

OHA - Drinking Water Services - Turbidity Monitoring Report Form

County: Multnomah

Slow Sand, Membrane, Diatomaceous Earth Filtration, or Unfiltered Systems

Portland Water Bureau

ID #: OR 4100657

WTP-A

Month/Year: 11/2022

DAY	12 AM (NTU)	4 AM (NTU)	8 AM (NTU)	NOON (NTU)	4 PM (NTU)	8 PM (NTU)	Highest Reading (NTU)	
1	0.81	0.80	0.81	0.80	0.79	0.80	0.81	
2	0.81	0.81	0.81	0.80	0.82	0.82	0.82	
3	0.80	0.79	0.79	4.74	1.05	0.97	4.74	
4	0.91	0.90	0.95	0.96	0.96	1.28	1.28	
5	1.47	1.64					1.64	
6								
7								
8								
9								
10								
11	Supply 100% Groundwater							
12								
13								
14								
15								
16								
17								
18								
19								
20								
21			3.32	3.48	3.41	3.39	3.48	
22	3.35	3.31	3.29	3.26	3.31	3.32	3.35	
23	3.30	3.20	3.12	3.21	3.17	3.11	3.30	
24	3.02	2.99	2.98	2.91	2.88	2.88	3.02	
25	2.89	2.87	2.88	2.81	2.88	2.89	2.89	
26	2.87	2.84	2.81	2.75	2.70	2.62	2.87	
27	2.57	2.54	2.48	2.57	2.58	2.58	2.58	
28	2.55	2.47	2.44	2.48	2.41	2.39	2.55	
29	2.37	2.38	2.37	2.34	2.29	2.25	2.38	
30	2.22	2.20	2.25	2.29	2.20	2.16	2.29	

Slow Sand/Membrane/DE Filtration/Unfiltered			Monthly summary	
95% of daily turbidity readings ≤ 1 NTU? ¹	N/A	CT's met everyday?	Chlorine residual at entry point always ≥ 0.2 mg/L?	Chlorine residual measured in 95% of distribution samples?
All daily turbidity readings ≤ 5 NTU?	Yes	Yes	Yes	Yes

¹Filtered systems only

Signature: Anna Vosa
 Anna Vosa, P.E.

Date: 12/8/22

OHA - Drinking Water Services

Surface Water Quality Data Conduit 2

Portland Water Bureau

ID#: OR 4100657

WTP-A

Month/Year:

11/2022

Date / Time	Peak Hourly Flow	Minimum Hourly Average Free Chlorine (C)	Contact Time (T)	Actual CT	Temp	pH	Req'd CT	CT Met?	Min. Hourly Average Total Chlorine at First User
	MGD	ppm or mg/L	min.	C x T	°C		Tables	Y/N	ppm or mg/L
1			Conduit 2 Out of Service						
2			Conduit 2 Out of Service						
3 / 12	22.69	1.03	242.4	250.0	13.2	7.10	91.8	Y	1.82
4 / 20	22.99	2.43	236.4	574.1	12.2	6.70	99.4	Y	2.42
5 / 1	23.77	2.33	230.9	537.8	11.9	6.69	100.2	Y	2.28
6									
7									
8									
9									
10									
11									
12			Conduit 2 Out of Service						
13									
14									
15									
16									
17									
18									
19									
20									
21 / 14	32.05	2.46	181.6	447.1	6.6	6.43	129.6	Y	1.99
22 / 23	45.60	2.41	185.6	446.5	6.2	6.36	128.1	Y	2.02
23 / 9	46.09	2.46	197.9	486.4	6.4	6.34	127.1	Y	2.35
24 / 3	26.06	2.49	232.8	579.4	6.4	6.34	127.6	Y	2.32
25 / 19	20.78	2.48	290.3	720.5	6.3	6.35	128.6	Y	2.36
26 / 8	20.39	2.51	322.7	810.1	6.3	6.35	129.4	Y	2.56
27 / 11	20.43	2.53	321.4	812.0	6.1	6.33	130.2	Y	2.51
28 / 9	23.22	2.58	285.5	736.0	6.1	6.34	131.8	Y	2.53
29 / 5	23.02	2.57	287.8	739.8	6.1	6.33	131.0	Y	2.56
30 / 11	24.31	2.55	273.2	696.7	6.0	6.36	132.5	Y	2.56

Notes for Conduit 2 (C2):

November 1 to 3, 2022: Conduit 2 out of service from Headworks through Lusted and on to town.

November 3 to 5, 2022: Conduit 2 out of service from Headworks to Hudsons Intertie, Conduit 4 feeding Conduit 2 at Hudsons Intertie, Conduit 2 in service from Hudsons through Lusted and on to town.

November 5 to 20, 2022: Conduit 2 out of service from Headworks through Lusted and on to town.

November 21 to 23, 2022: Intermittent Conduit operation due to issues bringing corrosion control systems back on line. Conduit 4 feeding Conduit 2 at Hudsons Intertie when in operation.

November 24 to 30, 2022: Conduit 2 out of service from Headworks to Hudsons Intertie, Conduit 4 feeding Conduit 2 at Hudsons Intertie, Conduit 2 in service from Hudsons through Lusted and on to town.

Signature: Anna Vosa
 Anna Vosa, P.E., Water Quality Engineer

Date: 12/8/22

OHA - Drinking Water Services

Surface Water Quality Data Conduit 3

Portland Water Bureau

ID#: OR 4100657

WTP-A

Month/Year: 11/2022

Date / Time	Peak Hourly Flow	Minimum Hourly Average Free Chlorine (C)	Contact Time (T)	Actual CT	Temp	pH	Req'd CT	CT Met?	Min. Hourly Average Total Chlorine at First User
	MGD	ppm or mg/L	min.	C x T	°C		Tables	Y/N	ppm or mg/L
1 / 18	22.18	2.41	443.3	1069.7	13.7	6.87	92.8	Y	2.43
2 / 3	22.31	2.46	440.8	1083.4	13.5	6.87	94.8	Y	2.31
3 / 12	23.96	2.26	409.9	925.4	13.2	6.86	95.6	Y	2.24
4 / 23	24.64	2.43	398.5	969.0	12.2	6.69	99.3	Y	2.41
5 / 1	24.97	2.43	393.1	954.3	11.9	6.68	101.2	Y	2.39
6									
7									
8									
9									
10									
11									
12									
13	Conduit 3 Out of Service								
14									
15									
16									
17									
18									
19									
20									
21									
22									
23 / 13	29.97	1.14	328.2	372.5	6.3	6.40	114.3	Y	0.89
24 / 4	29.96	2.27	328.5	744.9	6.4	6.34	124.5	Y	2.26
25 / 8	22.74	2.47	433.8	1072.1	6.3	6.35	128.5	Y	2.46
26 / 22	20.20	2.53	487.5	1231.6	6.3	6.33	129.0	Y	2.51
27 / 12	20.39	2.45	483.0	1184.6	6.1	6.35	129.4	Y	2.43
28 / 19	20.92	2.49	470.5	1170.2	6.1	6.35	129.9	Y	2.47
29 / 10	20.92	2.46	470.5	1156.6	6.1	6.35	129.2	Y	2.44
30 / 14	21.96	2.49	449.0	1116.5	6.0	6.35	130.8	Y	2.48

Notes for Conduit 3 (C3):

November 1 to 5, 2022: Conduit 3 in service from Headworks through Lusted and on to town.

November 6 to 22: Conduit 3 out of service from Headworks through Lusted and on to town.

November 23 to 30, 2022: Conduit 3 in service from Headworks through Lusted and on to town.

Signature: Anna Vosa
 Anna Vosa, P.E., Water Quality Engineer

Date: 12/8/22

OHA - Drinking Water Services

Surface Water Quality Data Conduit 4

Portland Water Bureau

ID#: OR 4100657

WTP-A

Month/Year:

11/2022

Date / Time	Peak Hourly Flow	Minimum Hourly Average Free Chlorine (C)	Contact Time (T)	Actual CT	Temp	pH	Req'd CT	CT Met?	Min. Hourly Average Total Chlorine at First User
	MGD	ppm or mg/L	min.	C x T	°C		Tables	Y/N	ppm or mg/L
1 / 18	22.57	2.42	565.8	1368.2	13.7	6.85	92.3	Y	2.45
2 / 10	22.69	2.07	562.8	1162.9	13.5	6.78	88.6	Y	2.01
3 / 12	39.15	2.36	238.1	562.7	13.2	6.85	96.0	Y	2.36
4 / 21	39.62	2.43	232.2	565.5	12.2	6.70	99.7	Y	2.46
5 / 1	40.84	2.33	227.2	529.2	11.9	6.70	100.7	Y	1.88
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8									
9									
10									
11									
12									
13									
14									
15									
16									
17									
18									
19									
20									
21 / 12	47.99	1.03	188.1	193.8	6.6	6.45	130.5	Y	2.22
22 / 18	35.42	1.05	237.0	248.3	6.3	6.10	102.8	Y	0.38
23 / 22	34.91	2.10	251.1	528.5	6.3	6.34	123.5	Y	2.12
24 / 1	34.95	2.50	251.0	627.6	6.4	6.35	128.2	Y	2.39
25 / 2	28.54	2.52	310.3	781.1	6.3	6.37	130.5	Y	2.39
26 / 6	22.00	2.52	376.6	948.1	6.3	6.35	129.4	Y	2.48
27 / 11	22.10	2.49	374.8	934.4	6.1	6.38	131.3	Y	2.43
28 / 11	24.51	2.53	335.9	850.6	6.1	6.36	131.6	Y	2.43
29 / 8	24.33	2.59	338.5	878.4	6.1	6.37	133.2	Y	2.44
30 / 21	25.49	2.51	322.2	807.4	6.0	6.39	132.7	Y	2.47

Notes for Conduit 4 (C4):

November 1 to 3, 2022: Conduit 4 in service from Headworks through Lusted and on to town.

November 3 to 5, 2022: Conduit 4 in service from Headworks through Lusted and on to town, Conduit 4 feeding Conduit 2 at Hudsons Intertie.

November 5 to 20, 2022: Conduit 4 out of service from Headworks through Lusted and on to town.

November 21 to 23, 2022: Intermittent Conduit operation due to issues bringing corrosion control systems back on line. Conduit 4 feeding Conduit 2 at Hudsons Intertie when in operation.

November 24 to 30, 2022: Conduit 4 in service from Headworks through Lusted and on to town. Conduit 4 feeding Conduit 2 at Hudsons Interite.

Signature: Anna Vosa
 Anna Vosa, P.E., Water Quality Engineer

Date: 12/8/22

OHA Drinking Water Services - Raw Coliform Data (Unfiltered)

Portland Water Bureau

ID#: OR 4100657

Month/Year: 11/2022

Date	Fecal Coliform (CFU/100mL)	Comments
11/1/2022	8	
11/2/2022	4	
11/3/2022	10	
11/4/2022	16	
11/5/2022	21	
11/6/2022		
11/7/2022		
11/8/2022		
11/9/2022		
11/10/2022		Supply 100% Groundwater
11/11/2022		from November 6 to 20, 2022
11/12/2022		
11/13/2022		
11/14/2022		
11/15/2022		
11/16/2022		
11/17/2022		
11/18/2022		
11/19/2022		
11/20/2022		
11/21/2022	1	
11/22/2022	1	
11/23/2022	3	
11/24/2022	2	
11/25/2022	1	
11/26/2022	2	
11/27/2022	1	
11/28/2022	2	
11/29/2022	1	
11/30/2022	1	

Note: Fecal Coliform sampled at active Headworks Raw Water Intake (either 2P or 2PIS)

Six Month Summary:

# of Samples For Fecal Coliform:	168
# of Samples > 20 CFU/100mL:	1
Percent:	0.6%



Mingus Mapps, Commissioner
Gabriel Solmer, Administrator



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

WQ 0.10.1.1

DATE: December 9, 2022
TO: Oregon Health Authority
Drinking Water Services
FROM: Anna Vosa, P.E.
Water Quality Engineer

SUBJECT: Monthly Report for November 2022
Surface Water Treatment Rule
PWS # OR 4100657

This monthly report includes the following information:

Description	Number of Pages
Transmittal Memorandum	1 page
Raw water turbidity data (OHA form)	1 page
Raw water coliform data (OHA form)	1 page
CT reports for conduits 2, 3, and 4 (OHA form)	3 pages
Transmitted	Total of 6 pages, including this transmittal memo

Remarks:

Portland Water Bureau (PWB) initially disinfects using free chlorine added to three individual conduits. There are two active conduit interties (Larsons and Hudsons) between chlorination at Headworks and the secondary treatment plant (chloramination and pH adjustment) at Lusted Hill. These potentially divide the conduits into three segments since water can be diverted between conduits at the interties.

Per OHA request, to calculate CT for each of the three individual conduits PWB uses the daily maximum hourly average individual conduit flow rates for each conduit segment and the daily minimum hourly average free chlorine concentrations from the Lusted Inlet free chlorine analyzers.

In November, conduit operations were affected by (1) continued groundwater blending for summer supply augmentation from November 1 to 3, 2022, (2) Emergency groundwater use due to a turbidity event in the watershed from November 5 to 20, 2022, and (3) issues with bringing the Lusted Corrosion Control facility back on line following the turbidity event, from November 21 to 24. See individual conduit CT reports for details.

In addition, twelve First User TCR samples were collected on the following days in response to raw turbidity measurements that exceeded 1.49 NTU: November 4 and 5, and November 21 to 30.

Please contact me at 503-823-7598 if additional information is required.