



**Ontario Clean Water Agency
Agence Ontarienne Des Eaux**

**Annual Summary Report
For the
West Elgin Water Treatment Plant
2011**

Prepared for the Municipality of West Elgin

By the Ontario Clean Water Agency

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SECTION 1: Overview

This report is a summary of water quality information for the West Elgin Water Treatment Plant (West Elgin WTP), published in accordance with Schedule 22 of Ontario's Drinking Water Systems Regulation for the reporting period of January 1, 2011 to December 31, 2011. The West Elgin Water Treatment Plant is categorized as a Large Municipal Residential Drinking Water System.

The West Elgin Water Treatment Plant is operated under waterworks number 260091117. The distribution system is operated under this waterworks number as well but is not covered off by this report. A separate report for the distribution system has been prepared by the operating authority for that system.

The West Elgin WTP operated according to the Municipal Drinking Water Licence 043-101 (Issue 2: June 4, 2010) and Drinking Water Works Permit 043-201 (Issue 2: June 4, 2010).

This report was prepared by The Ontario Clean Water Agency on behalf of the Municipality of West Elgin and must be supplied to the West Elgin Municipal Council by March 31, 2012.

SECTION 2: Compliance

The West Elgin Water Treatment Plant was operated and maintained in such a manner that treated water supplied to the consumers serviced by the system satisfied Ontario Drinking Water Quality Standards. However, some of the regulatory requirements were not met as identified in the MOE inspection Report.

The routine inspection was conducted on February 18, 2011 by the MOE and no Ministry of the Environment Provincial Officer's Orders issued. There were three non-compliances with regulatory requirements identified in the inspection report. Two of the three were for the West Elgin Water Treatment Plant; the last one was for the distribution system and will not be discussed in this report.

Non-Compliances with Regulatory Requirements and Actions Required for the West Elgin Water Treatment Plant as appeared in the Inspection Report:

- 1. The owner had not ensured that all equipment was installed in accordance with the Permit, Licence or Approval issued under Part V of the SDWA.**

Condition 4.0 (minor Modifications to the Drinking Water System) of the Drinking Water Works Permit provides the owner with criteria and permission to complete pre-authorized minor modifications to the drinking water system. However, the owner/operating authority must maintain records of any changes to the system as per Condition 4.0 through completion of Form 2 (Record of Minor Modification and Replacements to the Drinking Water System).

During the inspection, it was observed that the owner/operating authority completed works under Schedule B Condition 4.0 which included replacing microstrainers after the recycle tank at the Water Treatment Plant and a sodium hypochlorite storage tank at the Iona Rechlorination Station. The owner/operating authority did not fulfill the requirements for documenting the work under Form 2 as per the permit.

Action(s) Required:

For all minor modifications completed under the Drinking Water Works Permit Schedule B 4.0, the owner shall complete Form 2 and submit the completed forms to the author of this report by April 30, 2011.

The owner shall develop a procedure for the pre-authorization for minor modifications to the system to ensure that the requirements specified in the DWWP Schedule B Condition 4.0 are met. The procedure shall be submitted to the author of this report by April 30, 2011.

2. The facility and equipment did not appear to be maintained or in a fit state of repair.

It is recognized that the water treatment plant and distribution system have undergone significant upgrades in recent years. For the most part, records indicate that the components of the system are operated and maintained to meet regulatory requirements in Ontario. However, during the inspection, the evidence collected indicates that two (2) components of the system did not appear to be in a fit state of repair. These components are described below.

1. The West Elgin Water Treatment plant has two (2) intake pipes: a main intake and an emergency intake. An underwater intake pipeline inspection was carried out by WATECH SERVICES Inc. (London) on October 6 and 7 2010.

Although the inspection revealed that the main intake structure appears to be in good condition, the emergency intake, just off-shore from the low lift station, is in very poor condition. The intake structure is partially collapsed and armour stone has shifted and is blocking the inlet. The report recognizes that repairs to the existing emergency intake may not be practical due to its proximity to the shore line and water depth.

As an alternative, the report recommends the following:

- construct an emergency intake that extends the intake beyond the surf and potential ice damage zone
- construct a larger and heavier grate that could be completely covered in a larger stone to protect the structure within the surf and ice damage zone.

2. The Ontario Clean Water Agency (OCWA) operates the Iona Re-Chlorination Facility, an above grade building housing re-chlorination equipment. During the physical inspection, an assessment was conducted to determine whether the facility and equipment appear to be generally well maintained and in a fit state of repair. The facility was found to have sodium hypochlorite leaks and poor building ventilation which has led to excessive corrosion of treatment equipment, support fixtures and building components.

Action(s) Required:

The owner/operating authority shall:

1. Develop a strategy and plan for the effective management of the emergency intake pipe. The strategy and plan shall include justification and timelines for its decommissioning or upgrade renovation, etc. The owner/operating authority shall submit the plan to the author of this report by October 31, 2011.
2. Assess the building and its components at the Iona Re-Chlorination Facility to address ongoing issues related to excessive corrosion and equipment within the facility. Additionally, the owner/operating authority shall ensure that all aspects of the facility such as: spare critical instrumentation equipment, chemical pumps, analyzers, controllers, electrical system components, ventilation system, roof, doors, drainage systems, sampling ports, etc. are managed, maintained and operated to comply with all applicable regulations.

As of March 2011, the owner/operating authority proceeded with upgrading portions of the facility. A new header panel was installed for sodium hypochlorite solution injection lines and pumps. Other components within the facility are being reviewed at the time of the release of this report.

The owner/operating authority shall provide a summary report by May 31, 2011 which identifies deficiencies at the facility along with the corrective actions (e.g. upgrade, repair or replace) an implementation schedule. The owner/operating authority shall ensure that all deficiencies are corrected by October 31, 2011.

The West Elgin Water Treatment Plant operates under the Permit to Take Water #0515-8L9GX7. The old permit (0815-6QQH9A) expired July 15, 2011. There were no changes made to the new Permit to Take Water.

SECTION 3: Corrective Action

The non-compliances identified in the MOE Inspection Report were all addressed in their respected timelines to the Ministry of Environment. The following is a list of the corrective actions taken.

1. To address the first non-compliance, the Form 2 was completed for the microstrainer on the RFR tank and was submitted to the MOE on March 10, 2011. It was decided to go back to using the Sodium Hypochlorite storage tank and therefore a Form 2 was not necessary for the Iona Re-chlorination Facility. An SOP was developed for Minor Modifications to the Drinking Water System. As well as a signed authorization from the owner for Dale LeBritton to sign the Form 2 on the owners behalf.
2. Stantec was hired to conduct a study on the Standby Intake to determine whether rehabilitation or abandoning the intake was best suited. There were two letters sent to the MOE to address the corrective actions taken thus far for the Standby Intake. These were dated May 19th, 2011 and May 30th, 2011. The consultant is continuing with the study of the Standby Intake and therefore a decision has not been made to its rehabilitation.

3. Iona Re-chlorination facility was assessed to address the concerns. A new chlorine panel was installed with new PRVs. Painting was completed on the eyewash and entrance door to the building. A sample tap was installed for ease of sampling and testing the water. A letter detailing the work completed was forwarded to the MOE on May 19th, 2011.

SECTION 4: Summary and Discussion of Quantity of Water Supplied

In accordance with Schedule 22-2(3) find a summary and discussion of the quantity of water supplied during the reporting period compared to the rated capacity specified in the MDWL, DWWP and Permit to Take Water, including monthly average and maximum daily flows.

Attached as Appendix A, find a summary of the raw flows including total, average, and maximum daily flows, and peak flow rates for the reporting period. As well, a comparison of flows to the Permit to Take Water limits.

The Permit to Take Water specifies flow rates and total water takings permitted. For the West Elgin Water Treatment Plant the maximum flow rate limit is 9,400L/min. The total daily water taking is 13,500m³/day. There were two instances where the peak flow rate in litres per second was exceeded in 2011, this did not result in a permit exceedance as the permit specifies a litre per minute and the flow rate didn't exceed for longer than a minute. This was due to a third pump being initiated prior to complete shutdown of the second pump. The West Elgin Water Treatment Plant is at 28.2% capacity of the total water taking limit, which is down 1.4% from last year.

Attached as Appendix B, find a summary of treated water flows including total, average, and maximum daily flows for the reporting period. As well, a comparison of flows to the MDWL rated capacities.

The rated capacity of the plant is 12,160m³/day of treated water as specified in the MDWL. The daily average flow for the reporting period was 3,622m³/day, which is a 4.6% decrease from 2010. The maximum daily flow for the reporting period was 6,880m³/day which corresponds to a 4.4% increase from 2010. The plant is operating at 29.8% of its rated capacity, down from 2010 by 1.4%.

Attached as Appendix C, find a summary of flows including total, average, and maximum daily flows for the reporting period for the Iona Interconnection.

The Iona Interconnection rated capacity is 1,600m³/day as specified in the MDWL. The daily average flow for the reporting period was 379m³/day, which corresponds to a 10.2% decrease from the previous year. The increased capacity of the WTP has allowed the decrease in flow taken from the interconnection to the minimal requirement of the contract with Southwold. As well, the programming at the WTP allows for more precision to meet the minimum requirements.

The West Elgin Water Treatment Plant is capable of meeting its current uses for the system. It is operating at well below the limits set out in the Permit to Take Water and the design capacity for the plant.

APPENDIX A

Raw Flows for the West Elgin Water Treatment Plant compared to the specified limits in the Permit to Take Water. The maximum flow rate specified is 9,400L/min (156.7L/s) with a total water taking of 13,500,000L/day.

Month	Total Flow (m ³)	Average Day Flow (m ³)	% of PTTW Limit	Max Day Flow (m ³)	% of PTTW Limit	Max Day Flow Rates (L/s)	% of PTTW Limit
January	102,211	3,297	24.4	4,846	35.9	198.7*	126.8
February	87,539	3,126	23.2	3,698	27.4	138.7	88.5
March	96,956	3,128	23.2	3,812	28.2	150.6	96.1
April	100,146	3,338	24.7	4,331	32.1	146.3	93.4
May	113,188	3,651	27.0	4,818	35.7	150.1	95.8
June	132,705	4,424	32.8	6,032	44.7	159.8*	102.0
July	155,246	5,008	37.1	7,738	57.3	149.8	95.6
August	129,593	4,180	31.0	5,107	37.8	145.9	93.1
September	122,809	4,094	30.3	4,880	36.1	147.2	93.9
October	125,772	4,057	30.1	5,292	39.2	147.5	94.1
November	108,494	3,616	26.8	4,233	31.4	144.9	92.5
December	112,997	3,645	27.0	4,663	34.5	98.8	63.1
Total	1,387,655						
Average		3,802	28.2				
Maximum				7,738	57.3	198.7	126.8

*January 13th Max Day Flow of 198.7L/s duration was for less than one minute above 156.7L/s therefore the PTTW was not exceeded.

*June 26th Max Day Flow of 159.8L/s duration was for less than one minute above 156L/s therefore the PTTW was not exceeded.

APPENDIX B

Treated flows for the West Elgin Water Treatment Plant compared to the specified rated capacity of 12,160m³/day in the Municipal Drinking Water Licence.

Month	Total Flow (m³)	Average Day Flow (m³)	% of Rated Capacity	Max Day Flow (m³)	% of Rated Capacity
January	96,629	3,117	25.6	4,744	39.0
February	82,088	2,932	24.1	3,438	28.3
March	91,003	2,936	24.1	3,456	28.4
April	94,298	3,143	25.8	3,789	31.2
May	108,097	3,487	28.7	4,552	37.4
June	125,300	4,177	34.4	5,197	42.7
July	149,002	4,807	39.5	6,880	56.6
August	124,572	4,018	33.0	5,059	41.6
September	117,961	3,932	32.3	4,834	39.8
October	120,615	3,891	32.0	4,901	40.3
November	104,743	3,491	28.7	3,952	32.5
December	107,830	3,478	28.6	4,204	34.6
Total	1,322,137				
Average		3,622	29.8		
Maximum				6,880	56.6

APPENDIX C

Iona Interconnection flows compared to the specified rated capacity of 1,600m³/day in the Municipal Drinking Water Licence. West Elgin has an agreement to purchase 400m³/day from the Southwold Distribution System.

Month	Total Flow (m ³)	Average Day Flow (m ³)	% of Rated Capacity	Max Day Flow (m ³)	% of Rated Capacity
January	12,580	406	25.4	427	26.7
February	11,611	415	25.9	465	29.1
March	11,762	379	23.7	487	30.4
April	10,501	350	21.9	967	60.4
May	12,314	397	24.8	455	28.4
June	12,056	402	25.1	488	30.5
July	11,449	382	23.9	400	25.0
August	10,947	353	22.1	400	25.0
September	11,212	374	23.4	400	25.0
October	11,529	372	23.3	400	25.0
November	10,728	358	22.4	400	25.0
December	11,371	367	22.9	400	25.0
Total	138,059				
Average		379	23.6		
Maximum				967	60.4