to comply with the conditions of Portland's Bull Run Treatment Variance (OHA Final Order, March 14, 2012). PWB is currently in Observation Monitoring. Compliance turbidity readings at the intake for the reporting month were not greater than 2.0 NTU.

Clancy Environmental – Tetra Tech, Inc. completed the analysis for *Cryptosporidium* (see attached report). A summary of the results for the reporting month and the previous eleven months is shown in the table below:

***Cryptosporidium* Data Summary for the Reporting Month and the Previous Eleven Months.**

Date Range		Total Field Samples	Total Field Sample Volume (L)	Total No. Oocysts Counted in Field Samples	Total Matrix Spikes	Average Matrix Spike Recovery (%)
Reporting Month:	8/1/2013-8/31/2013	40	453.4	0	4	25.0
Previous 11 Months:	9/1/2012-7/31/2013	216	4843.7	0	27	47.5

If you have any questions regarding these results, please contact me at 503-823-6135.

Sincerely,

Ann Richter  
Environmental Program Manager

**Transmitted:** Three pages (including this transmittal memo) emailed to [dwp.dmce@state.or.us](mailto:dwp.dmce@state.or.us) on this date.



# Clancy Environmental – Tetra Tech

20 Mapleville Depot, Saint Albans, VT 05478 USA  
 802.527.2460 Fax: 802.524.3909

## Cryptosporidium Laboratory Analysis Report

<u>Water System Information</u>		<u>Sample Information</u>	
<b>PWS ID:</b>	OR4100657	<b>Collection Month &amp; Year:</b>	August 2013
<b>PWS Name:</b>	Portland Water Bureau 1900 N Interstate Avenue Portland, Oregon 97227	<b>Report Date:</b>	August 29, 2013
<b>County:</b>	Multnomah	<b>Monitoring Regime:</b>	Observation
		<b>Source Water:</b>	Bull Run Intake

### Clancy Environmental - a Tetra Tech, Inc. company

PWB Sample ID	Loc ID	Sample Collection Date	Sample Type	Sample Volume Filtered (L)	No. of Oocysts Spiked	No. of Oocysts Counted	No. Oocysts per Liter	Matrix Spike Recovery (%)	Analysis Method
BB30673	2P	8/4/2013	Field	11.4	0	0	0.00	-	Modified 1623
BB30674	2P	8/4/2013	Field	11.3	0	0	0.00	-	Modified 1623
BB30675	2P	8/4/2013	Field	11.3	0	0	0.00	-	Modified 1623
BB30676	2P	8/4/2013	Field	11.5	0	0	0.00	-	Modified 1623
BB30677	2P	8/4/2013	Field	11.4	0	0	0.00	-	Modified 1623
BB30705	2P	8/6/2013	Field	11.3	0	0	0.00	-	Modified 1623
BB30704	2P	8/6/2013	Matrix Spike	11.3	99	41	3.63	41.4	Modified 1623
BB30706	2P	8/6/2013	Field	11.4	0	0	0.00	-	Modified 1623
BB30707	2P	8/6/2013	Field	11.3	0	0	0.00	-	Modified 1623
BB30708	2P	8/6/2013	Field	11.3	0	0	0.00	-	Modified 1623
BB30709	2P	8/6/2013	Field	11.3	0	0	0.00	-	Modified 1623
BB30812	2P	8/11/2013	Field	11.3	0	0	0.00	-	Modified 1623
BB30813	2P	8/11/2013	Field	11.3	0	0	0.00	-	Modified 1623
BB30814	2P	8/11/2013	Field	11.5	0	0	0.00	-	Modified 1623
BB30815	2P	8/11/2013	Field	11.4	0	0	0.00	-	Modified 1623
BB30816	2P	8/11/2013	Field	11.4	0	0	0.00	-	Modified 1623
BB30892	2P	8/13/2013	Field	11.4	0	0	0.00	-	Modified 1623
BB30897	2P	8/13/2013	Matrix Spike	11.0	99	13	1.18	13.1	Modified 1623
BB30893	2P	8/13/2013	Field	11.4	0	0	0.00	-	Modified 1623
BB30894	2P	8/13/2013	Field	11.2	0	0	0.00	-	Modified 1623
BB30895	2P	8/13/2013	Field	11.3	0	0	0.00	-	Modified 1623
BB30896	2P	8/13/2013	Field	11.5	0	0	0.00	-	Modified 1623
BB31098	2P	8/18/2013	Field	11.5	0	0	0.00	-	Modified 1623
BB31099	2P	8/18/2013	Field	11.5	0	0	0.00	-	Modified 1623
BB31100	2P	8/18/2013	Field	11.5	0	0	0.00	-	Modified 1623
BB31101	2P	8/18/2013	Field	11.4	0	0	0.00	-	Modified 1623
BB31102	2P	8/18/2013	Field	11.5	0	0	0.00	-	Modified 1623
BB31279	2P	8/20/2013	Field	11.0	0	0	0.00	-	Modified 1623
BB31278	2P	8/20/2013	Matrix Spike	11.3	99	31	2.74	31.3	Modified 1623
BB31280	2P	8/20/2013	Field	11.3	0	0	0.00	-	Modified 1623
BB31281	2P	8/20/2013	Field	11.2	0	0	0.00	-	Modified 1623
BB31282	2P	8/20/2013	Field	11.1	0	0	0.00	-	Modified 1623
BB31283	2P	8/20/2013	Field	11.2	0	0	0.00	-	Modified 1623
BB31417	2P	8/25/2013	Field	11.3	0	0	0.00	-	Modified 1623



**Clancy Environmental – Tetra Tech**

20 Mapleville Depot, Saint Albans, VT 05478 USA  
 802.527.2460 Fax: 802.524.3909

**Cryptosporidium Laboratory Analysis Report**

<u>Water System Information</u>		<u>Sample Information</u>	
<b>PWS ID:</b>	OR4100657	<b>Collection Month &amp; Year:</b>	August 2013
<b>PWS Name:</b>	Portland Water Bureau 1900 N Interstate Avenue Portland, Oregon 97227	<b>Report Date:</b>	August 29, 2013
<b>County:</b>	Multnomah	<b>Monitoring Regime:</b>	Observation
		<b>Source Water:</b>	Bull Run Intake

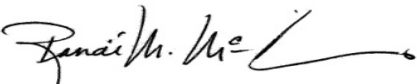
**Clancy Environmental - a Tetra Tech, Inc. company**

PWB Sample ID	Loc ID	Sample Collection Date	Sample Type	Sample Volume Filtered (L)	No. of Oocysts Spiked	No. of Oocysts Counted	No. Oocysts per Liter	Matrix Spike Recovery (%)	Analysis Method
BB31418	2P	8/25/2013	Field	11.4	0	0	0.00	-	Modified 1623
BB31419	2P	8/25/2013	Field	11.3	0	0	0.00	-	Modified 1623
BB31420	2P	8/25/2013	Field	11.5	0	0	0.00	-	Modified 1623
BB31421	2P	8/25/2013	Field	11.2	0	0	0.00	-	Modified 1623
BB31486	2P	8/27/2013	Field	11.3	0	0	0.00	-	Modified 1623
BB31491	2P	8/27/2013	Matrix Spike	11.4	99	14	1.23	14.1	Modified 1623
BB31487	2P	8/27/2013	Field	11.3	0	0	0.00	-	Modified 1623
BB31488	2P	8/27/2013	Field	11.3	0	0	0.00	-	Modified 1623
BB31489	2P	8/27/2013	Field	11.1	0	0	0.00	-	Modified 1623
BB31490	2P	8/27/2013	Field	11.3	0	0	0.00	-	Modified 1623

**Notes:** "Modified 1623" involves precoating the HV filter and modified elution solution (CEC Doc # CEC119.001).

**Data Quality Statement:**

All data reported above, unless otherwise noted, were generated in accordance with EPA Method 1623.

Reviewed by 

Date Reviewed: Thursday, August 29, 2013





Nick Fish, Commissioner  
David G. Shaff, Administrator  
1120 SW 5th Avenue, Room 600  
Portland, Oregon 97204-1926  
Information: 503-823-7404  
www.portlandoregon.gov/water



An Equal Opportunity Employer

DATE: October 8, 2013

WQ 0.10.14.4

TO: Oregon Health Authority  
Environmental Public Health  
Drinking Water Program

**SUBJECT: Monthly Report for September 2013  
Bull Run Treatment Variance  
Intake *Cryptosporidium* Results  
PWS # 4100657**

To Whom It May Concern:

Enclosed are results of laboratory analyses for *Cryptosporidium* from the Bull Run raw water intake for September 2013. Monitoring for *Cryptosporidium* at the Bull Run intake is done to comply with the conditions of Portland's Bull Run Treatment Variance (OHA Final Order, March 14, 2012). PWB is currently in Observation Monitoring. During the reporting month, one compliance turbidity reading at the intake was greater than 2.0 NTU on September 23, 2013, requiring the collection of turbidity-based samples (see attached report).

Clancy Environmental – Tetra Tech, Inc. completed the analysis for *Cryptosporidium* (see attached report). A summary of the results for the reporting month and the previous eleven months is shown in the table below:

***Cryptosporidium* Data Summary for the Reporting Month and the Previous Eleven Months.**

Date Range		Total Field Samples	Total Field Sample Volume (L)	Total No. Oocysts Counted in Field Samples	Total Matrix Spikes	Average Matrix Spike Recovery (%)
Reporting Month:	9/1/2013-9/30/2013	50	570.7	0	4	34.8
Previous 11 Months:	10/1/2012-8/31/2013	211	4846.5	0	27	46.2

If you have any questions regarding these results, please contact me at 503-823-6135.

Sincerely,

Ann Richter  
Environmental Program Manager

**Transmitted:** Four pages (including this transmittal memo) emailed to [dwp.dmce@state.or.us](mailto:dwp.dmce@state.or.us) on this date.



**Cryptosporidium Laboratory Analysis Report**

<b>Water System Information</b>		<b>Sample Information</b>	
<b>PWS ID:</b>	OR4100657	<b>Collection Month &amp; Year:</b>	September 2013
<b>PWS Name:</b>	Portland Water Bureau 1900 N Interstate Avenue Portland, Oregon 97227	<b>Report Date:</b>	October 3, 2013
<b>County:</b>	Multnomah	<b>Monitoring Regime:</b>	Observation
		<b>Source Water:</b>	Bull Run Intake

**Clancy Environmental - a Tetra Tech, Inc. company**

PWB Sample ID	Loc ID	Sample Collection Date	Sample Type	Sample Volume Filtered (L)	No. of Oocysts Spiked	No. of Oocysts Counted	No. Oocysts per Liter	Matrix Spike Recovery (%)	Analysis Method
BB31659	2P	9/2/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB31660	2P	9/2/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB31661	2P	9/2/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB31662	2P	9/2/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB31663	2P	9/2/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB31687	2P	9/3/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB31686	2P	9/3/2013	Matrix Spike	11.4	99	41	3.60	41.4	Modified Precoat
BB31688	2P	9/3/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB31689	2P	9/3/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB31690	2P	9/3/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB31691	2P	9/3/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB31814	2P	9/8/2013	Field	11.2	0	0	0.00	-	Modified Precoat
BB31815	2P	9/8/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB31816	2P	9/8/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB31817	2P	9/8/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB31818	2P	9/8/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB31898	2P	9/10/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB31903	2P	9/10/2013	Matrix Spike	11.4	99	11	0.96	11.1	Modified Precoat
BB31899	2P	9/10/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB31900	2P	9/10/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB31901	2P	9/10/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB31902	2P	9/10/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB32097	2P	9/15/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB32098	2P	9/15/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB32099	2P	9/15/2013	Field	11.0	0	0	0.00	-	Modified Precoat
BB32100	2P	9/15/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB32101	2P	9/15/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB32186	2P	9/17/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB32191	2P	9/17/2013	Matrix Spike	11.4	99	24	2.11	24.2	Modified Precoat
BB32187	2P	9/17/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB32188	2P	9/17/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB32189	2P	9/17/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB32190	2P	9/17/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB32372	2P	9/22/2013	Field	11.3	0	0	0.00	-	Modified Precoat



**Cryptosporidium Laboratory Analysis Report**

<u>Water System Information</u>		<u>Sample Information</u>	
<b>PWS ID:</b>	OR4100657	<b>Collection Month &amp; Year:</b>	September 2013
<b>PWS Name:</b>	Portland Water Bureau 1900 N Interstate Avenue Portland, Oregon 97227	<b>Report Date:</b>	October 3, 2013
<b>County:</b>	Multnomah	<b>Monitoring Regime:</b>	Observation
		<b>Source Water:</b>	Bull Run Intake

**Clancy Environmental - a Tetra Tech, Inc. company**

PWB Sample ID	Loc ID	Sample Collection Date	Sample Type	Sample Volume Filtered (L)	No. of Oocysts Spiked	No. of Oocysts Counted	No. Oocysts per Liter	Matrix Spike Recovery (%)	Analysis Method
BB32373	2P	9/22/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB32374	2P	9/22/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB32375	2P	9/22/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB32376	2P	9/22/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB32434	2P	9/23/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB32435	2P	9/23/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB32436	2P	9/23/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB32437	2P	9/23/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB32438	2P	9/23/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB32463	2P	9/24/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB32468	2P	9/24/2013	Matrix Spike	11.4	99	62	5.44	62.6	Modified Precoat
BB32464	2P	9/24/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB32465	2P	9/24/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB32466	2P	9/24/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB32467	2P	9/24/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB32639	2P	9/29/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB32640	2P	9/29/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB32641	2P	9/29/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB32642	2P	9/29/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB32643	2P	9/29/2013	Field	11.4	0	0	0.00	-	Modified Precoat

**Notes:** "Modified 1623" involves precoating the HV filter and modified elution solution (CEC Doc # CEC119.001).

**Data Quality Statement:**

All data reported above, unless otherwise noted, were generated in accordance with EPA Method 1623.

Reviewed by \_\_\_\_\_

Date Reviewed: Thursday, October 03, 2013

## Bull Run Treatment Variance Turbidity-based Sampling Report

PWS Name: **Portland Water Bureau**

ID #: **OR4100657**

Month/Year: **09/2013**

**Notes:** Highest compliance readings are from the Turbidity Monitoring Report submitted with the Surface Water Treatment Rule monthly report.

DAY	Highest Compliance Reading (NTU)	50-L Sample Required?	Sample ID(s)
9/1/2013	0.32	No	N/A
9/2/2013	0.35	No	N/A
9/3/2013	0.35	No	N/A
9/4/2013	0.51	No	N/A
9/5/2013	0.34	No	N/A
9/6/2013	0.34	No	N/A
9/7/2013	0.33	No	N/A
9/8/2013	0.35	No	N/A
9/9/2013	0.36	No	N/A
9/10/2013	0.40	No	N/A
9/11/2013	0.42	No	N/A
9/12/2013	0.45	No	N/A
9/13/2013	0.49	No	N/A
9/14/2013	0.42	No	N/A
9/15/2013	0.42	No	N/A
9/16/2013	0.47	No	N/A
9/17/2013	0.45	No	N/A
9/18/2013	0.54	No	N/A
9/19/2013	1.38	No	N/A
9/20/2013	1.03	No	N/A
9/21/2013	1.24	No	N/A
9/22/2013	0.78	No	N/A
9/23/2013	2.94	Yes	BB32434, BB32435, BB32436, BB32437, BB32438
9/24/2013	1.55	No	N/A
9/25/2013	1.01	No	N/A
9/26/2013	0.80	No	N/A
9/27/2013	1.53	No	N/A
9/28/2013	1.00	No	N/A
9/29/2013	1.11	No	N/A
9/30/2013	1.03	No	N/A





Nick Fish, Commissioner  
David G. Shaff, Administrator

1120 SW 5th Avenue, Room 600  
Portland, Oregon 97204-1926  
Information: 503-823-7404  
www.portlandoregon.gov/water



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DATE: November 7, 2013

WQ 0.10.14.4

TO: Oregon Health Authority  
Environmental Public Health  
Drinking Water Program

**SUBJECT: Monthly Report for October 2013  
Bull Run Treatment Variance  
Intake *Cryptosporidium* Results  
PWS # 4100657**

To Whom It May Concern:

Enclosed are results of laboratory analyses for *Cryptosporidium* from the Bull Run raw water intake for October 2013. Monitoring for *Cryptosporidium* at the Bull Run intake is done to comply with the conditions of Portland's Bull Run Treatment Variance (OHA Final Order, March 14, 2012). PWB is currently in Observation Monitoring. Compliance turbidity readings at the intake for the reporting month were not greater than 2.0 NTU.

Clancy Environmental – Tetra Tech, Inc. completed the analysis for *Cryptosporidium* (see attached report). Please note that PWB switched back to EPA Method 1623 with no modifications on October 29, 2013. A summary of the results for the reporting month and the previous eleven months is shown in the table below:

***Cryptosporidium* Data Summary for the Reporting Month and the Previous Eleven Months.**

Date Range		Total Field Samples	Total Field Sample Volume (L)	Total No. Oocysts Counted in Field Samples	Total Matrix Spikes	Average Matrix Spike Recovery (%)
Reporting Month:	10/1/2013-10/31/2013	41	503.6	0	5	60.1
Previous 11 Months:	11/1/2012-9/30/2013	216	4967.4	0	26	45.3

If you have any questions regarding these results, please contact me at 503-823-6135.

Sincerely,

Ann Richter  
Environmental Program Manager

**Transmitted:** Three pages (including this transmittal memo) emailed to [dwp.dmce@state.or.us](mailto:dwp.dmce@state.or.us) on this date.



# Clancy Environmental – Tetra Tech

20 Mapleville Depot, Saint Albans, VT 05478 USA  
802.527.2460 Fax: 802.524.3909

## Cryptosporidium Laboratory Analysis Report

<u>Water System Information</u>		<u>Sample Information</u>	
<b>PWS ID:</b>	OR4100657	<b>Collection Month &amp; Year:</b>	October 2013
<b>PWS Name:</b>	Portland Water Bureau 1900 N Interstate Avenue Portland, Oregon 97227	<b>Report Date:</b>	October 31, 2013
<b>County:</b>	Multnomah	<b>Monitoring Regime:</b>	Observation
		<b>Source Water:</b>	Bull Run Intake

**Clancy Environmental - a Tetra Tech, Inc. company**

PWB Sample ID	Loc ID	Sample Collection Date	Sample Type	Sample Volume Filtered (L)	No. of Oocysts Spiked	No. of Oocysts Counted	No. Oocysts per Liter	Matrix Spike Recovery (%)	Analysis Method
BB32721	2P	10/1/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB32720	2P	10/1/2013	Matrix Spike	11.2	100	61	5.45	61.0	Modified Precoat
BB32722	2P	10/1/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB32723	2P	10/1/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB32724	2P	10/1/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB32725	2P	10/1/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB32899	2P	10/6/2013	Field	11.2	0	0	0.00	-	Modified Precoat
BB32900	2P	10/6/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB32901	2P	10/6/2013	Field	11.2	0	0	0.00	-	Modified Precoat
BB32902	2P	10/6/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB32903	2P	10/6/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB32937	2P	10/8/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB32936	2P	10/8/2013	Matrix Spike	11.5	100	63	5.48	63.0	Modified Precoat
BB32938	2P	10/8/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB32939	2P	10/8/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB32940	2P	10/8/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB32941	2P	10/8/2013	Field	11.5	0	0	0.00	-	Modified Precoat
BB33142	2P	10/13/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB33143	2P	10/13/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB33144	2P	10/13/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB33145	2P	10/13/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB33146	2P	10/13/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB33214	2P	10/15/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB33213	2P	10/15/2013	Matrix Spike	11.3	100	55	4.87	55.0	Modified Precoat
BB33215	2P	10/15/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB33216	2P	10/15/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB33217	2P	10/15/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB33218	2P	10/15/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB33360	2P	10/20/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB33361	2P	10/20/2013	Field	11.2	0	0	0.00	-	Modified Precoat
BB33362	2P	10/20/2013	Field	11.2	0	0	0.00	-	Modified Precoat
BB33363	2P	10/20/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB33364	2P	10/20/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB33422	2P	10/22/2013	Field	11.3	0	0	0.00	-	Modified Precoat



**Clancy Environmental – Tetra Tech**

20 Mapleville Depot, Saint Albans, VT 05478 USA  
 802.527.2460 Fax: 802.524.3909

**Cryptosporidium Laboratory Analysis Report**

<u>Water System Information</u>		<u>Sample Information</u>	
<b>PWS ID:</b>	OR4100657	<b>Collection Month &amp; Year:</b>	October 2013
<b>PWS Name:</b>	Portland Water Bureau 1900 N Interstate Avenue Portland, Oregon 97227	<b>Report Date:</b>	October 31, 2013
<b>County:</b>	Multnomah	<b>Monitoring Regime:</b>	Observation
		<b>Source Water:</b>	Bull Run Intake

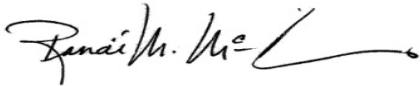
**Clancy Environmental - a Tetra Tech, Inc. company**

PWB Sample ID	Loc ID	Sample Collection Date	Sample Type	Sample Volume Filtered (L)	No. of Oocysts Spiked	No. of Oocysts Counted	No. Oocysts per Liter	Matrix Spike Recovery (%)	Analysis Method
BB33427	2P	10/22/2013	Matrix Spike	11.4	98	58	5.09	59.2	Modified Precoat
BB33423	2P	10/22/2013	Field	11.2	0	0	0.00	-	Modified Precoat
BB33424	2P	10/22/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB33425	2P	10/22/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB33426	2P	10/22/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB33612	2P	10/27/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB33613	2P	10/27/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB33614	2P	10/27/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB33615	2P	10/27/2013	Field	11.3	0	0	0.00	-	Modified Precoat
BB33616	2P	10/27/2013	Field	11.4	0	0	0.00	-	Modified Precoat
BB33685	2P	10/29/2013	Matrix Spike	51.0	98	61	1.20	62.2	1623
BB33683	2P	10/29/2013	Field	50.0	0	0	0.00	-	1623

**Notes:** "Modified Precoat" involves precoating the HV filter and modified elution solution (CEC Doc # CEC119.001).

**Data Quality Statement:**

All data reported above, unless otherwise noted, were generated in accordance with EPA Method 1623.

Reviewed by 

Date Reviewed: Thursday, October 31, 2013





Nick Fish, Commissioner  
David G. Shaff, Administrator

1120 SW 5th Avenue, Room 600  
Portland, Oregon 97204-1926  
Information: 503-823-7404  
www.portlandoregon.gov/water



An Equal Opportunity Employer

DATE: December 5, 2013

WQ 0.10.14.4

TO: Oregon Health Authority  
Environmental Public Health  
Drinking Water Program

**SUBJECT: Monthly Report for November 2013  
Bull Run Treatment Variance  
Intake *Cryptosporidium* Results  
PWS # 4100657**

To Whom It May Concern:

Enclosed are results of laboratory analyses for *Cryptosporidium* from the Bull Run raw water intake for November 2013. Monitoring for *Cryptosporidium* at the Bull Run intake is done to comply with the conditions of Portland's Bull Run Treatment Variance (OHA Final Order, March 14, 2012). PWB is currently in Observation Monitoring. Compliance turbidity readings at the intake for the reporting month were not greater than 2.0 NTU.

Clancy Environmental – Tetra Tech, Inc. completed the analysis for *Cryptosporidium* (see attached report). A summary of the results for the reporting month and the previous eleven months is shown in the table below:

***Cryptosporidium* Data Summary for the Reporting Month and the Previous Eleven Months.**

Date Range		Total Field Samples	Total Field Sample Volume (L)	Total No. Oocysts Counted in Field Samples	Total Matrix Spikes	Average Matrix Spike Recovery (%)
Reporting Month:	11/1/2013-11/30/2013	8	400.0	0	1	45.9
Previous 11 Months:	12/1/2012-10/31/2013	229	5071.3	0	28	46.9

If you have any questions regarding these results, please contact me at 503-823-6135.

Sincerely,

Ann Richter  
Environmental Program Manager

**Transmitted:** Two pages (including this transmittal memo) emailed to [dwp.dmce@state.or.us](mailto:dwp.dmce@state.or.us) on this date.



**Cryptosporidium Laboratory Analysis Report**

<u>Water System Information</u>		<u>Sample Information</u>	
<b>PWS ID:</b>	OR4100657	<b>Collection Month &amp; Year:</b>	November 2013
<b>PWS Name:</b>	Portland Water Bureau 1900 N Interstate Avenue Portland, Oregon 97227	<b>Report Date:</b>	December 3, 2013
<b>County:</b>	Multnomah	<b>Monitoring Regime:</b>	Observation
		<b>Source Water:</b>	Bull Run Intake

**Clancy Environmental - a Tetra Tech, Inc. company**

PWB Sample ID	Loc ID	Sample Collection Date	Sample Type	Sample Volume Filtered (L)	No. of Oocysts Spiked	No. of Oocysts Counted	No. Oocysts per Liter	Matrix Spike Recovery (%)	Analysis Method
BB33818	2P	11/3/2013	Field	50.0	0	0	0.00	-	Method 1623
BB33906	2P	11/5/2013	Field	50.0	0	0	0.00	-	Method 1623
BB34095	2P	11/10/2013	Field	50.0	0	0	0.00	-	Method 1623
BB34091	2P	11/12/2013	Field	50.0	0	0	0.00	-	Method 1623
BB34090	2P	11/12/2013	Matrix Spike	51.0	98	45	0.88	45.9	Method 1623
BB34230	2P	11/17/2013	Field	50.0	0	0	0.00	-	Method 1623
BB34414	2P	11/19/2013	Field	50.0	0	0	0.00	-	Method 1623
BB34613	2P	11/24/2013	Field	50.0	0	0	0.00	-	Method 1623
BB34617	2P	11/25/2013	Field	50.0	0	0	0.00	-	Method 1623

**Notes:**

**Data Quality Statement:**

All data reported above, unless otherwise noted, were generated in accordance with EPA Method 1623.

Reviewed by \_\_\_\_\_

Date Reviewed: Tuesday, December 03, 2013



Nick Fish, Commissioner  
David G. Shaff, Administrator

1120 SW 5th Avenue, Room 600  
Portland, Oregon 97204-1926  
Information: 503-823-7404  
www.portlandoregon.gov/water



An Equal Opportunity Employer

DATE: January 9, 2014

WQ 0.10.14.4

TO: Oregon Health Authority  
Environmental Public Health  
Drinking Water Program

**SUBJECT: Monthly Report for December 2013  
Bull Run Treatment Variance  
Intake *Cryptosporidium* Results  
PWS # 4100657**

To Whom It May Concern:

Enclosed are results of laboratory analyses for *Cryptosporidium* from the Bull Run raw water intake for December 2013. Monitoring for *Cryptosporidium* at the Bull Run intake is done to comply with the conditions of Portland's Bull Run Treatment Variance (OHA Final Order, March 14, 2012). PWB is currently in Observation Monitoring. During the reporting month, compliance turbidity readings at the intake were greater than 2.0 NTU from December 2, 2013 through December 8, 2013, requiring the collection of seven turbidity-based samples (see attached report).

Clancy Environmental – Tetra Tech, Inc. completed the analysis for *Cryptosporidium* (see attached report). A summary of the results for the reporting month and the previous eleven months is shown in the table below:

***Cryptosporidium* Data Summary for the Reporting Month and the Previous Eleven Months.**

Date Range		Total Field Samples	Total Field Sample Volume (L)	Total No. Oocysts Counted in Field Samples	Total Matrix Spikes	Average Matrix Spike Recovery (%)
Reporting Month:	12/1/2013-12/31/2013	15	754.2	0	1	42.0
Previous 11 Months:	1/1/2013-11/30/2013	229	5825.4	0	28	47.0

If you have any questions regarding these results, please contact me at 503-823-6135.

Sincerely,

Ann Richter  
Environmental Program Manager

**Transmitted:** Three pages (including this transmittal memo) emailed to [dwp.dmce@state.or.us](mailto:dwp.dmce@state.or.us) on this date.



**Cryptosporidium Laboratory Analysis Report**

<u>Water System Information</u>		<u>Sample Information</u>	
<b>PWS ID:</b>	OR4100657	<b>Collection Month &amp; Year:</b>	December 2013
<b>PWS Name:</b>	Portland Water Bureau 1900 N Interstate Avenue Portland, Oregon 97227	<b>Report Date:</b>	January 7, 2014
<b>County:</b>	Multnomah	<b>Monitoring Regime:</b>	Observation
		<b>Source Water:</b>	Bull Run Intake

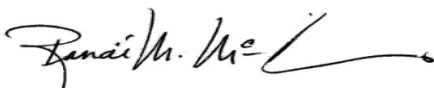
**Clancy Environmental - a Tetra Tech, Inc. company**

PWB Sample ID	Loc ID	Sample Collection Date	Sample Type	Sample Volume Filtered (L)	No. of Oocysts Spiked	No. of Oocysts Counted	No. Oocysts per Liter	Matrix Spike Recovery (%)	Analysis Method
BB34712	2P	12/1/2013	Field	50.0	0	0	0.00	-	1623
BB34773	2P	12/2/2013	Field	50.0	0	0	0.00	-	1623
BB34783	2P	12/3/2013	Field	50.0	0	0	0.00	-	1623
BB34830	2P	12/4/2013	Field	50.0	0	0	0.00	-	1623
BB34936	2P	12/5/2013	Field	54.2	0	0	0.00	-	1623
BB34931	2P	12/6/2013	Field	50.0	0	0	0.00	-	1623
BB34937	2P	12/7/2013	Field	50.0	0	0	0.00	-	1623
BB34939	2P	12/8/2013	Field	50.0	0	0	0.00	-	1623
BB35052	2P	12/10/2013	Matrix Spike	50.2	100	42	0.84	42.0	1623
BB35051	2P	12/10/2013	Field	50.0	0	0	0.00	-	1623
BB35140	2P	12/15/2013	Field	50.0	0	0	0.00	-	1623
BB35203	2P	12/17/2013	Field	50.0	0	0	0.00	-	1623
BB35313	2P	12/22/2013	Field	50.0	0	0	0.00	-	1623
BB35383	2P	12/23/2013	Field	50.0	0	0	0.00	-	1623
BB35410	2P	12/29/2013	Field	50.0	0	0	0.00	-	1623
BB35462	2P	12/30/2013	Field	50.0	0	0	0.00	-	1623

**Notes:** Sample BB34936 was collected on December 5, 2013 during an event when turbidity was >2.0 NTU. The sample was collected in five, 10-L cubitainers and subsequently filtered. The volume filtered through the Envirochek HV filter was 54.2 L. The resulting packed pellet volume was 1.0 mL and according to the analytical method 2 subsamples (0.5 mL packed pellet volume each) were processed independently for the isolation and detection of *Giardia* cysts and *Cryptosporidium* oocysts. Although Method 1623 is validated for 10-50 L volumes in this laboratory the method does allow for matrix spike volumes to be ± 10% of the field volume collected, so 55 L volumes would be permissible for analysis. In the laboratory's opinion, the sample is still within Method 1623 specifications since the volume was only 8.4% above 50 L and two subsamples representing the entire volume were analyzed.

**Data Quality Statement:**

All data reported above, unless otherwise noted, were generated in accordance with EPA Method 1623.

Reviewed by 

Date Reviewed: Tuesday, January 07, 2014



## Bull Run Treatment Variance Turbidity-based Sampling Report

PWS Name: **Portland Water Bureau**

ID #: **OR4100657**

Month/Year: **12/2013**

**Notes:** Highest compliance readings are from the Turbidity Monitoring Report submitted with the Surface Water Treatment Rule monthly report.

DAY	Highest Compliance Reading (NTU)	50-L Sample Required?	Sample ID(s)
12/1/2013	0.29	No	N/A
12/2/2013	3.13	Yes	BB34773
12/3/2013	3.12	Yes	BB34783
12/4/2013	2.31	Yes	BB34830
12/5/2013	2.20	Yes	BB34936
12/6/2013	2.14	Yes	BB34931
12/7/2013	2.08	Yes	BB34937
12/8/2013	2.03	Yes	BB34939
12/9/2013	1.97	No	N/A
12/10/2013	1.93	No	N/A
12/11/2013	1.83	No	N/A
12/12/2013	1.74	No	N/A
12/13/2013	1.77	No	N/A
12/14/2013	1.79	No	N/A
12/15/2013	1.75	No	N/A
12/16/2013	1.76	No	N/A
12/17/2013	1.75	No	N/A
12/18/2013	1.65	No	N/A
12/19/2013	1.61	No	N/A
12/20/2013	1.54	No	N/A
12/21/2013	1.52	No	N/A
12/22/2013	1.47	No	N/A
12/23/2013	1.42	No	N/A
12/24/2013	1.36	No	N/A
12/25/2013	1.32	No	N/A
12/26/2013	1.30	No	N/A
12/27/2013	1.26	No	N/A
12/28/2013	1.25	No	N/A
12/29/2013	1.21	No	N/A
12/30/2013	1.18	No	N/A
12/31/2013	1.02	No	N/A