MONTHLY OPERATION REPORT OF
THE CITY OF BENTON HARBOR WATER TREATMENT PLANT

SUPPLY NAME: **CITY OF BENTON HARBOR** Page 1

WSSN:600

Operator-in-Charge **Abul D Ahmed** **F1**

Month/Year **June-21**

Abul D Ahmed

Signature of Operator-in-Charge

Water Plant Classification

Berrien
County

Treatment Rate and Filter Data

Maximum Treatment Rate:	1.2966	Million Gallons per Day
Rated Plant Capacity:	12	Million Gallons per Day
Average Filter Run:	190.50	Hours
Average Head Loss:	NA	Feet
Average Filtration Rate:	1.06	Gallons Per Square Feet per Minute
Maximum Filtration Rate:	2.26	Gallons Per Square Feet per Minute
Average Wash Water Use:	0.88%	Percent of Treated Water

Chemical Data

Chlorine on hand:	57570	lb.	Est. supply:	382	days
Primary Coagulant (Alum (Al3+)) on hand:	104450	lb.	Est. supply:	182	days
Cost of All Chemicals per Million Gallons:	$67.34	dollars			
Total Power Cost per Million Gallons:		dollars			

Remarks

	North Filter	South Filter
Number of filter confluence samples > 0.3 NTU:	0	0
Number of filter confluence samples collected:	90	90
Percent of filter confluence samples > 0.3 NTU:	0%	0%
Number of filter confluence samples > 1 NTU	0	0

Did any individual filter exceed:

1.0 NTU in two consecutive measurements taken 15 minutes apart? NO
If yes, attach specific filter(s) information and indicate required follow-up status.

0.5 NTU in two consecutive measurements taken 15 minutes apart after 4 hours of operation? NO
If yes, attach specific filter(s) information and indicate required follow-up status.

1.0 NTU in two consecutive measurements taken 15 minutes apart for 3 consecutive months? NO
If yes, attach specific filter(s) information and indicate required follow-up status.

2.0 NTU in two consecutive measurements taken 15 minutes apart for 2 consecutive months? NO
If yes, attach specific filter(s) information and indicate required follow-up status.

Was continuous (every 15 minutes) filter monitoring equipment off-line during the month? NO
If yes, indicate date(s), duration, and individual filter grab sampling frequency on a separate sheet.

Did POE disinfectant residual fall below 0.2 ppm during the month? NO
If yes, indicate date(s) and duration on a separate sheet.

Was minimum C*T credit achieved for the entire month? YES
If no, indicate on a separate sheet the date(s) not achieved.

Was continuous POE chlorine residual monitoring equipment off-line during the month? NO
If yes, indicate date(s) and duration on a separate sheet.

Distribution	Total	32.593847	Avg	1.1208767	Max	1.39052	Min	0.796215

Remarks. We have begun to feed Orthopolyphosphate (OPP) 70/30 Carus 8600 33% March 25, 2019
This report has an updated Bacteria Page for Metered flow and OPP treat and residuals.

WSSN 0600 City of Benton Harbor

Month/Year: June-21

COAGULATION PARAMETERS

DATE	MIL. GAL. TREAT.	Dry $Al_2(SO_3)_4$ Pounds Add	ALUM as Al^{3+} mg/l	TURBIDITY UNITS RAW Avg.	Max.	Applied Avg.	# Samples	FILTERED NORTH Avg.	Max.	# Samples	FILTERED SOUTH Avg.	Max.	2 Hour Compliance Periods # of Periods	#of Periods >.30NTU North	#of Periods >.30NTU South
1	1.0075	303.00	1.58	1.60	2.90	0.44	3	0.08	0.10	3	0.09	0.09	6	0	0
2	0.9875	299.00	1.59	1.40	1.60	0.41	3	0.08	0.09	3	0.08	0.08	6	0	0
3	0.9600	293.00	1.61	1.20	1.40	0.40	3	0.07	0.07	3	0.07	0.08	6	0	0
4	1.0650	328.00	1.62	1.60	2.90	0.35	3	0.07	0.07	3	0.07	0.08	6	0	0
5	0.9425	284.00	1.59	1.60	2.40	0.28	3	0.07	0.08	3	0.07	0.07	6	0	0
6	1.0800	332.00	1.38	1.10	1.40	0.28	3	0.06	0.07	3	0.07	0.08	6	0	0
7	1.0500	321.00	1.61	1.20	1.90	0.44	3	0.08	0.10	3	0.09	0.10	6	0	0
8	1.0475	325.00	1.63	1.02	1.50	0.51	3	0.09	0.10	3	0.09	0.09	6	0	0
9	1.0525	322.00	1.61	1.10	1.70	0.30	3	0.08	0.09	3	0.07	0.08	6	0	0
10	1.2000	368.00	1.61	0.78	0.91	0.29	3	0.07	0.08	3	0.07	0.08	6	0	0
11	1.1600	394.00	1.79	3.00	4.50	0.60	3	0.06	0.07	3	0.08	0.09	6	0	0
12	0.9850	299.00	1.60	1.20	2.00	0.38	3	0.08	0.09	3	0.08	0.10	6	0	0
13	1.1375	300.00	1.39	0.89	1.50	0.32	3	0.08	0.09	3	0.09	0.10	6	0	0
14	1.1775	357.00	1.60	0.67	0.76	0.34	3	0.08	0.08	3	0.08	0.09	6	0	0
15	1.1375	331.00	1.53	1.00	1.24	0.49	3	0.09	0.09	3	0.08	0.09	6	0	0
16	1.1975	359.00	1.58	1.10	1.40	0.48	3	0.07	0.07	3	0.06	0.07	6	0	0
17	1.0050	310.00	1.62	0.99	1.30	0.36	3	0.06	0.06	3	0.07	0.07	6	0	0
18	1.0875	322.00	1.56	1.70	1.90	0.64	3	0.07	0.07	3	0.06	0.06	6	0	0
19	0.8600	253.00	1.55	1.00	1.50	0.31	3	0.07	0.08	3	0.07	0.08	6	0	0
20	1.0600	327.00	1.62	1.90	3.70	0.44	3	0.08	0.09	3	0.08	0.10	6	0	0
21	1.0000	293.00	1.54	1.10	1.50	0.41	3	0.07	0.09	3	0.07	0.09	6	0	0
22	1.1075	350.00	1.66	7.70	14.10	0.40	3	0.10	0.12	3	0.08	0.09	6	0	0
23	1.2966	447.00	1.81	4.30	5.00	0.91	3	0.08	0.09	3	0.07	0.07	6	0	0
24	1.1316	358.00	1.66	4.50	5.80	0.78	3	0.08	0.08	3	0.07	0.08	6	0	0
25	1.0166	299.00	1.55	4.40	4.60	0.91	3	0.07	0.07	3	0.07	0.07	6	0	0
26	1.0350	311.00	1.55	2.00	3.00	0.48	3	0.09	0.10	3	0.10	0.10	6	0	0
27	0.8150	254.00	1.64	1.90	2.40	0.42	3	0.07	0.07	3	0.09	0.10	6	0	0
28	1.0125	315.00	1.64	2.20	4.20	0.32	3	0.07	0.08	3	0.08	0.09	6	0	0
29	1.1508	362.00	1.66	2.00	3.30	0.36	3	0.09	0.10	3	0.09	0.10	6	0	0
30	1.0799	406.00	1.98	3.80	7.50	0.64	3	0.09	0.10	3	0.09	0.10	6	0	0
31															
Total	31.8455	9822.00					90			90			180	0	0
Avg.	1.0615	327.40	1.61	2.00	2.99	0.46		0.08	0.08		0.08		Total	Total	Total
Max	1.2966	447.00	1.98	7.70	14.10	0.91		0.10	0.12		0.10	0.10	6	0	0
Min.	0.8150	253.00	1.38	0.67	0.76	0.28		0.06	0.06		0.06				

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CHEMICAL ANALYSES

			Total		Total		Non-Carb.								WQP	
			Hardness		Alkalinity		Hardness		Calcium		Magnesium		Chloride		Conductivity	Sulfate
D	pH		as CaCO3		as CaCO3		as CaCO3		as Ca++		as Mg++		as Cl-			
A			mg/l		mg/l		mg/l		mg/l		mg/l		mg/l		umhos	mg/l
T	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Raw	Tap	Tap	Tap
E	29.	30.	31.	32.	33.	34.	35.	36.	37	38	39	40	41	42		
1	8.1	7.7	152	150	128	118	24	32	42	40	12	12				
2	8.1	8.1	154	148	126	119	28	29	54	51	5	5	22.5	24.5		
3	8.1	8.1	148	146	127	117	21	29	43	43	10	9				
4	8.1	8.0	148	150	118	121	30	29	50	51	6	6				
5	8.2	8.1	144	148	118	115	26	33	41	46	10	8				
6	8.3	8.1	144	142	117	119	27	23	39	41	11	10				
7	8.3	7.9	150	136	120	114	30	22	60	39	99	5	23.0	26.0		
8	8.0	8.0	154	138	128	108	26	30	40	46	10	6				
9	8.1	8.1	170	166	121	113	49	53	37	38	19	17			324.0	39.0
10	8.2	7.9	140	144	119	112	21	32	37	41	12	10				
11	8.2	7.9	172	168	119	111	53	57	38	37	18	18				
12	8.1	8.0	174	168	119	112	55	56	46	45	15	14				
13	8.1	8.0	172	166	117	112	55	54	41	38	17	17	18.5	22.5		
14	8.2	7.9	162	154	112	113	50	41	48	59	12	14	22.5	25.5		
15	8.6	8.1	144	140	122	112	22	28	57	62	14	15				
16	8.1	8.1	136	138	119	114	17	24	38	42	10	8				
17	8.1	8.0	138	136	123	116	15	20	39	42	10	8			288.0	31.0
18	8.2	8.1	146	144	121	116	25	28	38	38	13	12				
19	8.2	8.1	168	160	120	114	48	46	42	40	16	15	19.5	24.0		
20	8.1	8.0	172	166	119	114	53	52	45	42	15	15				
21	8.4	8.0	146	144	120	111	26	33	40	64	10	15				
22	8.0	8.0	146	138	126	112	20	26	45	68	11	16				
23	8.3	8.2	144	142	126	118	18	24	42	40	10	10				
24	8.3	8.2	156	150	134	119	22	31	44	41	11	12			323.0	42.0
25	8.4	8.3	154	150	129	121	25	29	42	45	12	9				
26	8.2	8.1	176	170	124	120	52	50	44	43	16	15				
27	8.2	8.2	164	158	122	118	42	40	39	38	16	16	19.5	24.0		
28	8.1	8.1	164	156	121	116	43	40	39	37	16	16				
29	8.1	8.0	146	150	123	117	23	33	60	60	14	15				
30	8.2	8.0	166	156	120	112	46	44	39	38	17	15				
31																
Avg.	8.2	8.0	155.0	150.7	121.9	115.1	33.1	35.6	43.6	45.2	15.6	12.1	20.9	24.4	311.7	37.3
Max	8.6	8.3	176.0	170.0	134.0	121.0	55.0	57.0	60.0	68.0	99.0	18.0	23.0	26.0	324.0	42.0
Min.	8.0	7.7	136.0	136.0	112.0	108.0	15.0	20.0	37.0	37.0	5.0	22.0	18.5	22.5	288.0	31.0

CITY OF BENTON HARBOR

WSSN 0600 MONTH/YEAR June-21

FLUORIDATION AND CHLORINATION

	Fluoride Analysis				Chlorine Application And Chlorine Residual in mg/L										
D	Fluoride		mg/l												
A	Applied				INTAKE		Pre Treat Raw Line		FILTERED		Total NaOCl Use			TAP	
T	as Fmg/l	Raw	Tap	Dist.	PPD	Free	PPD	Free	PPD	Free	PPD	Free	Demand	Free	Total
E						mg/l		mg/l		mg/l		mg/l	mg/L	mg/l	mg/l
1	0.57	0.34	0.66		0	0.00	211	3.13	49	0.73	260	3.76	1.70	1.93	2.06
2	0.74	0.23	0.75	0.03	0	0.00	208	3.14	25	0.38	233	3.70	1.87	1.61	1.83
3	0.63	0.27	0.75		0	0.00	201	3.13	48	0.75	249	3.51	0.84	2.39	2.67
4	0.61	0.22	0.75		0	0.00	225	3.15	57	0.80	282	4.11	1.97	1.84	2.14
5	0.62	0.14	0.63		0	0.00	199	3.15	51	0.81	250	3.48	1.40	1.81	2.08
6	0.61	0.17	0.53		0	0.00	227	3.14	55	0.76	282	3.68	1.25	2.22	2.43
7	0.68	0.21	0.51		0	0.00	223	3.17	49	0.70	272	4.24	2.60	1.41	1.64
8	0.61	0.36	0.76		0	0.00	219	3.12	33	0.47	252	3.59	1.82	1.47	1.77
9	0.66	0.30	0.95	0.75	0	0.00	230	3.26	43	0.61	273	4.03	2.38	1.50	1.65
10	0.60	0.24	0.71		0	0.00	266	3.31	53	0.66	319	4.31	1.43	2.71	2.88
11	0.38	0.25	0.73		0	0.00	254	3.27	51	0.66	305	3.77	1.72	1.89	2.05
12	0.63	0.24	0.70		0	0.00	218	3.30	59	0.89	277	4.35	2.25	1.93	2.10
13	0.62	0.32	0.84		0	0.00	213	2.80	64	0.84	277	3.73	1.80	1.77	1.93
14	0.68	0.24	0.71		0	0.00	253	3.21	52	0.66	305	3.86	1.77	1.87	2.09
15	0.59	0.23	0.33		0	0.00	244	3.20	51	0.67	295	4.03	2.16	1.65	1.87
16	0.59	0.14	0.74	0.70	0	0.00	254	3.17	44	0.55	298	3.92	1.99	1.72	1.93
17	0.55	0.31	0.80		0	0.00	216	3.21	41	0.61	257	3.88	1.96	1.67	1.92
18	0.63	0.21	0.67		0	0.00	223	3.06	51	0.70	274	3.69	1.91	1.63	1.78
19	0.61	0.27	0.77		0	0.00	194	3.37	46	0.80	240	3.71	2.06	1.49	1.65
20	0.66	0.22	0.74		0	0.00	255	3.59	64	0.90	319	4.31	2.30	1.86	2.01
21	0.56	0.15	0.54		0	0.00	259	3.87	42	0.63	301	5.64	3.80	1.71	1.84
22	0.68	0.16	0.60		0	0.00	269	3.63	81	1.09	350	6.00	3.92	1.96	2.08
23	0.57	0.11	0.57	0.63	0	0.00	308	3.55	95	1.09	403	4.58	1.67	2.69	2.91
24	0.51	0.16	0.80		0	0.00	272	3.59	72	0.95	344	3.91	0.96	2.72	2.95
25	0.44	0.19	0.72		0	0.00	246	3.61	52	0.76	298	3.20	0.75	2.28	2.45
26	0.67	0.31	0.71		0	0.00	264	3.81	77	1.11	341	3.66	1.26	2.24	2.40
27	0.78	0.22	0.74		0	0.00	212	3.88	57	1.04	269	3.17	1.08	1.93	2.09
28	0.62	0.25	0.64		0	0.00	258	3.80	64	0.94	322	3.50	0.97	2.37	2.53
29	0.62	0.19	0.58		0	0.00	264	3.42	63	0.82	327	3.59	1.06	2.37	2.53
30	0.65	0.16	0.61	0.66	0	0.00	201	2.78	55	0.76	256	2.91	0.29	2.45	2.62
Avg.	0.61	0.23	0.68	0.55	0.00	0.00	236.20	3.33	54.80	0.77	291.00	3.93	1.76	1.97	2.16
Max	0.78	0.36	0.95	0.75	0.00	0.00	308.00	3.88	95.00	1.11	403.00	6.00	3.92	2.72	2.95
Min.	0.38	0.11	0.33	0.03	0.00	0.00	194.00	2.78	25.00	0.38	233.00	2.91	0.29	1.41	1.64

WSSN 0600 CITY OF BENTON HARBOR

MONTH/YEAR June-21

BACTERIOLOGICAL AND PHYSICAL PARAMETERS

DATE	PLANT TAP No. of Samples	PLANT TAP Colilert P/A	Standard Plate Count Raw	Standard Plate Count Tap	Raw TEMP. 'C	Tap TEMP. 'C
1	1	A	14	0	11	12.5
2	1	A	18	0	10	12.0
3	1	A	32	0	10	12.0
4	1	A	55	0	12	13.0
5	1	A	16	2	13	13.0
6	1	A	3	1	15	14.0
7	1	A	13	8	15	15.0
8	1	A	57	14	18	16.0
9	1	A	21	1	16	15.0
10	1	A	12	0	13	15.5
11	1	A	28	0	12	14.5
12	1	A	3	5	12	13.5
13	1	A	9	0	11	13.5
14	1	A	5	0	14	16.0
15	1	A	3	0	13	14.0
16	1	A	2	0	12	13.0
17	1	A	5	2	12	13.0
18	1	A	55	1	17	14.0
19	1	A	5	2	17	14.0
20	1	A	126	2	18	14.5
21	1	A	158	1	19	17.0
22	1	A	12	1	16	18.0
23	1	A	14	1	20	18.0
24	1	A	67	2	20	19.0
25	1	A	116	1	20	21.0
26	1	A	82	0	19	19.5
27	1	A	366	3	19.3	19.5
28	1	A	138	0	18.3	19.0
29	1	A	91	0	18.2	18.5
30	1	A	30	0	18.8	18.5
31	1	A	0	0	0.0	0.0
AVG.	1	A	51	2	15	15
Max			366	14	20	21
Min			0	0	0	0

MONTH/YEAR June-21

Distrubution Flow and Corrosion Treatment

DATE	Ortho P System: City Hall Ortho P Residual mg/L	Wolfs Ortho P Residual mg/L	Bait Shed Ortho P Residual mg/L	Sunny Spot Ortho P Residual mg/L	B&Z Ortho P Residual mg/L	Distrubution flow and Corrosion Treatment: High Lift To Distribution	Lbs PO4	PO4 Treatment mg/L	Ortho P Residual mg/L
1						1.0325	111	4.25	3.55
2	3.92	3.68	4.02	4.02	3.50	0.9413	92	3.87	4.20
3						1.0593	97	3.62	3.86
4						1.0233	97	3.75	4.36
5						1.0712	87	3.21	4.28
6						1.1453	94	3.25	4.06
7						0.9571	93	3.84	4.05
8						1.0486	57	2.15	4.66
9	3.50	3.22	3.56	3.40	3.20	1.0119	91	3.56	5.02
10						1.1056	146	5.23	4.28
11						1.2067	104	3.41	4.16
12						0.9517	117	4.86	3.96
13						1.1078	106	3.79	4.36
14						1.1797	141	4.73	4.48
15						1.0926	119	4.31	4.42
16	4.38	4.39	4.10	4.18	4.44	1.1334	111	3.88	4.76
17						0.9878	28	1.12	4.24
18						1.1100	102	3.64	4.10
19						0.9655	81	3.32	4.20
20						1.1047	89	3.19	3.96
21						0.7962	25	1.24	4.34
22						0.8706	100	4.55	3.58
23	3.98	4.02	3.74	4.44	3.64	1.3135	91	2.74	4.20
24						1.3135	112	3.37	4.58
25						1.3905	91	2.59	4.26
26						1.3905	83	2.36	4.12
27						1.2673	72	2.25	3.94
28						1.3751	93	2.68	4.04
29						1.3597	79	2.30	3.60
30	3.98	3.76	3.90	3.80	3.97	1.3135	90	2.71	3.68
31									
Totals						33.6264	2799.0		
AVG.	3.95	3.81	3.86	3.97	3.75	1.1209	93.3	3.29	4.20
Max	4.38	4.39	4.10	4.44	4.44	1.3905	146.0	5.23	5.02
Min	3.50	3.22	3.56	3.40	3.20	0.7962	25.0	1.12	3.55

CITY OF BENTON HARBOR

DISTRIBUTION SYSTEM MONITORING WSSN 0600 June-21

DATE	Chlorine Residual at Bacteriological Monitoring Stations mg/l						
	City Hall		Wolf Marine	470 W.main	Sunny Spot	blu water	B&Z
	1	2	3	4	5	6	7
1	0.00		0.00	0.00	0.00		0.00
2	1.67		1.44	1.21	0.41		1.09
3	0.00		0.00	0.00	0.00		0.00
4	0.00		0.00	0.00	0.00		0.00
5	0.00		0.00	0.00	0.00		0.00
6	0.00		0.00	0.00	0.00		0.00
7	0.00		0.00	0.00	0.00		0.00
8	0.00		0.00	0.00	0.00		0.00
9	2.12		2.25	2.19	0.27		1.47
10	0.00		0.00	0.00	0.00		0.00
11	0.00		0.00	0.00	0.00		0.00
12	0.00		0.00	0.00	0.00		0.00
13	0.00		0.00	0.00	0.00		0.00
14	0.00		0.00	0.00	0.00		0.00
15	0.00		0.00	0.00	0.00		0.00
16	1.46		1.36	1.47	0.24		0.42
17	0.00		0.00	0.00	0.00		0.00
18	0.00		0.00	0.00	0.00		0.00
19	0.00		0.00	0.00	0.00		0.00
20	0.00		0.00	0.00	0.00		0.00
21	0.00		0.00	0.00	0.00		0.00
22	0.00		0.00	0.00	0.00		0.00
23	0.99		0.85	0.86	0.71		0.34
24	0.00		0.00	0.00	0.00		0.00
25	0.00		0.00	0.00	0.00		0.00
26	0.00		0.00	0.00	0.00		0.00
27	0.00		0.00	0.00	0.00		0.00
28	0.00		0.00	0.00	0.00		0.00
29	0.00		0.00	0.00	0.00		0.00
30	1.16		0.00	1.49	0.16		0.71
31	0.00		0.00	0.00	0.00		0.00

DISTRIBUTION SAMPLES – BACTERIOLOGICAL SUMMARY

	WSSN	Value	Max	Min
Total number of routine distribution samples analyzed	0600	155		
Total number of positive routine distribution samples	0600			
Total number of routine distribution samples required	0600	10		
Average Chlorine Residuals by WSSN, mg/L	0600	0.17	2.25	0.00
Total number of check samples	0600	6		
Total number of positive check samples	0600	0		