



Meaford Water Pollution Control Plant Bighead Pump Station Annual Report for the year 2018

Certificate of Approval #3-0388-89-006

Executive Summary

This report consists of a description of the works, a general summary of issues relating to the operation of this facility, a tabulation of the station flows, and a tabulation of any bypass occurrences. It is felt that the information presented herein is complete in detail.

This report is a stated requirement of Certificate Approval #3-0388-89-006 dated October 3, 1989.

The Bighead Pump Station located at 98 Denmark Street is a below grade station consisting of four (4) 85 horsepower Flygt Submersible Pumps, of which two are variable speed and two constant speed, a two compartment wet well, a 210 kilowatt standby diesel generator, flow measurement equipment, and station by-pass provisions to the Bighead River. The Pump Station has a rated capacity of 160 litres per second with any three pumps operating simultaneously for a flow equivalent of 13,824 m³ per day.

Flow Review

The flow reporting consists of a full tabulation of recorded flows. This flow information provides daily flow, total monthly flow and various flow trend calculations. Also provided is an annual summary of the Bighead Station flows for 2018. The summarized results are as follows:

Flow	Quantity (m ³)	Date (mm/dd/yy)
Total Annual Flow	750,535	
Average Daily Flow	2,064	
Maximum Daily Flow	10,427	01/11/18
Minimum Daily Flow	910	08/10/18
Maximum Monthly Flow	111,094	April 2018
Minimum Monthly Flow	40,073	September 2018

The Bighead Pump Station operates within its design capacity of 15,640m³ per day.

Bypass Summary

There were no bypass events during 2018.

The following statement from the 1997 Report and is still valid:

Past practice in response to high flow events has been to begin bypassing the Meaford Treatment Plant when three pumps are running at the Bighead Station. This procedure has been discussed and for short term events a revised strategy has been developed. The strategy will involve shutting off the aeration tank aerators and slowing down the secondary clarifier slip valves. This action will help to reduce the hydraulic load on both the aeration tanks and the secondary clarifiers and prevent potential solid loss while preventing unnecessary bypassing. This strategy can only be used for short term events in order to prevent anoxic conditions in the Aeration Tanks.

Summary

It is felt that this report is complete in detail and provides the necessary information as requested in the Certificate of Approval. The Bighead Pumping station operated with no major incidents or breakdowns in 2018. The over design capacity at the station continues to have operational issues, including excessive solids build up which is a contributing factor to odour issues at the Meaford Water Pollution Control Plant. This results in additional operator maintenance at the station. Overall, the Bighead Pumping Station continues to operate within its design capacity of 15,640 m³/day exceptionally well.

Station Flow Data

Month	Total Flow m ³	Average Daily Flow m ³	Max Daily Flow m ³	Min Daily Flow m ³
January	88,369	2,851	10,427	1,107
February	80,381	2,871	9,899	1,398
March	56,051	1,808	2,691	1,349
April	111,094	3,703	7,462	1,528
May	59,174	1,909	2,989	1,233
June	40,086	1,336	1,873	919
July	40,323	1,301	1,694	1,035
August	43,630	1,407	2,213	910
September	40,073	1,336	2,030	1,036
October	47,727	1,540	2,405	1,059
November	70,271	2,342	4,168	1,484
December	73,356	2,366	5,484	1,428
	Total Annual Flow	Avg. Daily Flow	Max Daily Flow	Min Daily Flow
	750,535	2,064	10,427	910

Bighead Station Daily Flow Data 2018

Date	Total Flow	Daily m ³
January		
1	774,877	1,935
2	776,812	1,107
3	777,919	1,771
4	779,690	1,495
5	781,185	1,237
6	782,422	1,341
7	783,763	1,695
8	785,458	1,413
9	786,871	1419
10	788,290	3,288
11	791,578	10,427
12	802,005	6,475
13	808,480	4,764
14	813,244	3,213
15	816,457	2,516
16	818,973	2,466
17	821,439	2,158
18	823,597	2,348
19	825,945	2,019
20	827,964	1,986
21	829,950	2,260
22	832,210	4,275
23	836,485	4,768
24	841,253	3,521
25	844,774	2,698
26	847,472	2,899
27	850,371	3,481
28	853,852	2,623
29	856,475	2,615
30	859,090	2,120
31	861,210	2,036

Date	Total Flow	Daily m ³
February		
1	863,246	2,030
2	865,276	2,016
3	867,292	1,974
4	869,266	2,080
5	871,346	1,826
6	873,172	2,057
7	875,229	1,619
8	876,848	1,851
9	878,699	1,742
10	880,441	1,598
11	882,039	1,821
12	883,860	1,484
13	885,344	1,398
14	886,742	2,021
15	888,763	3,283
16	892,046	2,477
17	894,523	2,195
18	896,718	2,053
19	898,771	3,167
20	901,938	9,899
21	911,837	7,208
22	919,045	4,532
23	923,577	3,520
24	927,097	4,123
25	931,220	3,402
26	934,622	3,319
27	937,941	2,809
28	940,750	2,877

Date	Total Flow	Daily m ³
March		
1	943,627	2,691
2	946,318	2,644
3	948,962	2,263
4	951,225	2,215
5	953,440	2,290
6	955,730	1,617
7	957,347	2,003
8	959,350	1,936
9	961,286	1,881
10	963,167	2,008
11	965,175	1,765
12	966,940	1,617
13	968,557	1,757
14	970,314	1,884
15	972,198	1,573
16	973,771	1,891
17	975,662	1,743
18	977,405	1,707
19	979,112	1,575
20	980,687	1,384
21	982,071	1,762
22	983,833	1,349
23	985,182	1,589
24	986,771	1,487
25	988,258	1,615
26	989,873	1,465
27	991,338	1,506
28	992,844	1,673
29	994,517	1,623
30	996,140	1,593
31	997,733	1,945

Date	Total Flow	Daily m ³
April		
1	999,678	1,800
2	1,001,478	1,528
3	1,003,006	2,091
4	1,005,097	2,348
5	1,007,445	2,491
6	1,009,936	2,284
7	1,012,220	2,146
8	1,014,366	1,921
9	1,016,287	2,021
10	1,018,308	2,082
11	1,020,390	1,890
12	1,022,280	2,905
13	1,025,185	5,832
14	1,031,017	3,978
15	1,034,995	3,449
16	1,038,444	4,421
17	1,042,865	4,181
18	1,047,046	4,130
19	1,051,176	4,122
20	1,055,298	4,042
21	1,059,340	6,816
22	1,066,156	5,901
23	1,072,057	5,334
24	1,077,391	5,672
25	1,083,063	7,462
26	1,090,525	5,814
27	1,096,339	4,316
28	1,100,655	3,940
29	1,104,595	3,095
30	1,107,690	3,082

Bighead Station Daily Flow Data 2018

Date		Daily
May	Total Flow	m ³
1	1,110,772	2,459
2	1,113,231	2,692
3	1,115,923	2,527
4	1,118,450	2,989
5	1,121,439	2,425
6	1,123,864	2,221
7	1,126,085	2,363
8	1,128,448	2,136
9	1,130,584	2,044
10	1,132,628	1,802
11	1,134,430	2,218
12	1,136,648	1,491
13	1,138,139	2,032
14	1,140,171	1,908
15	1,142,079	1,969
16	1,144,048	1,900
17	1,145,948	1,695
18	1,147,643	1,875
19	1,149,518	1,596
20	1,151,114	1,647
21	1,152,761	1,866
22	1,154,627	2,044
23	1,156,671	1,233
24	1,157,904	1,522
25	1,159,426	1,693
26	1,161,119	1,565
27	1,162,684	1,668
28	1,164,352	1,317
29	1,165,669	1,386
30	1,167,055	1,325
31	1,168,380	1,566

Date		Daily
June	Total Flow	m ³
1	1,169,946	1,233
2	1,171,179	1,448
3	1,172,627	1,596
4	1,174,223	1,363
5	1,175,586	1,383
6	1,176,969	1,279
7	1,178,248	1,450
8	1,179,698	1,249
9	1,180,947	1,474
10	1,182,421	1,360
11	1,183,781	1,211
12	1,184,992	1,237
13	1,186,229	1,442
14	1,187,671	1,324
15	1,188,995	1,124
16	1,190,119	1,378
17	1,191,497	1,460
18	1,192,957	1,286
19	1,194,243	1,304
20	1,195,547	1,217
21	1,196,764	1,570
22	1,198,334	919
23	1,199,253	1,377
24	1,200,630	1,397
25	1,202,027	1,131
26	1,203,158	1,213
27	1,204,371	1,873
28	1,206,244	1,480
29	1,207,724	920
30	1,208,644	1,388

Date		Daily
July	Total Flow	m ³
1	1,210,032	1,327
2	1,211,359	1,433
3	1,212,792	1,244
4	1,214,036	1,155
5	1,215,191	1,354
6	1,216,545	1,249
7	1,217,794	1,276
8	1,219,070	1,349
9	1,220,419	1,096
10	1,221,515	1,233
11	1,222,748	1,215
12	1,223,963	1,061
13	1,225,024	1,358
14	1,226,382	1,173
15	1,227,555	1,333
16	1,228,888	1,532
17	1,230,420	1,097
18	1,231,517	1,421
19	1,232,938	1,254
20	1,234,192	1,210
21	1,235,402	1,191
22	1,236,593	1,694
23	1,238,287	1,310
24	1,239,597	1,367
25	1,240,964	1,386
26	1,242,350	1,364
27	1,243,714	1,383
28	1,245,097	1,185
29	1,246,282	1,447
30	1,247,729	1,035
31	1,248,764	1,591

Date		Daily
August	Total Flow	m ³
1	1,250,355	1,164
2	1,251,519	1,558
3	1,253,077	1,222
4	1,254,299	1,394
5	1,255,693	1,309
6	1,257,002	1,554
7	1,258,556	1,223
8	1,259,779	1,631
9	1,261,410	1,380
10	1,262,790	910
11	1,263,700	1,326
12	1,265,026	1,341
13	1,266,367	1,260
14	1,267,627	1,425
15	1,269,052	1,168
16	1,270,220	1,429
17	1,271,649	1,450
18	1,273,099	1,140
19	1,274,239	1,177
20	1,275,416	1,099
21	1,276,515	2,213
22	1,278,728	1,548
23	1,280,276	1,532
24	1,281,808	1,445
25	1,283,253	1,515
26	1,284,768	1,782
27	1,286,550	1,185
28	1,287,735	1,703
29	1,289,438	1,471
30	1,290,909	1,528
31	1,292,437	1,494

Bighead Station Daily Flow Data 2018

Date	Total Flow	Daily m ³
September		
1	1,293,985	1,348
2	1,295,333	1,253
3	1,296,586	1,419
4	1,298,005	1,221
5	1,299,226	1,097
6	1,300,323	1,305
7	1,301,628	1,251
8	1,302,879	1,148
9	1,304,027	1,492
10	1,305,519	1,036
11	1,306,555	1,237
12	1,307,792	1,232
13	1,309,024	1,340
14	1,310,364	2,030
15	1,312,394	1,545
16	1,313,939	1,745
17	1,315,684	1,119
18	1,316,803	1,355
19	1,318,158	1,193
20	1,319,351	1,505
21	1,320,856	1,473
22	1,322,329	1,209
23	1,323,538	1,382
24	1,324,920	1,273
25	1,326,193	1,227
26	1,327,420	1,277
27	1,328,697	1,199
28	1,329,896	1,564
29	1,331,460	1,104
30	1,332,564	1,494

Date	Total Flow	Daily m ³
October		
1	1,334,058	2,260
2	1,336,318	2,046
3	1,338,364	2,172
4	1,340,536	2,276
5	1,342,812	1,565
6	1,344,377	1,569
7	1,345,946	1,232
8	1,347,178	1,792
9	1,348,970	1,353
10	1,350,323	1,594
11	1,351,917	1,280
12	1,353,197	1,505
13	1,354,702	1,175
14	1,355,877	1,603
15	1,357,480	1,090
16	1,358,570	1,361
17	1,359,931	1,362
18	1,361,293	1,340
19	1,362,633	1,494
20	1,364,127	1,362
21	1,365,489	1,378
22	1,366,867	1,207
23	1,368,074	1,369
24	1,369,443	1,467
25	1,370,910	1,059
26	1,371,969	1,170
27	1,373,139	1,280
28	1,374,419	1,707
29	1,376,126	1,523
30	1,377,649	1,731
31	1,379,380	2,405

Date	Total Flow	Daily m ³
November		
1	1,381,785	1,975
2	1,383,760	2,523
3	1,386,283	2,168
4	1,388,451	1,917
5	1,390,368	1,713
6	1,392,081	2,508
7	1,394,589	2,293
8	1,396,882	2,137
9	1,399,019	2,505
10	1,401,524	2,657
11	1,404,181	2,209
12	1,406,390	2,042
13	1,408,432	2,243
14	1,410,675	1,948
15	1,412,623	1,902
16	1,414,525	2,193
17	1,416,718	2,436
18	1,419,154	2,178
19	1,421,332	1,893
20	1,423,225	1,914
21	1,425,139	1,794
22	1,426,933	2,098
23	1,429,031	1,484
24	1,430,515	2,912
25	1,433,427	3,100
26	1,436,527	4,168
27	1,440,695	3,499
28	1,444,194	2,934
29	1,447,128	2,677
30	1,449,805	2,251

Date	Total Flow	Daily m ³
December		
1	1,452,056	3,234
2	1,455,290	5,484
3	1,460,774	3,789
4	1,464,563	2,121
5	1,466,684	2,643
6	1,469,327	2,307
7	1,471,634	2,085
8	1,473,719	2,111
9	1,475,830	2,087
10	1,477,917	2,055
11	1,479,972	1,860
12	1,481,832	1,428
13	1,483,260	1,563
14	1,484,823	2,368
15	1,487,191	1,979
16	1,489,170	2,089
17	1,491,259	1,661
18	1,492,920	1,838
19	1,494,758	2,005
20	1,496,763	2,214
21	1,498,977	3,251
22	1,502,228	2,811
23	1,505,039	1,812
24	1,506,851	2,237
25	1,509,088	1,903
26	1,510,991	1,995
27	1,512,986	2,485
28	1,515,471	2,278
29	1,517,749	2,436
30	1,520,185	2,008
31	1,522,193	3,219

Bighead Station Daily Flow Data 2018