## **Appendixes**

A.	Revised Sampling Plan and Study in Support of a Variance Application to the Treatment Requirements of the Long Term 2 Enhanced Surface Water Treatment Rule, May 2010 — Available on CD or PWB web site: www.portlandonline.com/water/				
	LT2VarianceRequest.				
В.	Tre	eatment Variance Request Team Biographies and AcknowledgmentsB-1			
C.	Monitoring of the Raw Water Intake				
	1.	Explanation for the 10,250 Liters Raw Water Intake Sampling Volume Used In			
		Portland's Sampling Plan, Jeff Rosen (April 27, 2011)			
	2.	Monitoring at the Bull Run Source Water Intake — Summary of Methods and Results  Technical Memorandum (May 10, 2011)			
	3.	Summary of Intake <i>Cryptosporidium</i> Raw Data for One-Year Monitoring Period (December 2009 - December 2010)			
	4.	Analytical Services, Inc. Statement of Data Quality – Intake Samples			
		(April 22, 2011)			
	5.	Official PWB Cryptosporidium Data for One-Year Monitoring Period at the Intake –			
		Field and Matrix Spike Samples (December 2009 – December 2010) — Available			
		on CD or PWB web site: www.portlandonline.com/water/LT2VarianceRequest.			
	6.	Official ASI Ongoing Precision and Recovery Data for One-Year Monitoring Period at Intake and Upstream Locations (December 2009 – December 2010) — <i>Available</i>			
		on CD or PWB web site: www.portlandonline.com/water/LT2VarianceRequest.			
	7.	Final Monthly LT2 Laboratory Control Charts and Cumulative Statements of Accuracy (December 14, 2009 – December 6, 2010) — <i>Available on CD or PWB web site:</i> www.portlandonline.com/water/LT2VarianceRequest.			
	8.	PWB Submittal to Oregon Drinking Water Program for a Modification to Method 1623 (April 27, 2010) — <i>Available on CD or PWB web site: www.portlandonline.com/water/LT2VarianceRequest.</i>			
	9.	EPA Technical Opinion Regarding PWB's Method Modification (May 26, 2010)			
		Oregon Drinking Water Program Technical Opinion Regarding PWB's Method  Modification (June 15, 2010)			
	11.	Pall Life Sciences Letter Regarding PWB's Method Modification (March 2, 2011)  — Available on CD or PWB web site: www.portlandonline.com/water/			
		LT2VarianceRequest.			

D.	M	Monitoring of the Upstream Watershed LocationsD-1			
	1.	Monitoring at Upstream Watershed Locations—Summary of Methods and Results Technical Memorandum (May 13, 2011)			
	2.	Summary of Upstream <i>Cryptosporidium</i> Raw Data for One-Year Monitoring Period (January 2010 – December 2010)			
	3.	Analytical Services, Inc. Statement of Data Quality – Upstream Watershed Locations (April 22, 2011)			
	4.	Official PWB <i>Cryptosporidium</i> Data for One-Year Monitoring Period at Upstream Locations – Field and Matrix Spike Samples (January 2010 – December 2010) — <i>Available on CD or PWB web site: www.portlandonline.com/water/</i>			
		LT2VarianceRequest.			
	5.	Ambient Data for Tributary Stream Discharge, Intake Turbidity and Precipitation			
		During One-Year Monitoring Period for Upstream Event Sampling			
		(January 2010 – December 2010) — Available on CD or PWB web site: www.portlandonline.com/water/LT2VarianceRequest.			
E.	Sc	at Monitoring and Wildlife Information E-1			
	1.	Bull Run Watershed Scat Sampling Program Development, Implementation, and			
		Results Technical Memorandum (May 10, 2011) E-3			
	2.	Raw Data for Analysis of Wildlife Scat Samples (August 31, 2009 – December 6, 2010) — Available on CD or PWB web site: www.portlandonline.com/water/			
		LT2VarianceRequest.			
	3.	Technical Memorandums on Bull Run Wildlife, DEA Task Memos 1-4 and 6-9			
		(November 29, 2010)E-57			
	4.	Cryptosporidium and Giardia Scat Analysis for the Bull Run Watershed Management Unit (April 28, 2011)E-135			
	5.	Observations of Canada Goose ( <i>Branta canadensis</i> ) and Other Waterfowl On and Near Bull Run Reservoirs 1 & 2 E-147			
F.	PC	B Model Adaptations F-1			
	1.	Adaptation of the Pathogen Catchment Budget Model to the Bull Run Watershed:  Description and Evaluation Technical Memorandum (May 17, 2011)F-3			
	2.	LT2 Variance Watershed Modeling — Synopsis of PCB Model Application to Bull			
		Run Watershed (May 2011)F-29			
	3.	Peer Review Panel Comments for LT2 Variance Watershed Modeling Task 2 – Model Outputs (April 27, 2011)F-75			
	4.	Fate and Transport Expert Panel Summary and Consensus Statement Technical  Memorandum (April 20, 2011)F-81			
	5.	Peer Review Panel, PWB, and EPA Comments on Model Adaptations and ALS/Ecowise Responses (February 2011) — <i>Available on CD or PWB web site:</i> www.portlandonline.com/water/LT2VarianceRequest			

G.	Βu	ıll Run Watershed Protections, Controls, and Conditions
	1.	Oregon Drinking Water Program Annual Watershed Survey for the Bull Run
		Watershed (October 21, 2010)
	2.	Bull Run Watershed Access and Security Measures
	3.	Vegetation Map Classification Technical Memorandum (May 2, 2011)
	4.	Characterization of the Year 2010: Climatic Conditions, Reservoir and Dam Operations, and Watershed Activities in the Bull Run Watershed Technical Memorandum (May 11, 2011) — Available on CD or PWB web site:  www.portlandonline.com/water/LT2VarianceRequest.
	5.	January 2011 Turbidity Event in the Bull Run Watershed Technical Memorandum (May 6, 2011)G-27
	6.	Portland Water Bureau Raw Water Quality Monitoring Schedule, 2011G-37
н.	Hi	storical DataH-1
	. Н	Historical Cryptosporidium Data and Method Development Technical Memorandum
		(May 16, 2011)H-3
	2.	Summary of PWB Historical Intake <i>Cryptosporidium</i> Raw Data (1986 – 2009) — <i>Available on CD or PWB web site: www.portlandonline.com/water/LT2VarianceRequest.</i>
l.	LT2	? Variance Process HistoryI-1
	1.	Portland Water Bureau LT2 Variance Process HistoryI-3
	2.	EPA Letter to PWB Approving LT2 Grandfathered Data (July 2, 2007)I-23
	3.	EPA Letter to PWB Summarizing and Clarifying Questions from February 20, 2008,  Meeting (April 8, 2008)I-27
	4.	PWB Letter to EPA with Preliminary Outline of Second Variance Sampling Plan
		Proposal (July 23, 2008)I-31
	5.	EPA E-Mail Addressing Second Variance Sampling Plan Proposal
		(September 21, 2008)I-35
	6.	PWB Second Variance Sampling Plan Proposal to EPA (April 10, 2009)I-39
	7.	EPA E-Mail Attachment Sent to PWB Outlining 13 Variance Monitoring
		Considerations in Response to PWB's Second Variance Sampling Plan Proposal
		(April 22, 2009)I-53
	8.	EPA Letter to PWB Providing Results of EPA Review of PWB's Second Sampling
		Plan Proposal (May 7, 2009)I-57
	9.	PWB Letter to EPA Regarding EPA's Response to PWB's Second Variance Sampling
		Plan Proposal (May 14, 2009)I-63
	10.	EPA E-Mails to PWB Clarifying Three Options for Sampling Endpoints
		(August 11-18, 2009)I-73
	11.	E-Mails Between EPA and PWB Clarifying the Three Sampling Endpoint Options,
		Sample Volumes, and Other Questions (Sentember 1-28, 2009) I-77

12. EPA E-Mail to PWB Confirming the Minimum Sample Volume for Option 3
(November 5, 2009)I-85
13. Draft Summary Discussion of EPA/PWB Conference Call on December 9, 2009  (December 9, 2009)I-89
14. Transmittal Letter and EPA Final Review of PWB Submission on November 12, 2009: Recommendations for Sampling Plan and Study (March 9, 2010)I-97
15. EPA Letter to Oregon Drinking Water Program Clarifying Roles and Responsibilities
in Response to PWB's Request for a Variance (May 24, 2010)I-103
16. DHS Letter to EPA, Requesting EPA Retain Lead Role in Evaluating PWB's Variance Request (June 4, 2010)I-109
17. PWB, Oregon Drinking Water Program, and EPA Meeting to Discuss the Variance Process (June 9, 2010)I-113
18. PWB Letter to EPA Outlining Potential "Hot Spot" Monitoring Thresholds
(September 2, 2010)I-123
19. PWB Letter to EPA Requesting a Meeting to Discuss Potential Variance Conditions (September 9, 2010)I-141
20. EPA Letter Responding to PWB Request for a Meeting to Discuss Potential Variance Conditions (October 22, 2010)
21. PWB E-Mail to EPA Clarifying the Roles of EPA and the State of Oregon in
Evaluating the City's Variance Request (December 22, 2010)I-151
22. PWB Letter to EPA Confirming Roles and Responsibilities in Response to PWB's Request for a Variance (February 15, 2011)
23. EPA Letter to PWB Confirming and Clarifying Roles and Responsibilities to the
PWB's Request for a Variance (March 21, 2011)I-159
J. PWB Actions to Fulfill EPA's Recommendations and Criteria for Consideration of a Treatment Variance Request