

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: 02/2022

DAY	12 AM (NTU)	4 AM (NTU)	8 AM (NTU)	NOON (NTU)	4 PM (NTU)	8 PM (NTU)	Highest Reading (NTU)	
1	0.55	0.54	0.55	0.56	0.59	0.54	0.59	
2	0.54	0.54	0.53	0.54	0.56	0.53	0.56	
3	0.54	0.54	0.54	0.55	0.53	0.53	0.55	
4	0.54	0.57	0.56	0.55	0.50	0.55	0.57	
5	0.54	0.48	0.48	0.49	0.49	0.48	0.54	
6	0.47	0.48	0.48	0.48	0.49	0.49	0.49	
7	0.47	0.47	0.45	0.45	0.46	0.45	0.47	
8	0.45	0.44	0.45	0.44			0.45	
9	100 Percent Groundwater							
10								
11								0.41
12	0.41	0.41	0.43	0.41	0.41	0.40	0.43	
13	0.40	0.40	0.39	0.40	0.38	0.39	0.40	
14	0.38	0.38	0.39	0.38	0.48	0.49	0.49	
15	0.40	0.56	0.36	0.35	0.38	0.35	0.56	
16	0.35	0.33	0.34	0.33	0.48	0.33	0.48	
17	0.32	0.34	0.32	0.32	0.33	0.33	0.34	
18	0.33	0.33	0.32	0.33	0.32	0.32	0.33	
19	0.35	0.33	0.33	0.33	0.33	0.33	0.35	
20	0.32	0.30	0.30	0.29	0.30	0.31	0.32	
21	0.30	0.31	0.31	0.30	0.30	0.33	0.33	
22	0.32	0.32	0.32	0.32	0.33	0.32	0.33	
23	0.32	0.32	0.32	0.32	0.33	0.34	0.34	
24	0.35	0.33	0.33	0.39	0.38	0.40	0.40	
25	0.37	0.39	0.38	0.35	0.41	0.44	0.44	
26	0.43	0.37	0.38	0.35	0.37	0.38	0.43	
27	0.37	0.38	0.41	0.41	0.50	0.43	0.50	
28	0.50	0.45	0.44	0.44	0.39	0.48	0.50	

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

¹Filtered systems only

Signature: Anna Vosa
 Anna Vosa, P.E.

Date: 3/9/22

OHA - Drinking Water Services

Surface Water Quality Data Conduit 2

Portland Water Bureau

ID#: OR 4100657

WTP-A

Month/Year: 02/2022

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 / 9	23.49	2.23	287.6	641.2	4.4	6.37	142.8	Y	2.19
2 / 11	23.51	2.23	287.5	640.7	4.4	6.37	143.3	Y	2.18
3 / 20	23.93	2.21	282.5	624.1	4.4	6.37	142.4	Y	2.14
4 / 7	23.87	1.86	282.7	526.1	4.4	6.37	138.4	Y	1.84
5 / 10	24.62	2.18	274.8	600.2	4.4	6.37	142.4	Y	2.14
6 / 7	24.08	2.23	280.7	626.3	4.5	6.45	145.5	Y	2.19
7 / 5	23.96	2.23	282.3	629.8	4.5	6.45	145.2	Y	2.19
8 / 7	23.80	2.23	284.0	632.7	4.5	6.45	145.5	Y	2.15
9			100 Percent Groundwater						
10									
11 / 14	21.39	1.71	313.2	535.4	4.7	6.47	136.5	Y	1.66
12 / 14	21.47	2.21	312.7	691.6	4.8	6.41	139.6	Y	2.20
13 / 8	21.38	2.21	314.3	696.1	4.7	6.43	141.3	Y	2.20
14 / 19	21.90	2.23	307.3	684.2	4.7	6.44	142.6	Y	2.18
15 / 6	21.85	2.26	307.5	696.2	4.7	6.42	141.7	Y	2.21
16 / 16	21.37	2.29	314.4	719.2	4.7	6.47	144.6	Y	1.93
17 / 7	21.36	2.24	314.5	703.1	4.7	6.45	142.0	Y	2.16
18 / 12	21.30	2.25	315.3	709.9	4.8	6.33	135.5	Y	2.22
19 / 16	21.30	2.24	315.3	706.1	4.9	6.45	139.7	Y	2.19
20 / 20	21.49	2.23	312.7	698.0	4.8	6.59	148.0	Y	2.17
21 / 13	21.49	2.22	312.7	693.1	4.8	6.60	148.7	Y	2.14
22 / 8	21.33	2.21	314.8	695.7	4.7	6.60	150.0	Y	2.13
23 / 8	21.18	2.21	317.3	702.1	4.6	6.62	153.5	Y	2.21
24 / 12	20.74	2.25	321.4	722.1	4.5	6.61	153.8	Y	2.23
25 / 8	20.74	2.17	323.4	701.9	4.4	6.62	155.1	Y	2.16
26 / 9	20.73	2.25	323.4	729.3	4.4	6.63	157.4	Y	2.23
27 / 20	21.52	2.23	309.0	688.5	4.5	6.56	151.4	Y	2.20
28 / 20	22.84	2.18	294.9	642.4	4.4	6.55	150.8	Y	2.15

Notes for Conduit 2 (C2):

February 1 to 28, 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 (except between 2/8 12:00 and 2/11 10:00 during which groundwater was in use and no flow from Conduit 2 was provided).

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

Date: 3/9/22

OHA - Drinking Water Services

Surface Water Quality Data Conduit 3

Portland Water Bureau

ID#: OR 4100657

WTP-A

Month/Year: 02/2022

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 / 14	29.95	2.18	328.2	717.1	4.4	6.37	142.3	Y	2.14
2 / 10	29.96	2.20	328.2	722.4	4.4	6.39	143.9	Y	2.15
3 / 21	30.43	2.18	323.2	705.6	4.4	6.36	141.7	Y	2.14
4 / 3	30.44	1.63	323.1	525.2	4.4	6.37	134.3	Y	2.12
5 / 11	31.22	2.22	314.9	698.4	4.4	6.36	142.3	Y	2.18
6 / 7	30.63	2.21	321.1	708.5	4.5	6.46	145.5	Y	2.18
7 / 1	30.49	2.23	322.8	719.7	4.5	6.45	145.3	Y	2.20
8 / 5	30.31	2.22	324.6	720.3	4.5	6.46	145.5	Y	2.14
9			100 Percent Groundwater						
10									
11 / 19	31.84	1.68	308.8	518.7	4.7	6.50	138.8	Y	1.61
12 / 23	36.58	2.19	269.1	589.2	4.8	6.52	144.2	Y	2.10
13 / 3	36.61	2.21	268.6	593.2	4.7	6.53	146.0	Y	2.15
14 / 18	37.41	2.22	262.9	583.6	4.7	6.51	145.7	Y	2.16
15 / 1	37.45	2.22	262.9	583.1	4.7	6.55	147.9	Y	2.23
16 / 5	36.60	1.78	268.7	477.4	4.7	6.58	143.6	Y	2.02
17 / 5	36.56	2.19	268.9	588.6	4.7	6.56	146.8	Y	2.23
18 / 4	36.49	2.17	269.5	585.6	4.8	6.56	145.6	Y	2.21
19 / 16	36.59	2.17	268.8	583.3	4.9	6.57	145.1	Y	2.19
20 / 17	36.86	2.21	266.7	590.0	4.8	6.59	147.7	Y	2.20
21 / 20	36.87	2.15	266.6	572.8	4.8	6.58	146.7	Y	2.18
22 / 4	42.05	2.20	233.9	515.4	4.7	6.59	149.0	Y	2.17
23 / 5	41.71	2.19	235.8	516.0	4.6	6.61	152.4	Y	2.21
24 / 0	36.22	2.21	271.9	600.2	4.5	6.61	153.1	Y	2.22
25 / 5	35.91	2.14	274.0	587.4	4.4	6.62	154.5	Y	2.15
26 / 2	35.88	2.21	274.2	606.0	4.4	6.62	156.2	Y	2.22
27 / 23	37.64	2.20	261.3	576.0	4.5	6.54	150.0	Y	2.20
28 / 5	38.36	2.12	256.1	543.4	4.4	6.56	150.7	Y	2.08

Notes for Conduit 3 (C3):

February 1 to 28, 2022: Conduit 3 in service from Headworks through Lusted and on to town (except between 2/8 12:00 and 2/11 10:00 during which groundwater was in use and no flow from Conduit 3 was provided).

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

Date: 3/9/22

OHA - Drinking Water Services

Surface Water Quality Data Conduit 4

Portland Water Bureau

ID#: OR 4100657

WTP-A

Month/Year: 02/2022

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 / 12	23.50	2.21	345.1	764.3	4.4	6.36	142.5	Y	2.20
2 / 12	23.48	2.21	345.2	764.1	4.4	6.36	142.5	Y	2.19
3 / 19	23.84	2.21	339.6	749.8	4.4	6.35	141.3	Y	2.15
4 / 5	23.82	1.69	339.7	575.2	4.4	6.34	134.5	Y	1.85
5 / 12	24.39	2.17	331.0	717.6	4.4	6.42	144.8	Y	2.15
6 / 7	24.00	2.22	337.3	748.8	4.5	6.43	144.4	Y	2.18
7 / 8	23.88	2.23	339.3	755.5	4.5	6.43	144.5	Y	2.17
8 / 7	23.76	2.23	341.1	759.6	4.5	6.43	144.5	Y	2.10
9			100 Percent Groundwater						
10									
11 / 14	21.68	0.86	374.2	321.9	4.7	6.37	133.7	Y	0.74
12 / 8	21.79	2.20	373.4	820.0	4.8	6.46	141.4	Y	2.16
13 / 8	21.73	2.18	374.9	817.6	4.7	6.52	144.8	Y	2.14
14 / 17	22.10	2.18	367.6	802.6	4.7	6.51	144.8	Y	2.15
15 / 5	22.14	2.22	367.3	817.0	4.7	6.54	147.1	Y	2.18
16 / 8	21.69	2.24	375.3	842.4	4.7	6.46	143.5	Y	1.98
17 / 5	21.69	2.20	375.3	824.6	4.7	6.53	145.5	Y	2.19
18 / 7	21.64	2.21	376.2	830.9	4.8	6.53	144.3	Y	2.18
19 / 11	21.67	2.22	376.0	834.2	4.9	6.53	143.1	Y	2.17
20 / 16	21.79	2.22	373.4	827.4	4.8	6.58	147.0	Y	2.16
21 / 20	21.81	2.20	373.2	822.7	4.8	6.57	146.9	Y	2.15
22 / 6	21.67	2.19	375.6	822.9	4.7	6.58	148.4	Y	2.15
23 / 5	21.57	2.20	378.1	832.5	4.6	6.60	152.1	Y	2.18
24 / 5	21.21	2.23	382.9	852.8	4.5	6.59	152.2	Y	2.20
25 / 17	21.19	2.15	385.0	827.3	4.4	6.61	154.4	Y	2.16
26 / 19	21.22	2.24	384.8	860.3	4.4	6.52	150.5	Y	2.21
27 / 20	21.82	2.21	369.6	817.3	4.5	6.51	148.6	Y	2.18
28 / 16	22.95	2.16	353.4	761.6	4.4	6.52	148.6	Y	2.14

Notes for Conduit 4 (C4):

February 1 to 28, 2022: Conduit 4 in service from Hudsons Intertie through Lusted and on to town; Conduit 4 feeding Conduit 2 at Hudsons Intertie (except between 2/8 12:00 and 2/11 10:00 during which groundwater was in use and no flow from Conduit 4 was provided).

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

Date: 3/9/22



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: March 9, 2022

TO: Oregon Health Authority
Drinking Water Services

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

**SUBJECT: Monthly Report for February 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 February 2022, there was period of 100% groundwater use from February 8 at 12:00 PM to February 11 at 10:00 AM, in anticipation of staff shortages resulting from contract negotiations with represented City of Portland employees. The transition back to 100% surface water occurred over approximately a three-hour period between 10:00 AM and 1:00 PM on February 11, 2022.

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

OHA Drinking Water Services - Raw Coliform Data (Unfiltered)

Portland Water Bureau

ID#: OR 4100657

Month/Year: 02/2022

Date	Fecal Coliform (CFU/100mL)	Comments
2/1/2022	<1	
2/2/2022	<1	
2/3/2022	<1	
2/4/2022	<1	
2/5/2022	<1	
2/6/2022	<1	
2/7/2022	<1	
2/8/2022	<1	
2/9/2022		100 Percent
2/10/2022		Groundwater
2/11/2022	<1	
2/12/2022	<1	
2/13/2022	<1	
2/14/2022	<1	
2/15/2022	<1	
2/16/2022	<1	
2/17/2022	<1	
2/18/2022	<1	
2/19/2022	<1	
2/20/2022	<1	
2/21/2022	<1	
2/22/2022	<1	
2/24/2022	<1	
2/25/2022	<1	
2/26/2022	<1	
2/27/2022	<1	
2/28/2022	<1	

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

Six Month Summary:

# of Samples For Fecal Coliform:	176
# of Samples > 20 CFU/100mL:	0
Percent:	0.0%