

Monthly Operations Report

for the Municipality of Casselman's Water and
Wastewater Systems

December 2022



Ontario Clean Water Agency
Agence Ontarienne Des Eaux

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SECTION 1 – MONTHLY OPERATIONS REPORT CARD

Operations and Compliance Reliability Indices

Legend					
✓	●	▲	✗	Y/N	N/A
Achieved	On Target	Caution	Not Achieved	Yes/No	Not Applicable

	Target	December 2022	Comments
Health & Safety			
Number of Incidents	0	●	
<i>Actual Result</i>		0	
Drinking Water			
Inspection Ratings (YTD)	100 %	●	
<i>Actual Result</i>		100 %	
AWQI's	0	●	
<i>Actual Result</i>		0	
Number of Non-Compliances	0	●	
<i>Actual Result</i>		0	
Number of Water Main Breaks	0	●	
<i>Actual Result</i>		0	
Number of Complaints	0	●	
<i>Actual Result</i>		0	
Water Main Flushing	0	●	
<i>Target Achieved</i>		Y	
Wastewater			
Number of Non-Compliances	0	●	
<i>Actual Result</i>		0	
Number of Bypasses	0	●	
<i>Actual Result</i>		0	
Number of Sanitary Sewer Back-ups	0	●	
<i>Actual Result</i>		0	
Sanitary Collection System Flushing	0	●	
<i>Target Achieved</i>		Y	
Preventive Maintenance			
Work Orders Completed	>95%	●	
<i>Target Achieved</i>		Y	

SECTION 2 – FACILITY LISTING

Water Treatment & Distribution

Facility	Type
5971 - Casselman Water Treatment Plant	1 WTP (Actiflo Process)
1553 - Casselman Water Distribution System	1 Water Storage Tower + Water Distribution System

Wastewater Treatment & Collection

Facility	Type
1501 - Casselman Wastewater Treatment Plant	3 Facultative Lagoon Cells 1 MBBR (Moving Bed Biofilm Reactor)
5976 - Casselman Wastewater Collection System	6 Sewage Pumping Stations + Wastewater Collection System

SECTION 3 – COMPLIANCE

There were no compliance issues to report for Casselman’s water or wastewater treatment system.

The most recent MECP inspections are listed below:

Location	Inspector	Inspection Rating (%)	Date
Casselman Water	Jean-Francois Durocher	100	March 10, 2022
Casselman Sewage	<i>*OCWA has no recent sewage system inspections on file.</i>		

There are no outstanding actions required from any recent MECP inspections.

SECTION 4 – FACILITY PERFORMANCE

Please see the Water & Wastewater Performance Assessment Reports attached in Appendix A.

SECTION 5 – DRINKING WATER QUALITY MANAGEMENT SYSTEM (DWQMS)

OCWA received accreditation for Casselman’s Drinking Water System in August 2019.

The 2022 Re-Accreditation Audit by SAI Global took place in November.

SECTION 6 - MAINTENANCE / CAPITAL / ADDED VALUE

Water Treatment & Distribution

- Responded to sixteen after-hours call-in alarms
- Settled water solenoid valve failed
- Replaced High Lift #1 check valve and air relief valve
- Five hydrants rebuilt
- Repaired leak on coagulant injection line
- Purchased new chlorine analyzer for installation at the WTP
- Purchased new turbidity analyzer for installation at the WTP

Wastewater Treatment & Collection

- Responded to four after-hours call-in alarms

Preventive Maintenance Plan (PMP) Work Order Summary

All required work orders were completed. Please refer to the summary reports attached in Appendix B.

SECTION 7 – COMPLAINTS

Facility	Date	Description
		None to report

SECTION 8 – RECOMMENDATIONS / GENERAL COMMENTS

General

- 14 locates were completed in December.

Water Treatment & Distribution

- Approved Capital & Major Maintenance work for 2022 was completed.

Wastewater Treatment & Collection

- Wastewater sampling as part of Queen’s University’s Covid sampling program continued in December.

Appendix A

Performance Assessment Reports



ONTARIO CLEAN WATER AGENCY PERFORMANCE ASSESSMENT REPORT

MUNICIPALITY: MUNICIPALITY OF CASSELMAN
PROJECT: CASSELMAN DRINKING WATER SYSTEM
DESCRIPTION: SURFACE WATER TREATMENT PLANT
CHEMICALLY ASSISTED FILTRATION

YEAR: 2022
WATER SOURCE: NATION RIVER
DESIGN CAPACITY: 3182 m3/d
WORKS NUM.: 210001219

MONTH	SYSTEM FLOWS (TREATED)			TREATED		DISTRIBUTION		RAW					TREATED					DISTRIBUTION	
	Total Flow (m ³)	Avg. Flow (m ³)	Max Day Flow (m ³)	Min. Free Cl ₂ Resid. (mg/L)	Max Free Cl ₂ Resid. (mg/L)	Min Combined Cl ₂ Resid. (mg/L)	Max Combined Cl ₂ Resid. (mg/L)	Dissolved Organic Carbon (mg/L)	Total Organic Carbon (mg/L)	Total Hardness (mg/L)	Average Manganese (mg/L)	Max Manganese (mg/L)	Dissolved Organic Carbon (mg/L)	Total Organic Carbon (mg/L)	Total Hardness (mg/L)	Average Manganese (mg/L)	Max Manganese (mg/L)	THM (µg/L) quarterly	HAA (µg/L) quarterly
JAN	30632	988	1389	0.96	2.60	1.08	2.48	6.00	6.00	398	0.10	0.12	3.30	3.30	401	0.09	0.72	58.00	41.30
FEB	28433	1015	1367	0.78	2.60	1.06	2.37	3.60	4.70	478	0.18	0.90	2.00	2.50	480	0.08	0.14	-	-
MAR	31167	1005	1296	1.32	2.61	0.50	2.61	7.30	9.70	138	0.17	0.72	3.70	4.20	287	0.12	0.58	-	-
APR	31432	1048	1373	0.75	2.59	0.85	2.10	7.70	7.70	267	0.08	0.09	3.40	3.40	264	0.03	0.04	58.00	43.40
MAY	37972	1225	2029	0.39	2.24	1.04	2.10	6.30	6.30	285	0.11	0.19	2.90	2.90	282	0.03	0.07	-	-
JUN	37112	1237	1483	0.73	3.25	0.85	2.20	7.30	7.30	308	0.09	0.15	3.50	3.50	308	0.02	0.04	-	-
JUL	40529	1307	1618	0.44	2.74	0.58	1.83	7.80	7.80	344	0.18	0.35	3.70	3.70	333	0.03	0.04	163.00	126.00
AUG	39559	1276	1703	0.64	2.94	0.52	3.58	11.30	11.30	293	0.15	0.33	5.60	5.60	288	0.06	0.17	-	-
SEP	38211	1274	1828	0.67	2.64	0.76	2.06	8.40	8.40	297	0.25	0.61	3.10	3.10	311	0.05	0.16	-	-
OCT	33824	1091	1596	0.50	2.25	0.89	2.18	5.70	5.70	315	0.09	0.24	2.30	2.30	313	0.03	0.04	105.00	77.80
NOV	33551	1118	1602	0.44	2.24	0.82	1.98	6.35	6.35	339	0.11	0.16	2.65	2.65	345	0.04	0.07	-	-
DEC	30922	997	1420	0.25	2.96	0.41	2.09	5.00	4.10	354	0.08	0.16	2.00	1.80	331	0.04	0.07	-	-
TOTAL	413,343																		
AVG		1,132						6.90	7.11	318.00	0.13		3.18	3.25	328.58	0.05		96.00	72.13
MAX			2,029		3.25		3.58					0.90					0.72		
MIN				0.25		0.41													
CRITERIA			3,182	CT		0.25	3.00											<100	<80

MONTH	SYSTEM FLOWS (RAW)			ACTIFLO FILTER #1		ACTIFLO FILTER #2		Efficiency	TANK		TREATED			E. coli / Total Coliform / HPC (Number of Samples Collected)				RAW WATER	
	Total Flow (m ³)	Avg. Day Flow (m ³)	Max. Flow (m ³)	Avg. Turbidity (NTU)	Max. Turbidity (NTU)	Avg. Turbidity (NTU)	Max. Turbidity (NTU)	Turbidity % < 0.3 NTU	Backwash TSS (mg/L)	Supernatant TSS (mg/L)	Avg. Turbidity (NTU)	Max. Turbidity (NTU)	Min UV Intensity (mJ/cm ²)	Safe		Adverse		Max. Coliform	Max. E.coli
														Treated	Distribution	Treated	Distribution	Count	Count
JAN	38152	1231	1618	0.07	0.38	0.35	0.80	99.97	< 3	3	0.37	0.60	61	5	15	0	0	140	38
FEB	34681	1239	1686	0.08	0.24	0.06	0.69	99.93	7	6	0.61	0.98	70	4	12	0	0	17600	117
MAR	37198	1200	1546	0.11	0.39	0.07	0.78	99.85	3	6	0.53	0.94	67	4	12	0	0	180	51
APR	38033	1268	1824	0.13	0.33	0.10	0.60	99.88	6	6	0.34	0.97	76	4	12	0	0	470	20
MAY	46116	1488	2668	0.17	0.75	0.15	0.86	97.98	14	< 3	0.48	3.33	55	5	15	0	0	180	32
JUN	45684	1523	1796	0.14	0.41	0.13	0.78	99.39	< 3	4	0.50	0.76	56	4	12	0	0	260	28
JUL	49779	1606	2058	0.18	0.61	0.16	0.53	98.24	5	3	0.65	1.11	52	4	12	0	0	29	11
AUG	49799	1606	2164	0.13	0.41	0.12	0.55	99.90	9	5	0.61	2.66	65	5	15	0	0	150	58
SEP	47138	1571	2204	0.14	0.56	0.12	0.50	99.83	23	6	0.82	2.08	71	4	12	0	0	420	14
OCT	42638	1375	1869	0.41	0.96	0.39	0.89	36.19	5	48	0.74	2.73	64	5	15	0	0	30	13
NOV	41774	1392	1908	0.30	0.74	0.19	0.84	72.31	20	9	0.67	3.01	61	4	12	0	0	290	96
DEC	41129	1327	2013	0.12	0.57	0.04	0.92	99.76	11	23	0.34	1.95	71	4	12	0	0	740	79
TOTAL	512,121													52	156	0	0		
AVG		1,402		0.17		0.16		91.94	8.8	10.0	0.56								
MAX			2,668		0.96		0.92		23	48		3.33						17600	117
MIN													52.00						
CRITERIA			3,182		<1		<1	>95%				<5	>40						

COMMENTS:

**ONTARIO CLEAN WATER AGENCY
PERFORMANCE ASSESSMENT REPORT**

OWNER: MUNICIPALITY OF CASSELMAN
PROJECT: CASSELMAN WASTEWATER TREATMENT SYSTEM
ECA NUM.: 8160-BAHPRF
DESCRIPTION: MOVING BED BIOLOGICAL REACTOR (MBBR) TREATMENT LAGOON

YEAR: 2022
WATER COURSE: NATION RIVER
DESIGN CAPACITY: 2,110 m³/d
FACILITY WORKS#: 110002201

MONTH	RAW								EFFLUENT										
	Total Flow m ³	Avg Day Flow m ³	Max Day Flow m ³ /d	Avg Alum Dosage (mg/L)	Avg Raw BOD5 (mg/L)	Avg Raw TSS (mg/L)	Avg. Raw TKN (mg/L)	Avg Raw TP (mg/L)	Effluent Flow m ³	Effluent Avg Flow m ³	Effluent Max Flow m ³ /d	Avg CBOD5 (mg/L)	Avg TSS (mg/L)	Avg TAN (mg/L)	Avg TP (mg/L)	Avg TKN (mg/L)	Avg Nitrate (mg/L)	Avg Nitrite (mg/L)	E. coli (cfu/100 mL)
JAN	33,727	1,088	1,355	134	166	300	79.3	8.86	76,800	2,477	3,120	4.1	16	9.0	0.23	-	10.5	1.3	897
FEB	33,078	1,181	1,281	142	247	530	79.8	8.30	40,171	1,435	1,440	4.0	12	9.2	0.42	18.7	18.6	0.7	858
MAR	65,061	2,099	3,300	155	198	385	33.5	3.11	34,836	1,124	3,944	6.0	8	11.2	0.48	14.5	17.0	0.1	600
APR	63,658	2,122	2,902	133	266	276	44.2	5.32	112,967	3,766	4,998	6.3	13	4.7	0.47	8.3	12.9	0.6	16
MAY	48,681	1,570	1,928	133	160	250	52.1	6.16	69,662	4,644	4,998	4.0	19	0.1	0.25	2.4	13.2	0.1	1
JUN	41,926	1,398	1,589	142	310	450	47.3	6.72											
JUL	37,334	1,204	1,319	170	236	670	51.8	7.79											
AUG	41,452	1,337	1,567	194	406	480	67.8	8.86											
SEPT	40,759	1,359	1,572	181	396	345	70.3	7.97											
OCT	34,063	1,099	1,276	190	309	720	55.0	7.37	61,260	2,112	2,630	3.0	7	0.2	0.41	4.1	7.4	0.3	6
NOV	35,191	1,173	1,489	191	358	550	102.0	11.30	102,364	3,412	3,930	5.5	10.0	2.3	0.38	6.8	7.8	0.1	15
DEC	52,016	1,678	2,167	148	181	335	53.6	6.50	125,250	4,040	4,766	10.3	15.3	7.7	0.43	14.4	7.9	0.1	130
TOTAL	526,946								623,309										
AVG		1,442		159	269	441	61	7.36		2,876		5	12	6	0.4	10	12	0.4	315
MAX			3,300		406	720	102	11			4,998	10.25	18.5	11.22	0.48	18.7	18.62	1.31	897.1
CRITERIA											5,000								
COMPLIANCE											YES								

MONTH	UPSTREAM				DOWNSTREAM*			
	Avg CBOD5 (mg/L)	Avg TSS (mg/L)	Avg TAN (mg/L)	Avg PHOS. (mg/L)	Avg CBOD5 (mg/L)	Avg TSS (mg/L)	Avg TAN (mg/L)	Avg PHOS. (mg/L)
JAN	4.6	11.6	4.86	0.22	-	-	-	-
FEB	3.0	7.0	0.64	0.07	-	-	-	-
MAR	3.0	102.3	0.12	0.22	-	-	-	-
APR	3.0	24.0	0.08	0.08	3.0	15.0	0.11	0.04
MAY	3.0	21.0	0.03	0.08	3.0	32.5	0.06	0.05
JUN								
JUL								
AUG								
SEPT								
OCT	3.0	10.6	0.03	0.07	3.4	15.2	0.03	0.08
NOV	3.0	11.0	0.04	0.06	3.0	9.3	0.09	0.13
DEC	3.5	8.3	0.16	0.06	3.0	10.0	0.04	0.10
TOTAL								
AVG	3.3	24.5	0.75	0.11	3.1	16.4	0.07	0.08
MAX	4.6	102.3	4.86	0.22	3.4	32.5	0.11	0.13

Comments:

- *No Downstream samples were taken due to ice cover on the Nation River (Jan - Feb - Mar)
- *No Downstream samples were taken due to ice cover on the Nation River (Dec 12, Dec 20 & Dec 28)

Appendix B

Work Order Summary Reports



Monthly Work Order Summary – December 2022
Casselman Drinking Water System

Description	Status	Work Type
Analyzer Total Chlorine Inspection/Service (1m) 5971	COMP	PM
Analyzer pH Inspection/Service (1m) 5971	COMP	PM
Analyzer Turbidity Inspection/Service (1m) 5971	COMP	PM
Blower Centrifugal Inspection/Service (1m) 5971	COMP	PM
Air Compressor Inspection/Service (1m) 5971	COMP	PM
Dryer Air Service (1m) - 5971	COMP	PM
Generator Inspection (1m) 5971	COMP	PM
Mixer Chemical Inspection (3m) 5971	COMP	PM
PANEL ALARM/DIALER TEST (1m) - 5971	COMP	PM
Relief Valve UV Room Inspection (3m) 5971	COMP	OPER
UV Light Bank Insp/Service (1m) - 5971	COMP	PM
Workplace Inspection (1m) - 5971	COMP	OPER
Monthly H&S Equipment Check (1m) - 5971	COMP	PM
Client Reports (1m) - Casselman 5971	COMP	PM
UVT Sensor Checks/Calibration (1m) - 5971	COMP	PM
Pump Diaphragm Coagulant Route Inspection/Service (1m) 5971	COMP	PM
Pump Diaphragm Polymer Route Inspection/Service (1m) 5971	COMP	PM
Pump Diaphragm Sodium Hydroxide Route Inspection/Service (1m) 5971	COMP	PM
Pump Diaphragm Ammonium Sulphate Route Inspection/Service (1m) 5971	COMP	PM
Pump Diaphragm Potassium Permanganate Route Inspection/Service (1m) 5971	COMP	PM
Analyzer Chlorine Portable Verification Caroline (1m) 1555	COMP	PM
Casselman wtp-5971 High Turb/backwash filter1	COMP	CALL
Casselman 5971 WTP - High turbidity and issues with acitflo #1	COMP	CALL
AWQI Monthly Filter Performance - Casselman DWS - 5971	COMP	ADMIN
Casselman 5971 WTP - high filtered turbidity, back to back backwashes and SCADA issues	COMP	CALL
Casselman Dist 5971 Chlorine Analyzer Replacement	APPR	CAP
Casselman Dist 5971 Turbidity Analyzer Replacement	APPR	CAP

Monthly Work Order Summary – December 2022
Casselman Drinking Water System

UV Sensor Reference Check/Calibration (1m) - 5971	COMP	PM
5971 - Casselman WTP - Actiflow 1 high level	COMP	CALL
5971 - Casselman WTP - low chlorine	COMP	CALL
high level Actiflo 1 5971	COMP	CALL
Disinfection alarm, high lift shutdown	COMP	CALL
Raw water inlet valve fault Actiflo 1 5971	COMP	CALL
Casselman 5971 WTP - Power outage at plant with multiple alarms	COMP	CALL
Casselman 5971 WTP - Plant shut down due to low level in clearwell 2	COMP	CALL
Power failure - Multiple alarms and faults	COMP	CALL
Actiflo Shutdown - Backwash filters 5971	COMP	CALL
Disinfection process shutdown - Low treated total Cl2	COMP	CALL
Low distribution total cl2 SPS 1 5971	COMP	CALL
72 Hr review - Makeup Chemical, Check Plant process	COMP	OPER
Filter settled water solenoid valve failed	APPR	CAP
Actiflo Shutdown - High Total Cl2, Hi Filter Eff turb	COMP	CALL
High treated turbidity - High lift shutdown	APPR	CALL

Monthly Work Order Summary – December 2022
Casselman Wastewater Treatment & Collection System

Description	Status	Work Type
Generator Inspection (1m) SPS #1 1501	COMP	PM
Generator Inspection (1m) SPS #2 1501	COMP	PM
Generator Inspection (1m) SPS #3 1501	COMP	PM
Generator Inspection (1m) SPS #5 1501	COMP	PM
Generator Inspection (1m) SPS #6 1501	COMP	PM
Generator Inspection (1m) 1501	COMP	PM
Analyzer Turbidity Inspection/Service (1m) 1501	COMP	PM
Monthly H&S Equipment Check (1m) - 1501	COMP	PM
Blower Inspection/Service (1m/1y) 1501	COMP	PM
Blower Inspection/Service (1m/1y) 1501	COMP	PM
Blower Inspection/Service (1m/1y) 1501	COMP	PM
Blower Inspection/Service (1m/1y) 1501	COMP	PM
Blower Inspection/Service (1m/1y) 1501	COMP	PM
Blower Inspection/Service (1m/1y) 1501	COMP	PM
Bar Screen Inspection (1m) 1501	COMP	PM
PANEL ALARM/DIALER TEST (1m) - 1501	COMP	PM
PANEL ALARM/DIALER TEST (1m) - 1501	COMP	PM
PANEL ALARM/DIALER TEST (1m) - 1501	COMP	PM
PANEL ALARM/DIALER TEST (1m) - 1501	COMP	PM
PANEL ALARM/DIALER TEST (1m) - 1501	COMP	PM
PANEL ALARM/DIALER TEST (1m) - 1501	COMP	PM
PANEL ALARM/DIALER TEST (1m) - 1501	COMP	PM
Workplace Inspection (1m) - 1501	COMP	OPER
Casselman 1501 WWT - Both pumps at SPS 1 went into low level	COMP	CALL
Casselman - 1501 WWT - Low room temperature generator room at SPS 1	COMP	CALL
Casselman - 1501 - Pump 2 repair SPS 5	COMP	CAP
high effluent turbidity alarm Actiflo 1 5971 & Blower fault 1501	COMP	CALL

Monthly Work Order Summary – December 2022
Casselman Wastewater Treatment & Collection System

Casselman 1501 WWT - Issues at SPS 1, 5, 6 and Lagoon due to power issues	COMP	CALL
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Appendix C

Locate Summary



Casselman Monthly Locate Summary – December 2022

Description	Status	Work Type
Locate Casselman WDS 1553 - 2022498798 - Principale St	COMP	OPER
Locate Casselman WDS 1553 - 20224910612 - HWY 417 and Principale	COMP	OPER
Locate Casselman WDS 1553 - 20224910617 - HWY 417 ramp	COMP	OPER
Locate Casselman WDS 1553 - 2022500381 - Principale St and Aurele Rd	COMP	OPER
Casselman - 1553 WDS - Emergency locate at 504 Barrage St	COMP	CALL
Locate Casselman WDS 1553 - 2022502453 - Zakari St	COMP	OPER
Locate Casselman WDS 1553 - 2022502406 - 280 + 284 Nature St	COMP	OPER
Locate Casselman WDS 1553 - 2022504144 - ST Isidore	COMP	OPER
Locate Casselman WDS 1553 - 2022505271 - 70 Lafleche	COMP	OPER
Locate Casselman WDS 1553 - 20225010017 - 50 Faucher	COMP	OPER
Locate Casselman WDS 1553 - 20225011995 - St Isidore + Principale	COMP	OPER
Locate Casselman WDS 1553 - 2022513258 - 528 Barrage	COMP	OPER
Locate Casselman WDS 1553 - 2022515132 - 7 Albert	COMP	OPER
Locate Casselman WDS 1553 - 2022516371 - Monte Lafontaine	COMP	OPER
Total		14