

City of Hamilton's
Drinking Water Systems

**SUMMARY REPORT FOR MUNICIPALITIES
(2013)**

Safe Drinking Water Act, Ontario Regulation, 170/03, Schedule 22



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<i>Title:</i>		Summary Report for Municipalities	
<i>Record #</i>	<i>PW-WW-R-004-012</i>	<i>Document Level</i>	<i>III</i>
<i>Issue #:</i>	<i>1</i>	<i>Issue Date:</i>	<i>February 2014</i>

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1 INTRODUCTION

This summary report for municipalities has been prepared in accordance with the Safe Drinking Water Act, Ontario Regulation, 170/03, Schedule 22. The City of Hamilton is the Owner of the following five Drinking Water Systems:

Licence Number	Drinking Water System
005-101	Hamilton DWS
005-102	Freelton DWS
005-103	Greensville DWS
005-104	Carlisle DWS
005-105	Lynden DWS

For each of the City of Hamilton’s five Drinking Water Systems, the following information is provided for the 2013 reporting period:

- A summary of quantities and flow rate of the water supplied
- Monthly average and maximum daily flows (in comparison to approved flow rates)
- A summary of capital upgrades completed, as well as those initiated in 2013

There were no Provincial Officer’s Orders issued. All confirmed Adverse Water Quality Incidents were reported to the Ontario Ministry of Environment’s Spills Action Centre and Public Health Services and are provided in the report. All water taking quantities and flow rates were within approved rated capacities and provincial water taking limits.

2 HAMILTON DRINKING WATER SYSTEM (DWS), WOODWARD SUB-SYSTEM

2.1 Capital Projects Initiated in 2013

2.1.1 Woodward Water Treatment System and Water Outstations

- Kelly Street Stand Pipe (HDT01) Refurbishment Construction
- Woodward Low Lift Pumping Station and Highlift Pumping Station Pipe and Valve Assessment
- Granular Activated Carbon (GAC) Filter Media Replacement (Modules 1 and 2) Design and Construction Administration
- Highland Road Reservoir (HDR07) and Pumping Station (HD007) Upgrades Design and Construction
- Hillcrest Water Reservoir (HDR02) Upgrades Detailed Design
- Kenilworth Pumping Station (HD005) Upgrades Phase II Design

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The above water treatment and water station upgrades and modifications are being undertaken at a cost of approximately \$9.75 million dollars.

2.2 Distribution System - Pipes

As part of the City’s Asset Management Program, the following water upgrades and rehabilitations were completed:

- Approximately 6.3 km of watermain was replaced as a stand-alone project and/or in coordination with roadwork at a cost of \$11.5 million dollars.
- Approximately 3.9 km of watermain was rehabilitated using structural and/or cement mortar lining at a cost of \$4.3 million dollars.

2.3 Capital Projects to be Initiated in 2014

2.3.1 Woodward Water Treatment System and Water Outstations

- Main & Whitney (HD17A) Water Outstation Upgrades Design
- Water Distribution Pressure Reducing Valves (PRV) Upgrades Design

The above upgrades and modifications will be undertaken at a cost of approximately \$1.05 million dollars.

2.4 Adverse Water Quality Incidents (AWQI) - Hamilton DWS

The following AWQIs were reported to the Ministry of the Environment’s Spills Action Centre (MOE SAC) and Public Health Services (PHS).

Notification Date	Location of Adverse	AWQI	Resolution
2013-01-17	Post Office, 17 Main St N, Waterdown	Total Coliforms = 3 CFU/100mL	Resampled adverse location, one upstream and one downstream hydrant. All results were acceptable. The adverse was not confirmed.
2013-04-10	Fire Station 21, 365 Wilson St. W, Ancaster	Total Coliforms = 1 CFU/100mL	Resampled adverse location, one upstream and one downstream hydrant. All results were acceptable. The adverse was not confirmed.



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Notification Date	Location of Adverse	AWQI	Resolution
2013-04-19	Fire Station 12, 199 Highway 8	Total Coliforms = 1 CFU/100mL	Resampled adverse location, one upstream and one downstream hydrant. All results were acceptable. The adverse was not confirmed.
2013-04-19	Water Pumping Station HD08A, Ben Nevis Dr.	Total Coliforms = 1 CFU/100mL	Resampled adverse location, one upstream and one downstream hydrant. All results were acceptable. The adverse was not confirmed.
2013-04-19	Fire Station 17, 363 Isaac Brock Dr.	Total Coliforms = 1 CFU/100mL	Resampled adverse location, one upstream and one downstream hydrant. All results were acceptable. The adverse was not confirmed.
2013-04-20	Fire Station 2, 1400 Upper Wellington St.	Total Coliforms = 1 CFU/100mL	Resampled adverse location, one upstream and one downstream hydrant. All results were acceptable. The adverse was not confirmed.
2013-05-08	Pioneer Gas Station, 1551 Main St W.	Total Coliforms = 3 CFU/100mL	Resampled adverse location, one upstream and one downstream hydrant. All results were acceptable. The adverse was not confirmed.
2013-05-21	Highlift Pump	Total Coliforms = 2 CFU/100mL	Resampled adverse location and two downstream locations. All results were acceptable. The adverse was not confirmed.



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Notification Date	Location of Adverse	AWQI	Resolution
2013-06-14	Pioneer Gas Bar, 1822 Upper James St.	Total Coliforms = 7 CFU/100mL	Resampled adverse location (Pioneer Gas Bar), one upstream and one downstream hydrant. For the upstream and downstream hydrants, result passed. Results for the Pioneer Gas Bar failed resulting in another AWQI on June 14th. The adverse was confirmed.
2013-06-15	Pioneer Gas Bar, 1822 Upper James St.	Total Coliforms = 157 CFU/100mL	Resampled Pioneer Gas Bar, three upstream and three downstream hydrants 24 and 48 hours apart. All results for the first set of resamples passed. Results failed at one upstream and one downstream hydrant for the second set of resample resulting in another AWQI on June 15th.
2013-06-16	Upstream Hydrant J07H006, 1822 Upper James St.	Total Coliforms = 7 CFU/100mL	Resampled at the Pioneer Gas Bar, the adverse upstream and downstream hydrants plus two upstream and two downstream hydrants. Results passed at all hydrants, but failed at the Pioneer Gas Bar resulting in another AWQI on June 16th.
	Downstream Hydrant C52H003, 1822 Upper James St.	Total Coliforms = 8 CFU/100mL	
2013-06-18	Pioneer Gas Bar, 1822 Upper James St.	Total Coliforms = 64 CFU/100mL	Resampled Pioneer Gas Bar, one upstream and one downstream hydrant 24 and 48 hours apart. Both sets of results passed.
2013-06-21	Highlift Pump	Total Coliforms = 1 CFU/100mL	Resampled adverse location and two downstream locations. All results were acceptable. The adverse was not confirmed.



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Notification Date	Location of Adverse	AWQI	Resolution
2013-07-09	Hydrant HD14H019, 410 Upper Kenilworth	Total Coliforms = 2 CFU/100mL	Resampled adverse location and upstream and downstream locations. All results were acceptable. The adverse was not confirmed.
2013-07-18	Highlift Pump	Total Coliforms = 1 CFU/100mL	Resampled adverse location and two downstream locations. All results were acceptable. The adverse was not confirmed.
2013-08-22	Hydrant SF07H038, 151 First Road West	Total Coliforms = 1 CFU/100mL	Resampled adverse location and upstream and downstream locations. All results were acceptable. The adverse was not confirmed.
2013-09-08	Highlift Pump	Total Coliforms = 2 CFU/100mL	Resampled adverse location and two downstream locations. All results were acceptable. The adverse was not confirmed.
2013-09-11	Highlift Pump	Total Coliforms = 1 CFU/100mL	Resampled adverse location and two downstream locations. All results were acceptable. The adverse was not confirmed.
2013-09-14	Pioneer Gas Bar, 1822 Upper James St.	Total Coliforms = 2 CFU/100mL	Resampled adverse location (Pioneer Gas Bar), one upstream and one downstream hydrant. Result for downstream hydrant failed resulting in another AWQI on Sept 14th.
2013-09-15	Downstream hydrant GJ07H006 of Pioneer Gas Bar, 1822 Upper James St.	Total Coliforms = 3 CFU/100mL	Resampled adverse downstream hydrant, one upstream and one downstream hydrant. Result failed at adverse downstream hydrant resulting in another AWQI on Sept 15th. The adverse was confirmed.

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Notification Date	Location of Adverse	AWQI	Resolution
2013-09-16	Downstream hydrant GJ07H006 of Pioneer Gas Bar, 1822 Upper James St.	Total Coliforms = 1 CFU/100mL	Resampled adverse downstream hydrant, one upstream and one downstream hydrant at 24 and 48 hours apart. Both sets of samples passed.
2013-11-08	East 23rd Street, Hamilton	Notification was made to Public Health and MOE-SAC regarding a "scouring bullet" or swab that entered the distribution system in the East 23rd Street area on the mountain. The area affected was East 23rd Street between Queensdale and Concession.	A Drinking Water Advisory was issued by Public Health on November 8th advising affected residents not to use their water for any purpose other than flushing toilets. Corrective action was to flush the mains and pipes, and to sample 8 hydrants for 5 days for microbiological, inorganic and organic parameters. Initial lab tests gave acceptable results for all parameters. Drinking Water Advisory was downgraded such that water could be used for bathing, washing hands, and laundry. Further sampling and testing of the water supply verified the initial lab test results, so the water advisory was lifted by Public Health on November 14th.
2013-12-19	Shell gas station, 1110 Fennell Ave. E.	Total Coliforms = 1 CFU/100mL	Resampled adverse location, one upstream and one downstream hydrant. All results were acceptable. The adverse was not confirmed.

2.5 Water Production Reports - Summary

The following provides a summary of daily flow rates and instantaneous peak flow rates in comparison to the capacity of the water works as identified in the Permit to Take Water. This information is tabulated in the accompanying tables.

Summary Report for Municipalities

Table 2-1: Woodward Treatment Plant - 2013 Daily Production

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	ML/d	ML/d	ML/d	ML/d	ML/d	ML/d	ML/d	ML/d	ML/d	ML/d	ML/d	ML/d
1	266	113	189	229	220	166	162	281	240	227	165	283
2	174	292	346	165	208	363	208	218	212	262	288	183
3	174	258	167	163	226	204	261	277	160	258	164	219
4	229	214	153	161	384	185	221	267	164	201	165	221
5	287	252	200	218	205	215	163	158	227	210	218	158
6	194	286	205	274	154	192	211	199	208	228	207	169
7	205	140	260	369	154	168	381	229	298	160	226	298
8	167	65	215	171	231	249	213	210	285	178	214	306
9	183	269	279	156	216	263	208	229	200	203	388	161
10	198	273	195	159	203	175	218	275	162	223	296	161
11	228	176	193	214	371	223	165	308	210	207	170	166
12	304	198	210	138	178	187	195	163	223	329	164	172
13	293	263	162	157	161	215	315	171	189	159	163	258
14	170	198	229	315	206	217	381	236	299	204	163	278
15	173	205	244	258	226	372	209	164	259	222	206	231
16	209	347	177	216	228	237	205	257	161	163	347	196
17	214	175	317	178	226	192	265	405	136	205	171	169
18	176	206	153	223	333	166	330	296	193	208	219	202
19	259	255	154	211	206	241	313	180	259	163	262	262
20	250	253	198	240	247	243	192	237	242	204	167	224
21	169	149	248	279	205	235	314	215	273	204	163	267
22	144	185	199	229	203	373	175	207	162	215	189	186
23	174	221	275	161	309	204	165	276	205	207	252	173
24	262	250	336	172	185	217	276	381	245	222	164	194
25	210	212	208	255	270	258	287	288	204	165	208	259
26	299	192	168	209	233	268	212	163	226	166	212	195
27	285	167	237	220	169	225	376	162	260	236	192	167
28	161	226	510	225	203	207	182	168	297	168	193	165
29	181		162	233	254	357	191	234	160	252	171	240
30	212		159	207	257	158	206	265	162	223	165	236
31	236		372		213		195	298		200		183
Total	6,684	6,041	7,121	6,404	7,082	6,976	7,396	7,415	6,519	6,472	6,271	6,581
Average	216	216	230	213	228	233	239	239	217	209	209	212
Min	144	65	153	138	154	158	162	158	136	159	163	158
Max	304	347	510	369	384	373	381	405	299	329	388	306
PTTW	909	909	909	909	909	909	909	909	909	909	909	909

Note: Municipal Drinking Water Licence (005-101) Rated Capacity 926,000 m³/ day

Summary Report for Municipalities

Figure 2-1: Woodward Treatment Plant - 2013 Monthly Production (Summary)

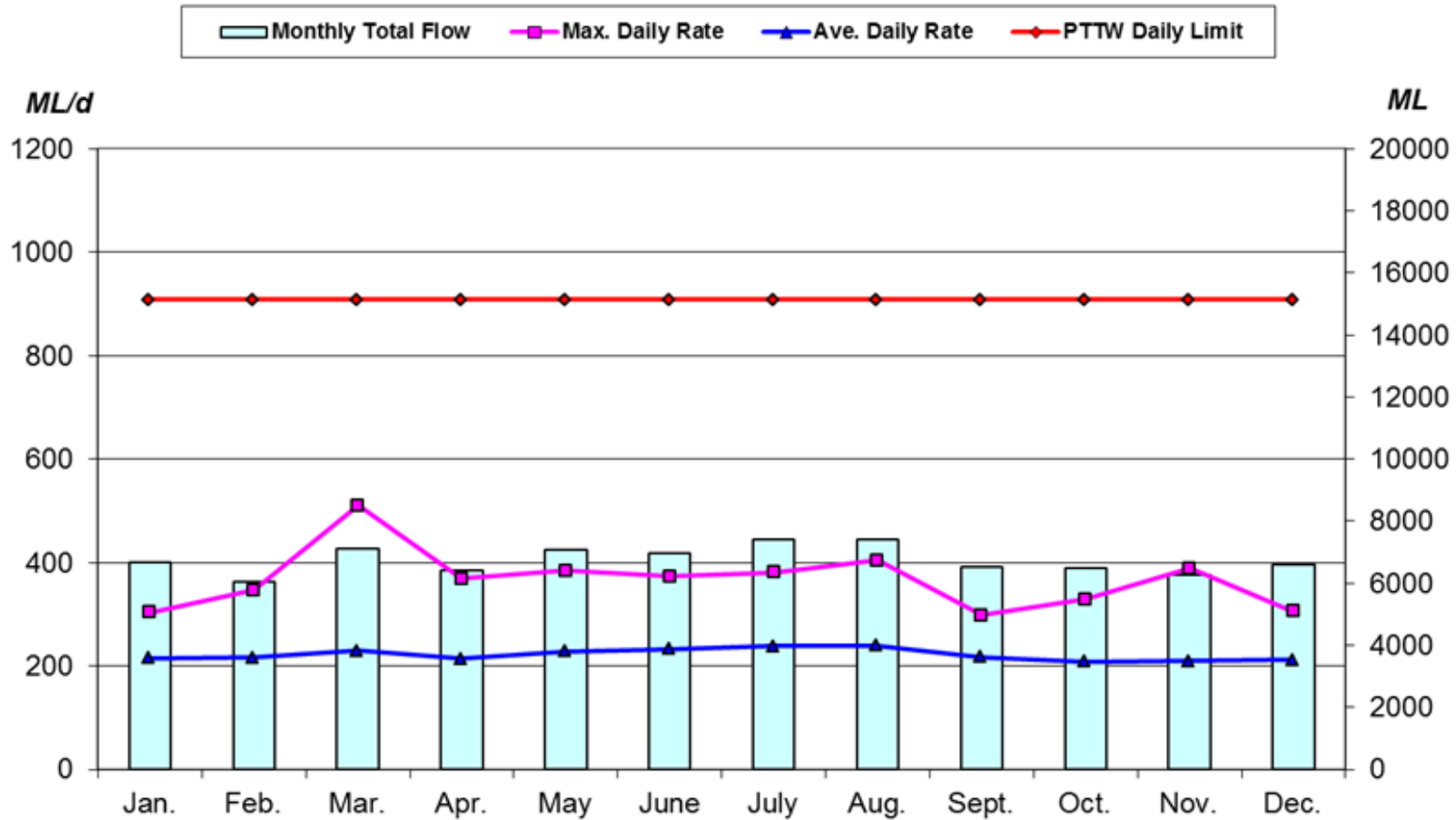


Table 2-2: Woodward Treatment Plant - 2013 Monthly Production (Summary)

Woodward	Units	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Total	ML/d	6,684	6,041	7,121	6,404	7,082	6,976	7,396	7,415	6,519	6,472	6,271	6,581
Average	ML/d	216	216	230	213	228	233	239	239	217	209	209	212
Maximum	ML/d	304	347	510	369	384	373	381	405	299	329	388	306
PTTW	ML/d	909	909	909	909	909	909	909	909	909	909	909	909

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3 HAMILTON DWS, FIFTY ROAD SUB-SYSTEM

3.1 Operational Upgrades

Capital upgrades of the Fifty Road Pumping Station (HD009) and Reservoir (HDR09) will commence in 2014 (Project Design and Construction - \$740k).

3.2 Adverse Water Quality Incidents (AWQI) - Fifty Road DWS

The following AWQI was reported to the MOE SAC and PHS.

Notification Date	Location of Adverse	AWQI	Resolution
2013-04-02	Olco Gas Bar, 1413 Highway 8, Grimsby	Total Coliforms = 2 CFU/100mL	Resampled adverse location, one upstream and one downstream hydrant. All results were acceptable. The adverse was not confirmed.

3.3 Water Production Reports - Summary

The Fifty Road DWS receives treated water from the Town of Grimsby Water Distribution System.

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4 CARLISLE DWS

4.1 Operational Upgrades

The FDC03R Well Pump was replaced in 2013. The Carlisle Well House Replacement (FDC01/02), Pumping Station (FDC01/02) Upgrades and Water Tower Refurbishment upgrades will be substantially performed in 2014. A Class Environmental Assessment is underway to identify potential locations for a new water tower.

4.2 Adverse Water Quality Incidents (AWQI) - Carlisle DWS

The following AWQI was reported to MOE SAC and PHS.

Notification Date	Location of Adverse	AWQI	Resolution
2013-12-29	Carlisle Drinking Water System	Series of short power outages resulting in a series of short low pressure events in the distribution system.	As recommended by Public Health, six hydrants were sampled for Total Coliform and E. coli on Dec 28th and Dec 29th. All results passed.

4.3 Water Production Reports - Summary

The following provides a summary of daily flow rates and instantaneous peak flow rates in comparison to the capacity of the water works as identified in the Permit to Take Water. This information is tabulated in the accompanying tables.

Summary Report for Municipalities

Table 4-1: Carlisle DWS (FDC01 & FDC02) - 2013 Daily Production

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day
1	65	16	99	39	0	0	0	0	0	60	0	395
2	113	154	70	3	0	0	0	0	0	0	0	396
3	98	49	64	30	0	0	0	0	0	21	0	347
4	61	88	168	162	0	0	0	0	0	39	25	169
5	158	168	5	1	0	0	0	0	0	0	0	219
6	11	3	78	182	0	0	0	0	0	0	3	67
7	92	165	4	22	0	0	0	0	0	28	10	6
8	296	17	138	135	0	0	0	0	0	2	2	0
9	4	210	13	10	0	0	0	0	0	0	0	27
10	143	59	124	143	0	0	0	0	0	3	0	0
11	67	270	83	136	0	0	0	0	420	0	35	0
12	238	150	57	4	0	0	0	0	111	3	41	16
13	102	117	56	173	0	0	0	0	14	5	0	0
14	143	3	8	3	0	0	0	0	130	42	0	0
15	2	149	9	103	0	0	0	0	717	9	0	0
16	2	93	30	3	0	0	0	0	711	0	9	29
17	194	46	161	5	0	0	0	0	77	3	0	2
18	3	62	188	3	0	0	0	0	521	15	54	0
19	0	66	72	5	0	0	0	0	714	0	0	245
20	0	235	165	66	0	0	0	0	698	10	1	433
21	5	148	28	6	0	0	0	0	674	30	10	239
22	3	198	142	10	0	0	0	0	469	21	92	1
23	5	26	3	0	0	0	0	0	593	0	231	0
24	2	17	164	0	0	0	0	0	287	30	386	1
25	11	118	16	0	0	0	0	0	721	0	247	289
26	2	3	116	0	0	0	0	0	702	0	699	727
27	2	74	6	0	0	0	0	0	724	0	483	715
28	10	32	127	0	0	0	0	0	735	23	292	666
29	157		25	0	0	0	0	0	719	3	402	612
30	106		111	0	0	0	0	0	511	0	397	746
31	120		130		0		0	0		4		206
Total	2,215	2,739	2,457	1,244	0	0	0	0	10,247	352	3,419	6,553
Average	71	98	79	41	0	0	0	0	342	11	114	211
Min	0	3	3	0	0	0	0	0	0	0	0	0
Max	296	270	188	182	0	0	0	0	735	60	699	746
PTTW	851	851	851	851	851	851	851	851	851	851	851	851

Note: Municipal Drinking Water Licence (005-104) FDC01 and FDC02 Rated Capacity 851 m³/day

Summary Report for Municipalities

Figure 4-1: Carlisle DWS (FDC01 & FDC02) - 2013 Monthly Production (Summary)

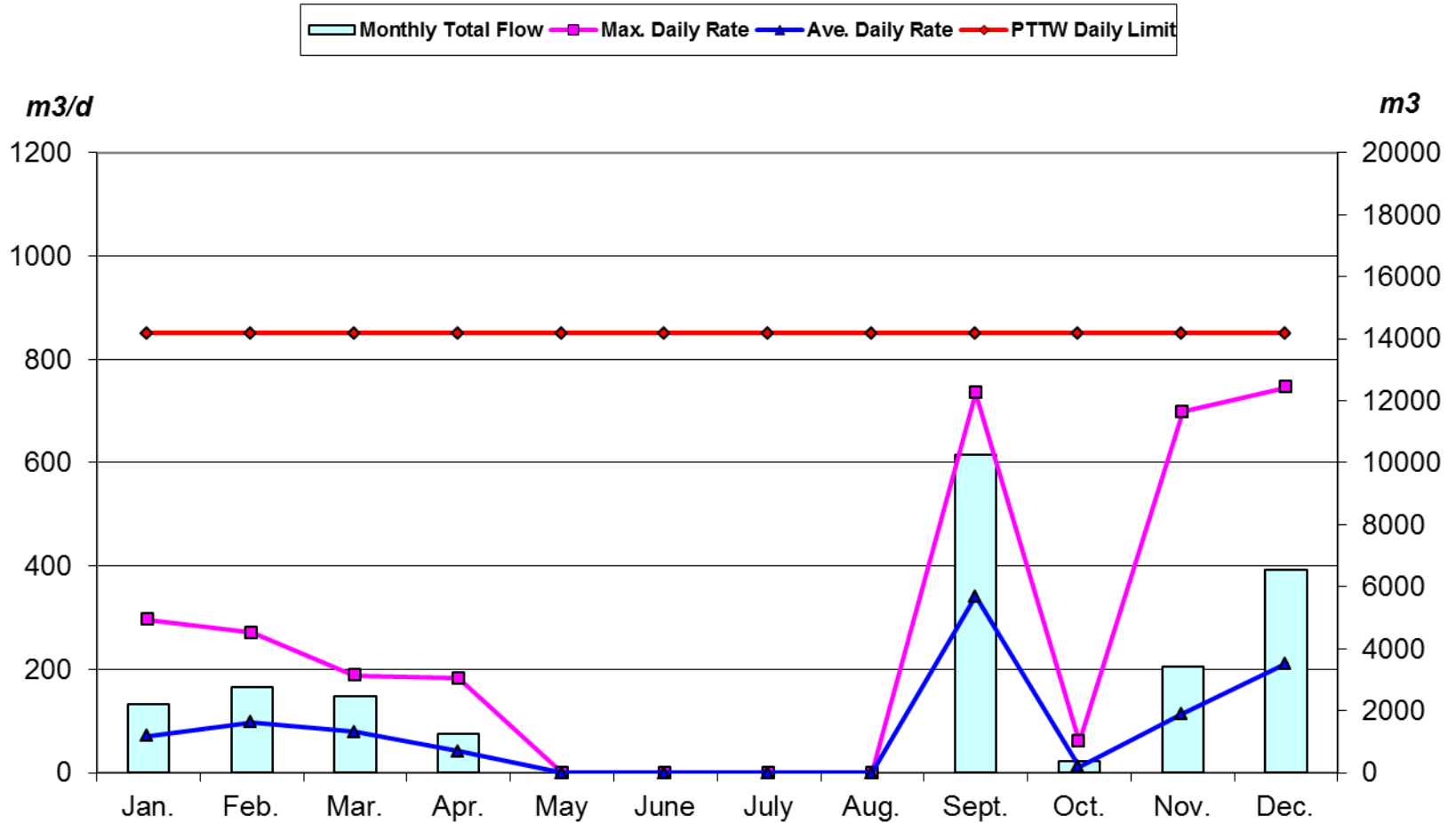


Table 4-2: Carlisle DWS (FDC01 & FDC02) - 2013 Monthly Production (Summary)

FDC01, FDC02	Units	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Total	m ³	2,215	2,739	2,457	1,244	0	0	0	0	10,247	352	3,419	6,553
Average	m ³ /d	71	98	79	41	0	0	0	0	342	11	114	211
Maximum	m ³ /d	296	270	188	182	0	0	0	0	735	60	699	746
PTTW	m ³ /d	851	851	851	851	851	851	851	851	851	851	851	851

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Table 4-3: Carlisle DWS (FDC03) - 2013 Daily Production

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day
1	192	124	308	613	170	453	785	184	561	14	0	0
2	581	487	203	463	349	185	29	575	389	0	0	23
3	295	123	196	28	499	629	0	689	307	54	0	0
4	123	351	213	241	472	688	0	461	429	0	42	0
5	520	0	87	17	918	562	73	762	410	0	0	0
6	98	0	232	486	410	541	53	583	608	0	0	0
7	218	0	0	53	384	429	289	588	162	18	0	0
8	279	0	461	528	915	635	680	362	357	0	0	0
9	0	281	0	22	367	501	442	149	573	45	0	21
10	490	4	470	407	556	523	407	270	143	86	0	0
11	0	86	249	160	191	473	354	257	458	0	22	0
12	327	53	177	10	296	173	569	345	264	0	10	0
13	0	413	436	488	865	603	679	752	371	0	6	0
14	502	0	40	0	453	507	811	0	7	31	0	0
15	94	519	821	64	669	526	957	619	431	14	0	0
16	456	271	48	274	319	321	1,229	208	50	0	0	33
17	567	183	493	125	848	810	931	1,153	0	0	0	0
18	0	445	52	371	481	357	980	1,117	23	10	24	0
19	0	49	0	496	904	938	918	560	0	0	0	0
20	0	57	489	166	871	594	0	1,117	0	0	2	6
21	24	255	36	0	333	950	521	960	68	27	16	0
22	0	227	526	92	719	937	573	879	0	37	3	6
23	0	86	0	122	348	544	798	1,134	739	0	0	0
24	0	75	663	443	348	932	712	1,122	0	0	0	35
25	0	489	164	92	598	943	961	1,111	0	0	33	0
26	0	35	251	368	744	549	854	528	0	0	0	0
27	0	397	37	519	1,007	950	984	0	0	0	2	13
28	42	48	657	283	399	538	675	0	0	29	0	0
29	44		65	291	482	478	763	0	0	0	0	8
30	0		276	516	468	645	774	441	28	0	0	30
31	360		508		611		492	250		0		0
Total	5,213	5,060	8,155	7,737	16,992	17,912	18,291	17,175	6,377	365	159	175
Average	168	181	263	258	548	597	590	554	213	12	5	6
Min	0	0	0	0	170	173	0	0	0	0	0	0
Max	581	519	821	613	1,007	950	1,229	1,153	739	86	42	35
PTTW	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160

Note: Municipal Drinking Water Licence (005-104) FDC03R and FDC05 Rated Capacity 3,456 m³/day

Summary Report for Municipalities

Figure 4-2: Carlisle DWS (FDC03) - 2013 Monthly Production (Summary)

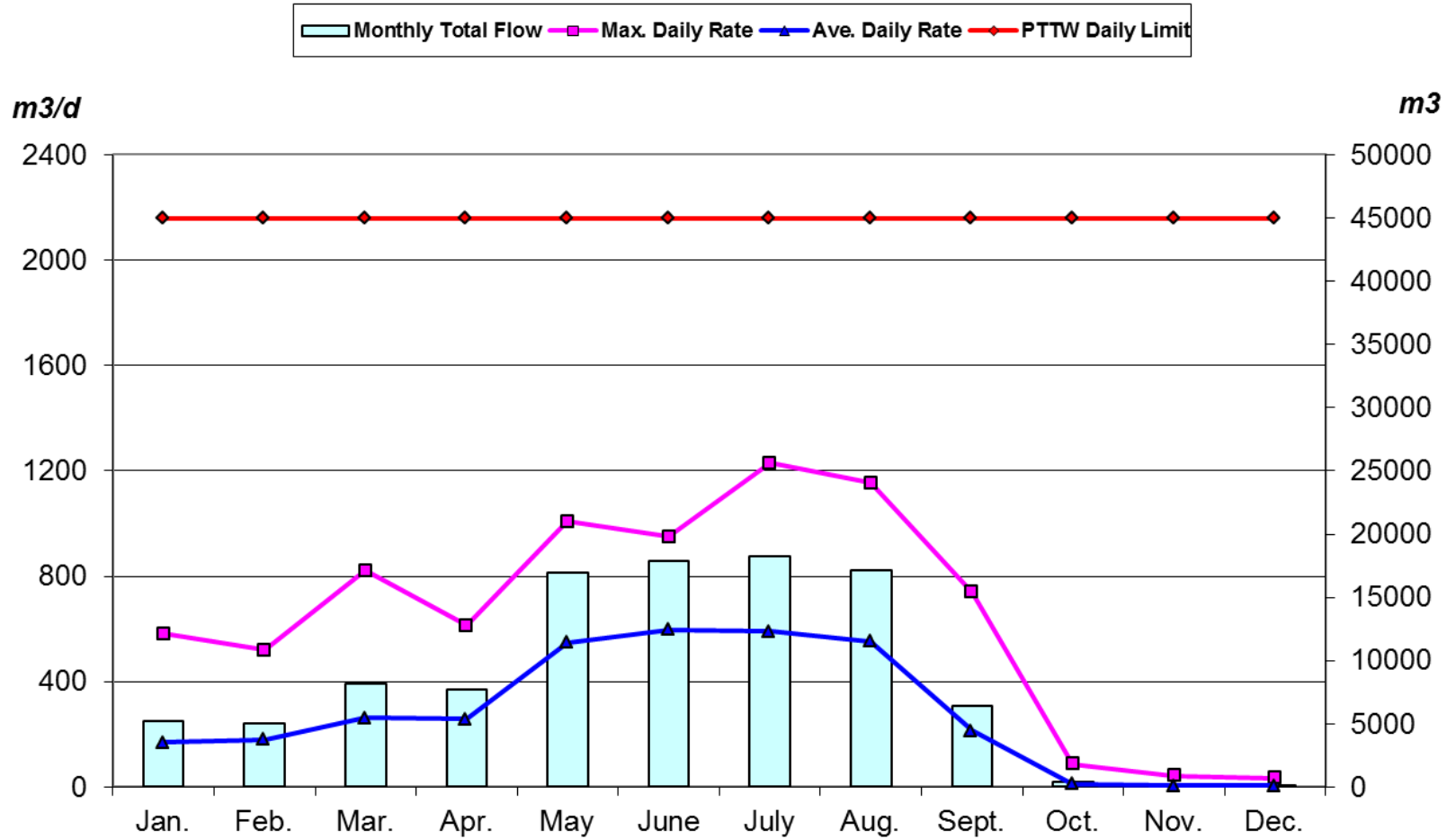


Table 4-4: Carlisle DWS (FDC03) - 2013 Monthly Production (Summary)

FDC03R	Units	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Total	m ³	5,213	5,060	8,155	7,737	16,992	17,912	18,291	17,175	6,377	365	159	175
Average	m ³ /d	168	181	263	258	548	597	590	554	213	12	5	6
Maximum	m ³ /d	581	519	821	613	1,007	950	1,229	1,153	739	86	42	35
PTTW	m ³ /d	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160	2,160

Summary Report for Municipalities

Table 4-5: Carlisle DWS (FDC05) - 2013 Daily Production

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day
1	0	0	257	0	109	342	573	272	539	189	658	820
2	0	0	0	0	307	143	759	404	614	0	596	759
3	0	0	0	36	403	497	1,009	237	1,085	521	594	804
4	0	35	242	264	409	459	1,145	475	721	661	578	810
5	0	385	0	9	663	368	1,125	703	683	703	633	791
6	0	16	474	0	340	161	804	520	594	715	636	753
7	22	516	168	0	484	388	375	554	278	643	626	738
8	0	175	0	22	731	456	17	616	780	651	608	811
9	0	1	0	18	371	426	434	1,058	399	623	631	699
10	0	147	0	0	435	434	314	1,130	389	594	636	709
11	0	35	22	346	152	371	276	1,128	0	651	574	707
12	0	0	0	0	250	135	436	1,087	451	676	598	710
13	0	0	51	0	463	466	599	948	347	671	682	701
14	28	0	0	156	390	392	559	1,103	0	627	705	730
15	0	0	0	295	570	403	746	1,086	0	595	656	738
16	0	0	0	225	270	251	1,072	1,087	90	583	663	703
17	0	0	0	108	715	695	791	1,020	96	579	683	730
18	18	288	2	279	405	272	910	982	96	583	590	734
19	561	0	38	305	759	709	962	1,002	267	587	644	484
20	790	29	0	5	738	448	417	1,020	0	612	657	332
21	355	0	0	528	283	707	349	874	0	585	647	550
22	422	169	0	446	686	685	518	931	53	663	689	624
23	787	400	0	331	328	396	609	1,087	665	666	798	588
24	448	0	1	384	305	651	493	1,106	0	673	793	642
25	130	162	0	57	488	665	666	1,096	0	711	806	476
26	382	24	218	315	665	386	594	799	0	701	0	0
27	802	236	0	421	763	664	684	1,111	28	677	534	0
28	292	19	3	240	264	323	470	512	0	721	794	0
29	35		0	238	367	429	548	815	0	812	778	94
30	313		0	427	359	275	534	1,101	48	713	804	42
31	0		0		464		331	254		699		439
Total	5,382	2,637	1,476	5,454	13,935	12,997	19,119	26,118	8,224	19,087	19,291	17,717
Average	174	94	48	182	450	433	617	843	274	616	643	572
Min	0	0	0	0	109	135	17	237	0	0	0	0
Max	802	516	474	528	763	709	1,145	1,130	1,085	812	806	820
PTTW	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296

Note: Municipal Drinking Water Licence (005-104) FDC03R and FDC05 Rated Capacity 3,456 m³/day

Summary Report for Municipalities

Figure 4-3: Carlisle DWS (FDC05) - 2013 Monthly Production (Summary)

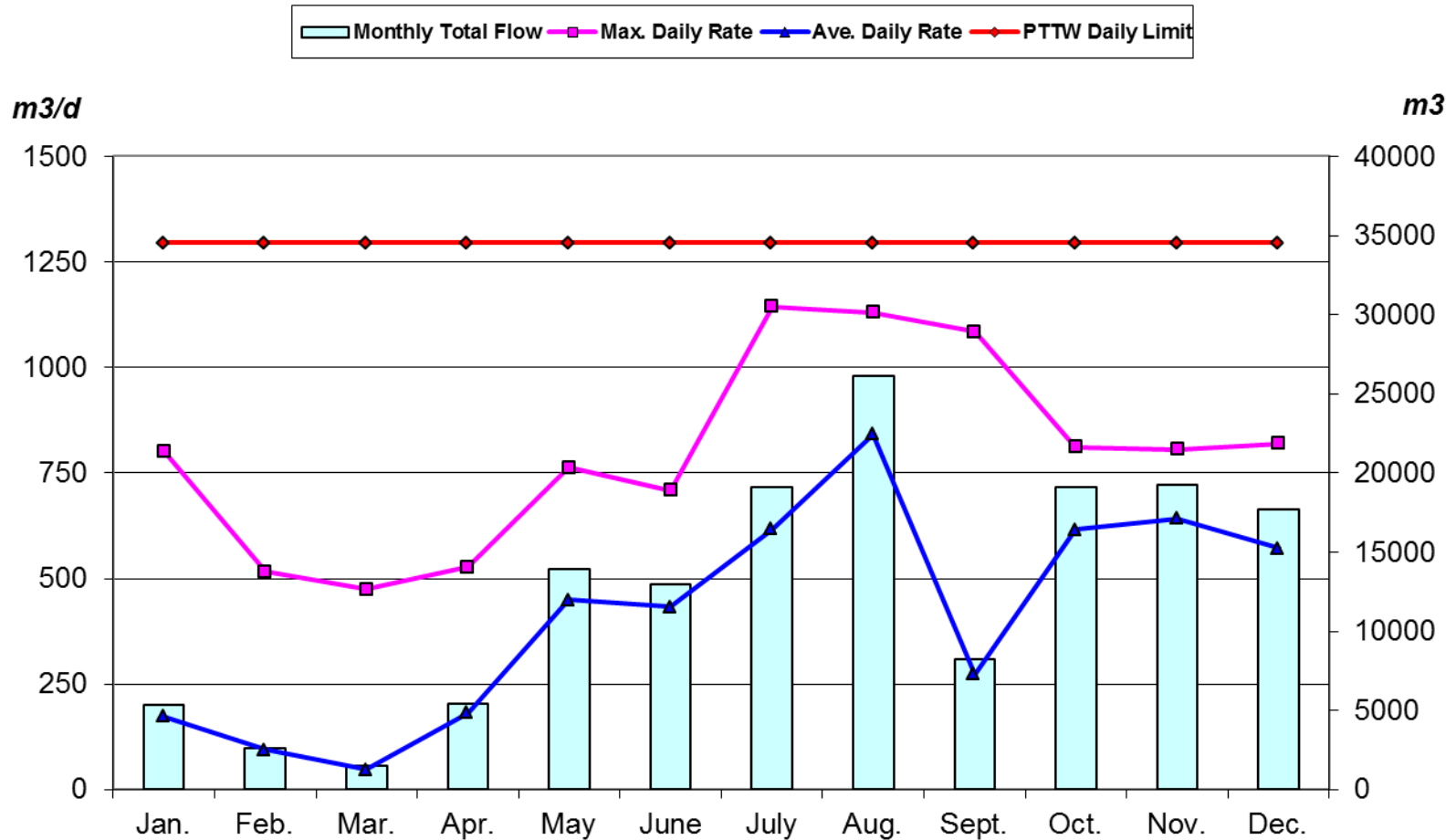


Table 4-6: Carlisle DWS (FDC05) - 2013 Monthly Production (Summary)

FDC05	Units	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Total	m ³	5,382	2,637	1,476	5,454	13,935	12,997	19,119	26,118	8,224	19,087	19,291	17,717
Average	m ³ /d	174	94	48	182	450	433	617	843	274	616	643	572
Maximum	m ³ /d	802	516	474	528	763	709	1,145	1,130	1,085	812	806	820
PTTW	m ³ /d	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296	1,296

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5 FREELTON DWS

5.1 Operational Upgrades

There were no capital projects initiated in 2013 or planned for 2014.

5.2 Adverse Water Quality Incidents (AWQI) - Freelon DWS

The following AWQIs were reported to MOE SAC and PHS.

Notification Date	Location of Adverse	AWQI	Resolution
2013-01-17	Freelon Sampling Station B	Fecal streptococci = Present	Resampled adverse location, one upstream and one downstream location. All results were acceptable. The adverse was not confirmed.
2013-07-04	Freelon Sampling Station B	Total Coliforms = 3 CFU/100mL	Resampled adverse location, one upstream and one downstream hydrant. All results were acceptable. The adverse was not confirmed.
2013-07-19	Freelon Sampling Station C	Total Coliforms = 3 CFU/100mL	Resampled adverse location, one upstream and one downstream hydrant. All results were acceptable. The adverse was not confirmed.
2013-08-22	Freelon Sampling Station B	Total Coliforms = 5 CFU/100mL E.coli = NDOGN	Resampled adverse location, one upstream and one downstream hydrant 24 and 48 hours apart. All results passed. The adverse was not confirmed. A Boil Water Advisory was issued by Public Health on Aug 22nd, lifted on Aug 24th.

Note: NDOGN - Overgrowth of background bacteria with NO countable target bacteria (E.coli)



Hamilton

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5.3 Water Production Reports - Summary

The following provides a summary of daily flow rates and instantaneous peak flow rates in comparison to the capacity of the water works as identified in the Permit to Take Water. This information is tabulated in the accompanying tables.

Summary Report for Municipalities

Table 5-1: Freelton DWS (FDF01) - 2013 Daily Production

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day
1	396	382	0	48	75	0	188	175	0	366	41	12
2	741	0	331	31	181	0	425	300	186	0	661	0
3	9	0	112	0	679	133	0	668	322	0	656	415
4	0	0	0	73	62	26	201	229	0	0	147	664
5	0	376	246	111	3	0	416	0	22	451	68	34
6	257	0	0	0	676	257	0	271	444	40	0	0
7	743	0	0	0	113	11	0	198	0	0	123	0
8	390	0	0	0	0	0	308	0	0	352	654	352
9	307	226	382	363	10	341	204	295	0	36	654	658
10	0	149	2	0	208	67	207	224	0	0	41	412
11	16	0	0	0	0	115	670	0	65	0	0	0
12	0	226	63	0	0	3	29	539	0	405	275	0
13	141	0	0	77	64	242	0	232	269	660	86	412
14	242	0	297	47	435	603	556	0	149	572	0	657
15	113	0	77	153	0	662	667	75	0	56	0	177
16	0	365	0	112	0	305	671	476	149	0	232	0
17	105	16	0	25	291	0	659	0	344	0	233	49
18	0	0	201	0	74	279	664	388	0	261	0	151
19	0	21	233	278	0	405	588	357	0	657	74	660
20	0	0	0	60	408	660	0	357	224	622	0	655
21	420	377	0	174	69	10	0	48	229	192	0	43
22	739	0	0	358	0	0	599	67	0	251	99	0
23	221	0	386	203	105	546	661	486	0	99	0	0
24	0	0	13	196	274	0	443	0	335	0	0	72
25	0	272	0	63	0	349	0	621	175	0	10	558
26	308	144	53	36	184	143	491	27	0	0	289	612
27	0	0	0	9	213	0	670	286	0	503	0	308
28	0	0	378	0	104	431	664	0	441	621	0	0
29	280		3	103	0	46	634	0	57	448	0	0
30	0		0	686	358	0	15	325	0	0	459	590
31	5		28		0		0	190		0		657
Total	5,432	2,552	2,806	3,206	4,584	5,632	10,631	6,833	3,410	6,592	4,802	8,147
Average	175	91	91	107	148	188	343	220	114	213	160	263
Min	0	0	0	0	0	0	0	0	0	0	0	0
Max	743	382	386	686	679	662	671	668	444	660	661	664
PTTW	878	878	878	878	878	878	878	878	878	878	878	878

Note: Municipal Drinking Water Licence (005-102) FDF01 Rated Capacity 878 m³/day

Summary Report for Municipalities

Figure 5-1: Freelon DWS (FDF01) - 2013 Monthly Production (Summary)

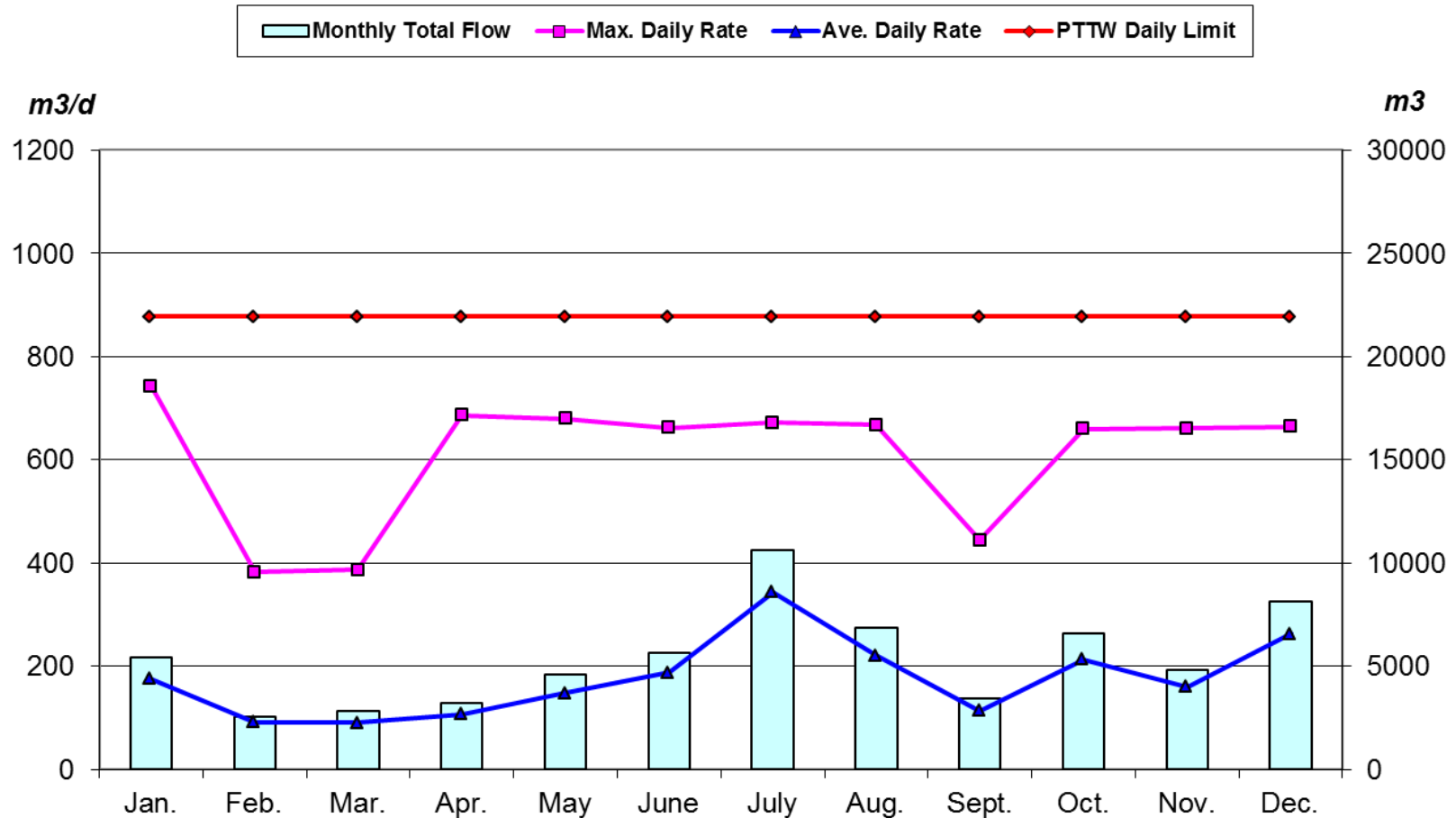


Table 5-2: Freelon DWS (FDF01) - 2013 Monthly Production (Summary)

FDF01	Units	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Total	m ³	5,432	2,552	2,806	3,206	4,584	5,632	10,631	6,833	3,410	6,592	4,802	8,147
Average	m ³ /d	175	91	91	107	148	188	343	220	114	213	160	263
Maximum	m ³ /d	743	382	386	686	679	662	671	668	444	660	661	664
PTTW	m ³ /d	878	878	878	878	878	878	878	878	878	878	878	878

Summary Report for Municipalities

Table 5-3: Freelton DWS (FDF03) - 2013 Daily Production

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day
1	0	652	0	989	0	0	129	0	0	435	0	19
2	0	0	503	72	0	354	489	176	296	0	0	0
3	0	0	193	0	0	630	0	0	383	0	0	0
4	0	0	0	361	0	71	256	384	0	0	0	0
5	0	643	405	277	0	0	444	0	9	568	24	0
6	0	0	0	0	528	814	0	280	633	54	39	21
7	0	0	0	0	238	0	0	267	0	0	0	0
8	59	0	0	0	0	0	418	28	0	412	0	0
9	0	384	653	656	890	651	264	387	753	50	0	0
10	0	253	4	0	232	70	0	300	626	0	0	53
11	54	0	0	0	0	171	0	0	73	0	0	0
12	0	383	110	35	0	0	0	707	0	19	372	0
13	238	0	0	835	39	48	0	40	344	0	113	0
14	410	0	504	19	563	16	0	0	199	0	0	0
15	191	0	132	248	29	0	0	179	0	11	0	0
16	0	619	0	150	0	0	15	609	194	0	300	0
17	182	29	0	3	574	0	54	0	398	0	467	27
18	0	0	334	0	140	0	0	442	0	0	0	0
19	0	102	365	434	0	0	126	439	0	0	97	0
20	0	23	0	106	787	488	0	449	289	0	0	0
21	0	642	0	50	115	15	0	0	302	0	602	0
22	53	0	0	52	0	0	0	155	0	3	477	0
23	45	0	659	163	212	706	19	632	0	227	0	119
24	0	0	22	121	520	0	0	0	388	21	0	79
25	0	461	0	5	0	246	0	817	231	0	181	0
27	0	0	0	3	391	0	0	366	0	0	0	0
28	0	0	647	0	42	544	0	0	571	0	0	0
29	469		0	186	0	60	0	0	75	21	0	0
30	0		0	131	686	0	75	339	0	0	593	0
31	0		47		0		0	253		0		32
Total	2,223	4,439	4,622	5,417	6,337	5,073	2,289	7,282	5,765	1,820	4,035	350
Average	72	159	149	181	204	169	74	235	192	59	134	11
Min	0	0	0	0	0	0	0	0	0	0	0	0
Max	523	652	659	989	890	814	489	817	753	568	769	119
PTTW	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607

Note: Municipal Drinking Water Licence (005-102) FDF03 Rated Capacity 1,607 m³/day

Summary Report for Municipalities

Figure 5-2: Freelon DWS (FDF03) - 2013 Monthly Production (Summary)

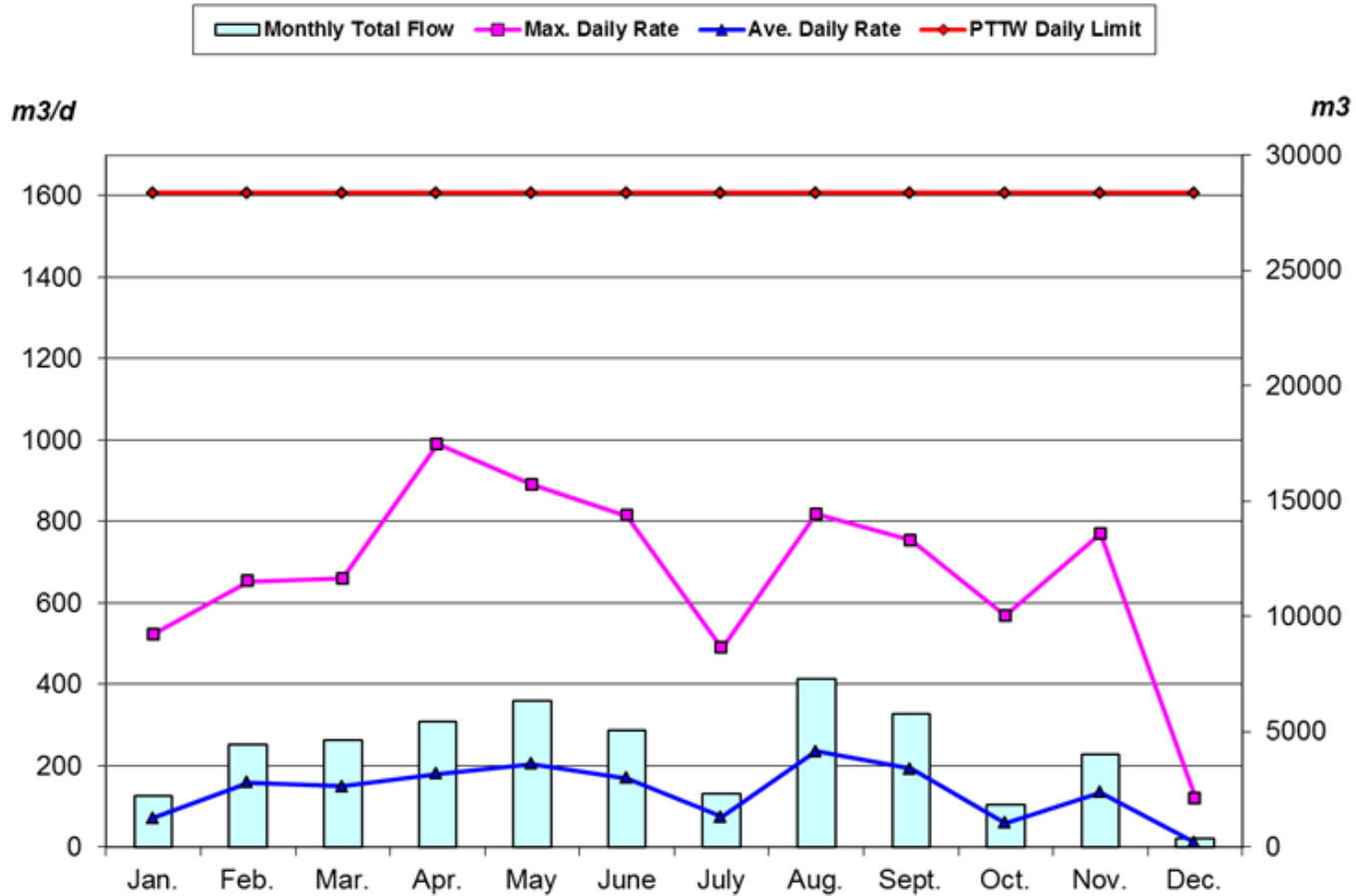


Table 5-4: Freelon DWS (FDF03) - 2013 Monthly Production (Summary)

FDF03	Units	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Total	m ³	2,223	4,439	4,622	5,417	6,337	5,073	2,289	7,282	5,765	1,820	4,035	350
Average	m ³ /d	72	159	149	181	204	169	74	235	192	59	134	11
Maximum	m ³ /d	523	652	659	989	890	814	489	817	753	568	769	119
PTTW	m ³ /d	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607	1,607



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6 GREENSVILLE DWS

6.1 Operational Upgrades

There were no capital projects initiated in 2013 or planned for 2014.

6.2 Adverse Water Quality Incidents (AWQI) - Greensville DWS

There were no AWQIs for the reporting period.

6.3 Water Production Reports - Summary

The following provides a summary of daily flow rates and instantaneous peak flow rates in comparison to the capacity of the water works as identified in the Permit to Take Water. This information is tabulated in the accompanying tables.

Summary Report for Municipalities

Table 6-1: Greenville DWS (FDG01) - 2013 Daily Production

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day	m ³ /day
1	30	28	28	35	32	41	39	35	35	34	33	39
2	29	33	35	33	30	41	52	40	46	34	35	38
3	27	30	35	31	32	38	35	39	35	35	40	37
4	30	26	34	30	40	53	38	36	49	34	34	37
5	32	25	33	30	39	40	35	42	41	36	33	39
6	30	27	33	34	35	34	48	42	45	37	34	39
7	25	28	31	33	41	37	37	37	37	33	35	41
8	26	29	29	31	37	45	38	39	48	33	35	40
9	27	29	32	31	43	48	38	43	46	32	37	35
10	27	35	35	32	34	34	45	48	46	31	36	40
11	27	29	31	31	41	37	40	55	42	31	35	37
12	46	29	30	29	48	42	43	48	35	34	33	37
13	35	28	29	32	38	34	50	36	35	39	33	37
14	29	26	29	34	39	36	60	47	47	40	35	41
15	33	27	29	32	39	43	50	46	48	31	35	55
16	46	31	33	33	35	44	56	48	40	31	35	68
17	31	31	34	36	37	35	52	56	38	31	37	53
18	32	30	32	42	44	42	63	61	38	31	35	42
19	39	26	33	31	47	59	46	46	35	36	35	40
20	35	29	32	32	56	72	35	56	34	35	35	44
21	30	28	33	47	38	48	35	47	38	33	35	48
22	29	29	34	37	47	59	45	53	40	31	35	47
23	28	32	36	34	47	47	33	49	36	29	35	50
24	29	34	38	32	37	46	42	62	38	32	39	54
25	29	31	33	32	42	40	42	56	37	30	38	57
26	33	28	30	41	48	41	52	43	35	35	36	58
27	31	29	35	40	49	41	48	40	41	39	37	56
28	29	27	31	37	41	34	48	39	38	33	35	67
29	29		39	35	38	39	35	41	48	33	35	68
30	27		33	32	36	40	43	40	35	33	34	58
31	33		37		38		36	32		31		29
Total	959	811	1,014	1,019	1,247	1,289	1,358	1,403	1,206	1,037	1,058	1,432
Average	31	28	33	34	40	43	44	45	40	33	35	46
Min	25	0	28	29	30	34	33	32	34	29	33	29
Max	46	35	39	47	56	72	63	62	49	40	40	68
PTTW	197	197	197	197	197	197	197	197	197	197	197	197

Note: Municipal Drinking Water Licence (005-103) FDG01 Rated Capacity 199 m³/ day

Summary Report for Municipalities

Figure 6-1: Greenville DWS (FDG01) - 2013 Monthly Production (Summary)

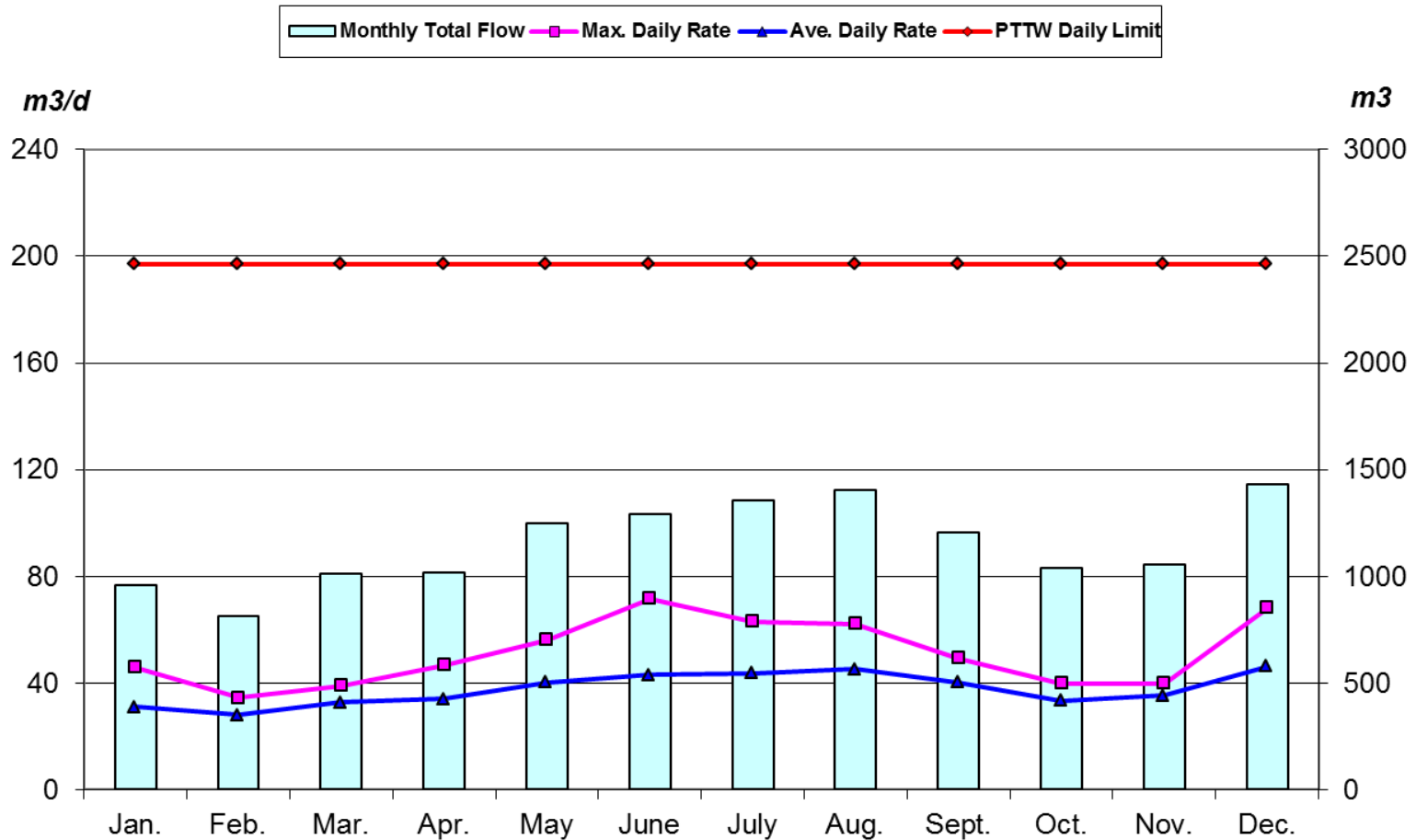


Table 6-2: Greenville DWS (FDG01) - 2013 Monthly Production (Summary)

FDG01	Units	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Total	m ³	959	811	1,014	1,019	1,247	1,289	1,358	1,403	1,206	1,037	1,058	1,432
Average	m ³ /d	31	28	33	34	40	43	44	45	40	33	35	46
Maximum	m ³ /d	46	35	39	47	56	72	63	62	49	40	40	68
PTTW	m ³ /d	197	197	197	197	197	197	197	197	197	197	197	197

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7 LYNDEN DWS

7.1 Operational Upgrades

There were no capital projects initiated in 2013 or planned for 2014.

Although there had not been an adverse result for lead in 2013, a Drinking Water Advisory remains in place. Residents continue to be provided with water filters at no cost to them. Work to identify a second well location is underway and it is expected that the Environmental Assessment (EA) will be completed in 2014. The schedule for capital work will be determined following the completion of the EA.

7.2 Adverse Water Quality Incidents (AWQI) - Lynden DWS

There were no AWQIs for the reporting period.

7.3 Water Production Reports - Summary

The following provides a summary of daily flow rates and instantaneous peak flow rates in comparison to the capacity of the water works as identified in the Permit to Take Water. This information is tabulated in the accompanying tables.

Summary Report for Municipalities

Table 7-1: Lynden DWS (FDL01) - 2013 Daily Production

Date	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day	m3/day
1	63	65	67	125	87	88	93	64	90	87	86	92
2	79	74	102	87	101	72	86	79	95	70	88	77
3	64	73	85	78	79	92	70	62	79	88	92	89
4	63	69	73	76	91	81	83	86	73	64	91	68
5	78	64	89	87	85	80	75	77	91	86	67	87
6	75	63	104	84	99	66	92	93	74	74	88	69
7	66	62	121	91	77	90	92	67	92	83	67	101
8	67	67	108	76	83	96	67	85	90	71	88	109
9	64	69	124	68	74	87	83	66	68	64	79	79
10	72	71	119	69	73	80	94	100	91	86	97	87
11	54	65	108	76	92	77	69	100	69	67	79	70
12	73	60	114	41	89	67	91	70	77	89	74	91
13	68	60	102	101	79	89	89	82	71	65	89	70
14	63	63	130	79	83	72	91	86	92	103	68	101
15	63	59	124	73	89	107	105	70	86	67	87	92
16	67	73	111	78	91	90	93	90	71	82	89	71
17	67	62	126	78	87	91	98	98	73	75	92	92
18	66	73	124	63	80	67	98	92	85	63	69	92
19	65	63	119	76	134	92	92	91	65	93	89	76
20	89	66	118	79	143	98	95	102	82	73	79	72
21	62	65	116	100	91	92	90	74	86	77	74	107
22	64	61	118	78	98	82	92	92	82	74	86	66
23	68	86	118	79	68	98	74	73	70	69	84	76
24	67	81	138	71	76	121	92	99	106	77	91	93
25	64	75	122	79	112	100	76	107	62	72	68	89
26	75	74	118	73	95	98	82	60	78	91	92	89
27	71	71	113	85	92	73	90	98	68	78	73	81
28	81	71	123	82	65	86	82	92	93	88	87	87
29	66		129	66	87	71	66	73	97	68	69	98
30	63		128	95	77	94	87	77	70	89	97	78
31	67		123		79		60	98		60		90
Total	2,112	1,907	3,512	2,393	2,758	2,598	2,648	2,603	2,427	2,392	2,480	2,639
Average	68	68	113	80	89	87	85	84	81	77	83	85
Min	54	59	67	41	65	66	60	60	62	60	67	66
Max	89	86	138	125	143	121	105	107	106	103	97	109
PTTW	327	327	327	327	327	327	327	327	327	327	327	327

Note: Municipal Drinking Water Licence (005-105) FDL01 Rated Capacity 327 m3/ day

Summary Report for Municipalities

Figure 7-1: Lynden DWS (FDL01) - 2013 Monthly Production (Summary)

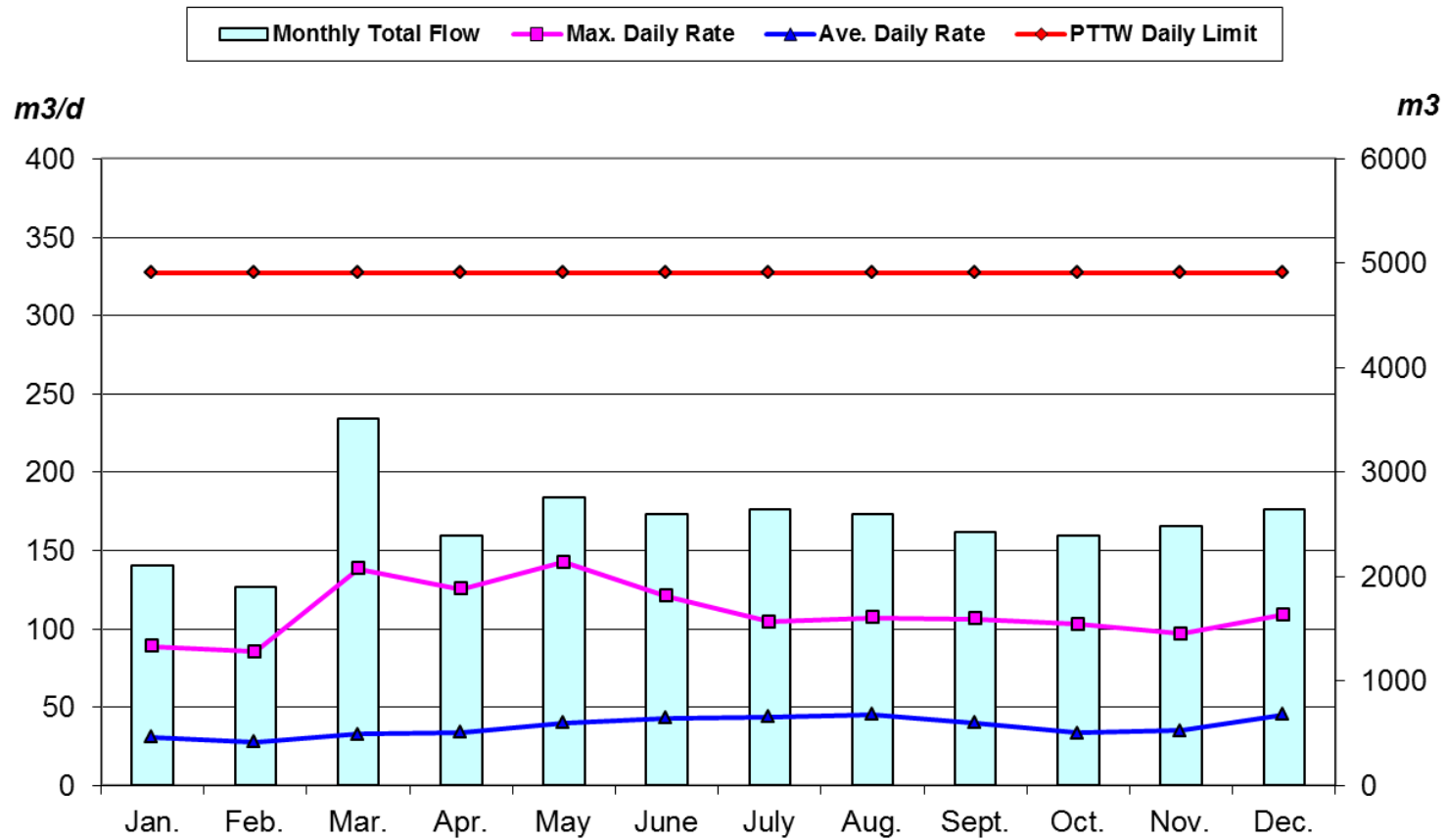


Table 7-2: Lynden DWS (FDL01) - 2013 Monthly Production (Summary)

FDL01	Units	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Total	m ³	2,112	1,907	3,512	2,393	2,758	2,598	2,648	2,603	2,427	2,392	2,480	2,639
Average	m ³ /d	68	68	113	80	89	87	85	84	81	77	83	85
Maximum	m ³ /d	89	86	138	125	143	121	105	107	106	103	97	109
PTTW	m ³ /d	327	327	327	327	327	327	327	327	327	327	327	327