Ontario

Ministry of the Environment
Ministère de l'Environnement

Communal Sewage Inspection Report

Client:	City of Ottawa, Business/Facility Name: Robert O. Pickard Environmental Centre Mailing Address: 800 Green Creek Dr, Gloucester, Ontario, Canada, K1J 1A6 Physical Address: 800 Green Creek Dr, Ottawa, City, Ontario, Canada, K1J 1A6 Telephone: (613)580-2424, Extension: 22814, FAX: (613)745-9197, email: lawrence.gangur@ottawa.ca Client #: 5391-5TESF7, Client Type: Municipal Government, NAICS: 221320, 541380		
Inspection Site Address:	Robert O. Pickard Environmental Centre Address: 800 Green Creek Dr, Ottawa, City, K1J 1A6 District Office: Ottawa GeoReference: Map Datum: Unknown, Zone: 18, Accuracy Estimate: 10-30 metres eg. Medium Quality GPS, Method: Map, UTM Easting: 453580, UTM Northing: 5034554, , LIO GeoReference: Zone: 18, UTM Easting: 453673.62, UTM Northing: 5033573.0, Latitude: 45.454147, Longitude: -75.59248 Sewage Works Number: 120000729		
Contact Name:	Gary Robidoux	**Title:**	Process Superintendent
Contact Telephone:	(613)580-2424 **ext**23303	**Contact Fax:**	
Last Inspection Date:	2011/03/09		
Inspection Start Date:	2012/03/15	**Inspection Finish Date:**	2012/03/15
Region:	Eastern		

1.0 INTRODUCTION

For Clarity within this report it should be noted that the Ministry of the Environment has restructured their approvals process. As of October 31st, 2011, all Certificates of Approval will be referred to as Environmental Compliance Approvals (ECA).

An inspection of the Robert O. Pickard Environmental Centre was conducted to assess compliance with applicable Ministry of the Environment legislative requirements, as well as conformance with current Ministry guidelines and policies for operations during 2011. The inspection also assessed the collection of wastewater and conveyance to the sewage treatment plant. The inspection included a review of historical information contained in the Ministry files; a review of available operating data for 2011; a detailed assessment of compliance with the terms and conditions of the ECA and conformance with MOE policies and procedures; a tour of the treatment system; and a review of the audit sample results of the plant's final effluent collected on July 26th, 2011. The inspection focused on the operation and performance of the treatment plant.

It was noted at the time of inspection that clarifier #8 is out of commission. Digester #4 got emptied in 2010 and is still out of commission. The intent is to get it back on line and then commence clean-out of digester #3.

1.1 AUTHORIZING AND CONTROL DOCUMENT INFORMATION

Authorizing/ Control Document	Number	Issue Date	Effluent Limits (yes/no)	Effluent Monitoring Requirements (yes/no)	Effluent Reporting Requirements (yes/no)
ECA (sewage)	3- 0935-83-887	1988/11/01	Yes	Yes	Yes
ECA (sewage)	2659-64TPYC	2004/12/04	Yes	Yes	Yes
ECA (notice #1)	2659-64TPYC	2007/09/08	No	No	No
ECA (notice #2	2659-64TPYC	2009/11/10	No	No	No
ECA (air)	2572-4JSSQ6	2000/05/10	No	No	No
ECA (air)	0105-6FJRV2	2005/10/19	No	No	No
ECA (sewage)	0595-8D2SAQ	2011/02/10	Yes	Yes	Yes
ECA (sewage)	7359-8HLNDP	2011/06/30	Yes	Yes	Yes

The plant is currently operating under ECA #7359-8HLNDP.

2.0 INSPECTION OBSERVATIONS

Sewage Treatment Plant

Sewage Works Number: 120000729
Certificate of Approval Number(s) ● Yes ○ No
C of A Number(s): 7359-8HLNDP
Plant Ownership: ● Munc. ○ OCWA ○ Other
Operating Authority: ● Munc. ○ OCWA ○ Other
Service Population: 720,000

Wastewater Collection System
Certificate of Approval Number(s): ● Yes ○ No
C of A Number(s): Various
Collection System Ownership: ● Munc. ○ OCWA ○ Other
Operating Authority: ☒ Munc. ☐ OCWA ☐ Other

2.1 SYSTEM DESCRIPTION

Type Of Plant

Primary: ○ Yes ● No
Secondary: ● Yes ○ No
Advanced: ● Yes ○ No
Biological Treatment: ● Yes ○ No
● Conventional AS
○ Contact Stablization
○ Extended Air Rotating Biological Contactor
Lagoon(s): ○ Yes ● No

Other: ○ Yes ● No
Describe:
○ Communal Septic ○ Snowfluent
○ Constructed Wetland ○ Other

Effluent Discharge Frequency: ☐ Seasonal: ☐ Annual:
☒ Continuous: ☐ No Direct Discharge:
Does the Plant Practice Phosphorous Removal? ● Yes ○ No
Effluent Disposal Method: ☒ Surface Water ☐ Subsurface
☐ Surface Land Disposal
If disposal is to surface water, name of immediate receiving stream: Ottawa River

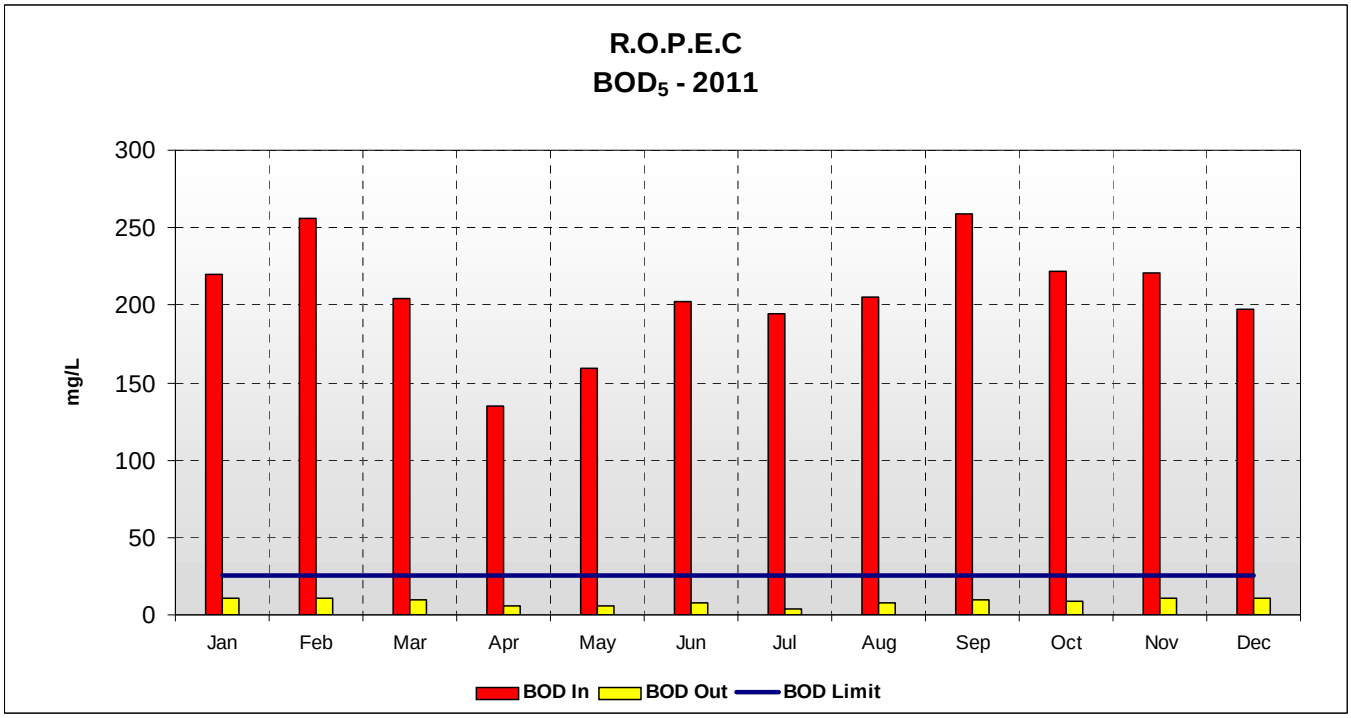
2.2 EFFLUENT QUALITY ASSESSMENT

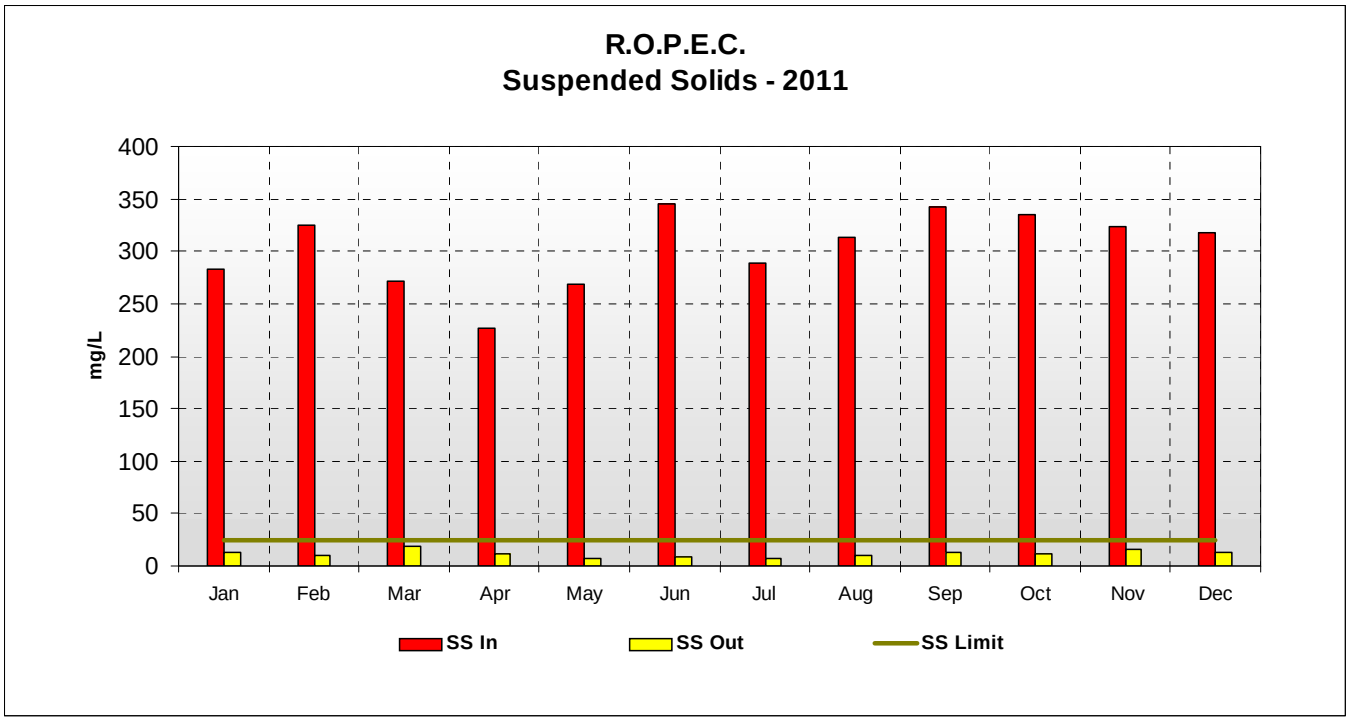
Parameter	Year 1 2009	Year 2 2010	Year 3 2011	Limits
BOD5 (mg/l)	7.79	8.48	8.5	25
Suspended Solids (mg/l)	12.33	11.03	11.61	25
Total Phosphorus (mg/l)	0.84	0.76	0.49	1.0

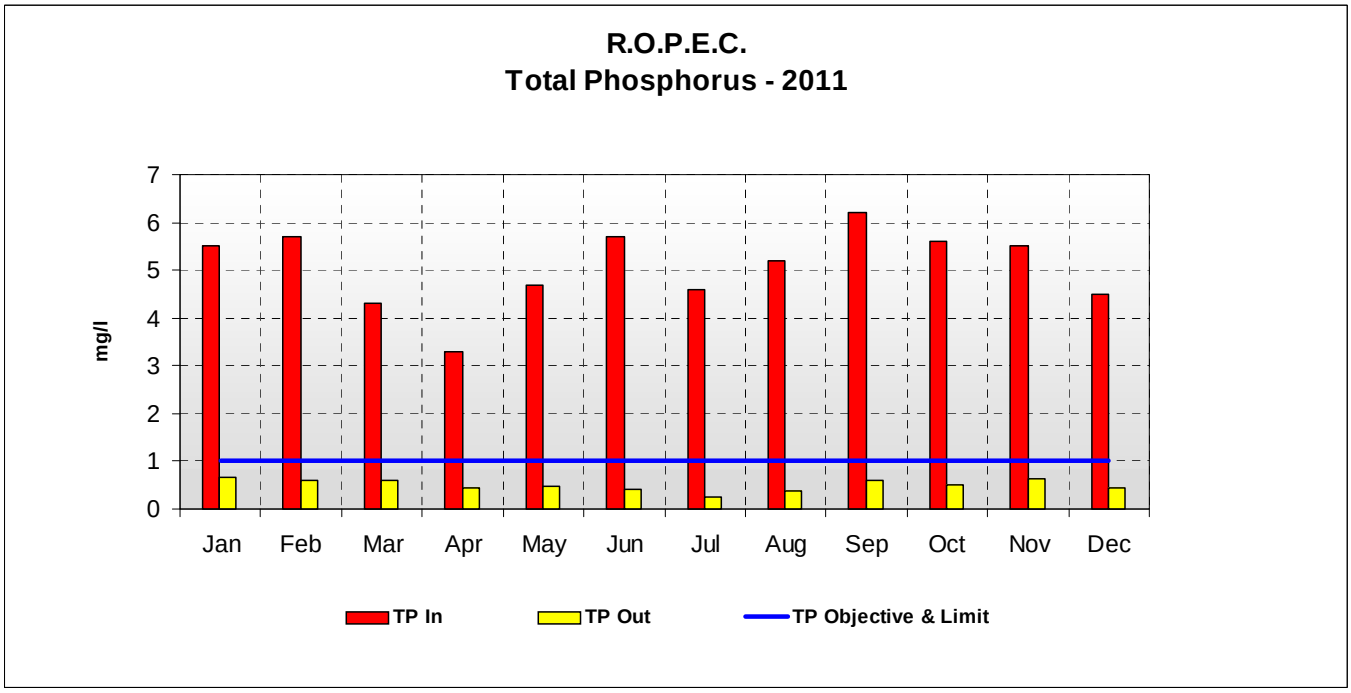
Limits are based on: ☒ Certificate of Approval ☐ Director's Order ☐ PO Order ☐ Guidelines

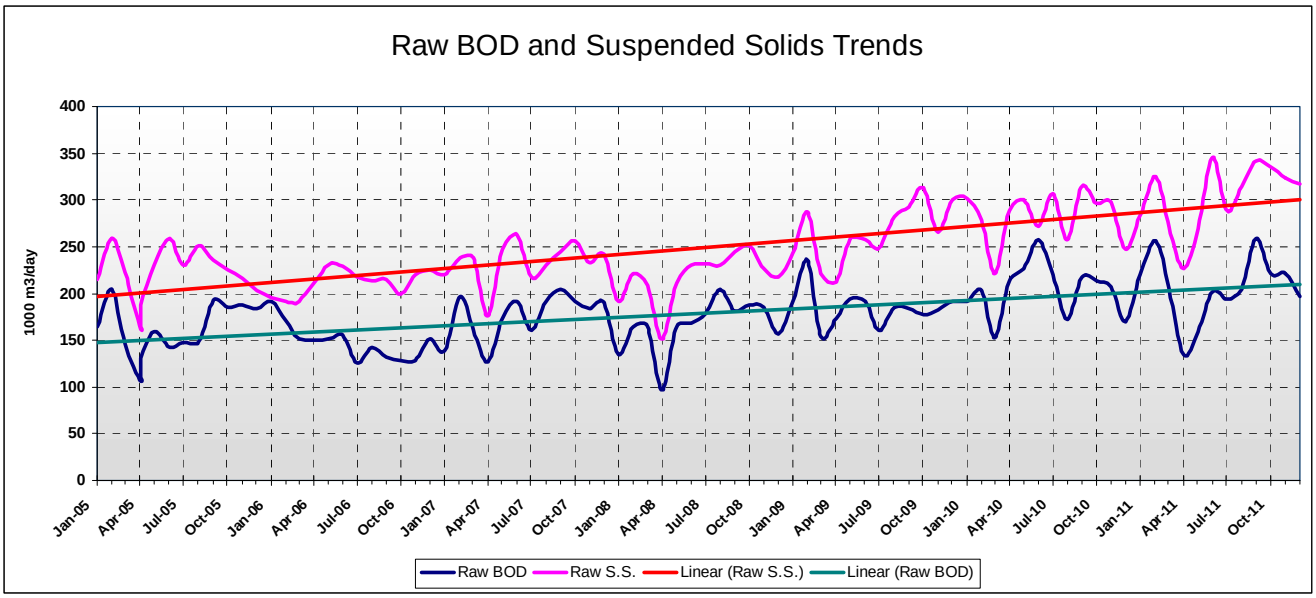
Does the facility comply with its limits: Yes

Effluent Objectives are listed under condition 6 of the ECA and effluent limits are listed under condition 7. No exceedences were reported in 2011.




R.O.P.E.C.
Suspended Solids - 2011
mg/L
400
350
300
250
200
150
100
50
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
SS In
SS Out
SS Limit

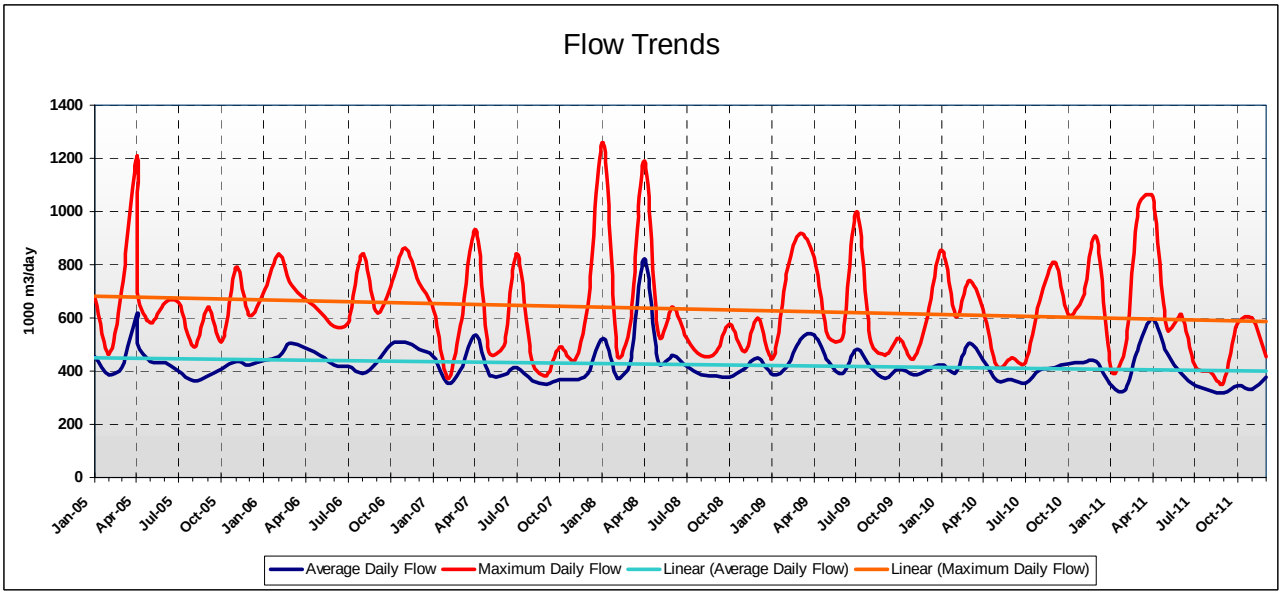

R.O.P.E.C.
Total Phosphorus - 2011
mg/l
7
6
5
4
3
2
1
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
TP In
TP Out
TP Objective & Limit

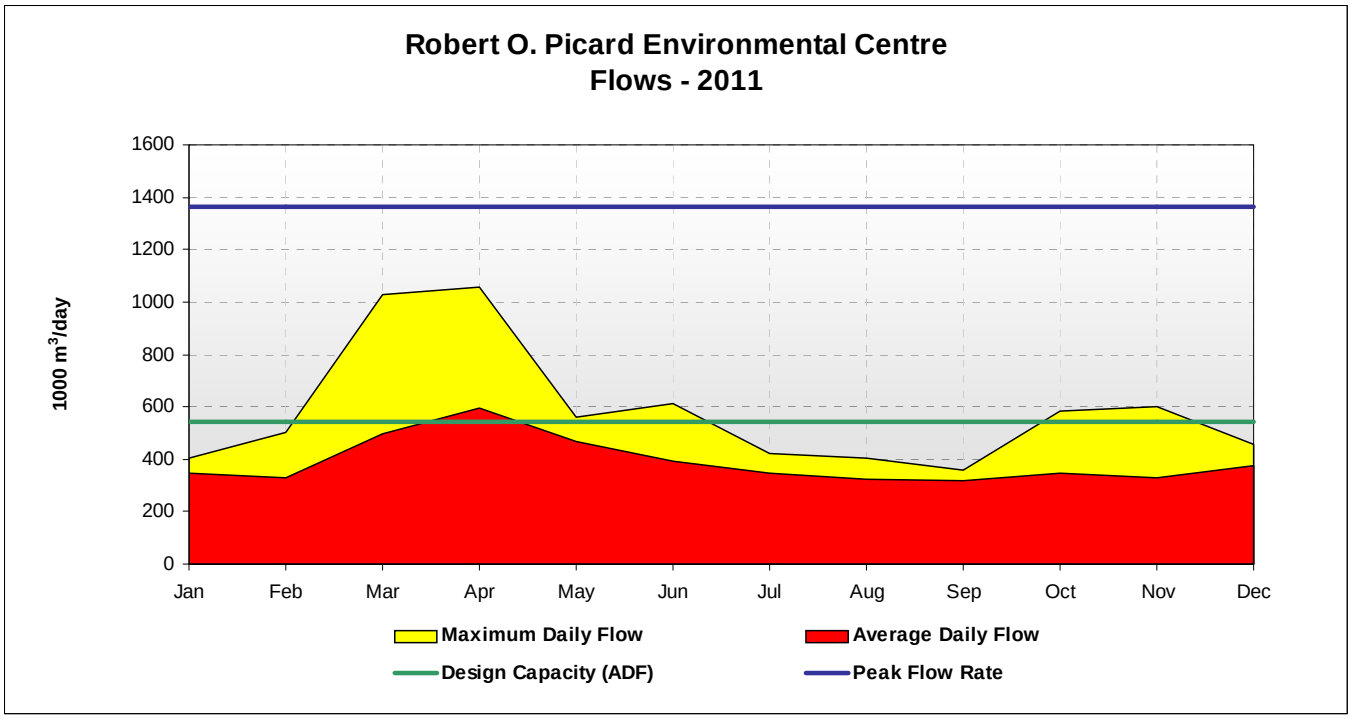


2.3 CAPACITY ASSESSMENT

Flows shown below are for the last three calendar years. Identify the year, eg., 1999

Item	Year 1 2009	Year 2 2010	Year 3 2011
Average daily flow (m^3/day)	430040.00	412940.00	388890.00
Maximum daily flow (m^3/day)	1001000.00	905000.00	1055000.00
Capacity Design (m^3/day)	545000.00	545000.00	545000.00
% of capacity, based on average daily flow	78.91	75.77	71.36





2.4 EFFLUENT SAMPLING REQUIREMENTS

Sampling requirements are based on : Certificate of Approval
Does the plant meet the sampling requirements? Yes

2.5 EFFLUENT REPORTING REQUIREMENTS

Reporting Requirements are based on : Certificate of Approval
Does the plant meet the effluent reporting requirement? Yes

2.6 MINISTRY SAMPLING AT TIME OF INSPECTION

Were Ministry samples collected at the time of inspection Yes

Sample Locations and Analyses: Grab sample- Effluent - Phys/Chem, Grab sample - Effluent - Metals, Grab sample - Effluent - Bacteriological

Ministry staff collected audit sample of the final effluent on August 8th, 2011 (see results below). Additional Ministry audit samples were not collected at the time of the inspection.

Parameter Name	Value	Units	Qual	
Mercury		0.02	ug/L	<=W
Aluminium	0.045	mg/L	<T	
Barium		0.020	mg/L	
Beryllium	0.001	mg/L	<=W	
Cadmium	0.001	mg/L	<=W	
Calcium		39.5	mg/L	
Cobalt		0.001	mg/L	<=W
Chromium	0.002	mg/L	<=W	

Copper		0.003	mg/L	<=T
Iron		0.179	mg/L	
Lead		0.005	mg/L	<=W
Magnesium		10.6	mg/L	
Manganese		0.059	mg/L	
Molybdenum		0.005	mg/L	<=W
Nickel		0.01	mg/L	<=W
Potassium	13.6	mg/L		
Silver		0.005	mg/L	<=W
Sodium		106	mg/L	
Strontium	0.631	mg/L		
Titanium		0.001	mg/L	<=W
Vanadium	0.001	mg/L	<=W	
Zinc		0.022	mg/L	
Hardness	142	mg/L		
Oxygen demand; CBOD	2.6	mg/L		
Solids; suspended	5.0	mg/L		
Arsenic		0.0005	mg/L	<=W
Selenium	0.0005	mg/L	<=W	
Nitrogen; nitrite		0.829	mg/L	
Nitrogen; nitrate+nitrite		0.87	mg/L	
Nitrogen; ammonia+ammonium		26.3	mg/L	
Phosphorus; phosphate	0.07	mg/L	<T	
Nitrogen; total Kjeldahl		28.7	mg/L	
Phosphorus; total	0.20	mg/L		
Escherichia coli		36	c/100mL	

<=T A measurable trace amount: interpret with caution
<=W No measurable response (zero)

Sample results did not indicate any exceedences with effluent limits in the ECA.

2.7 DISINFECTION

a)	**Method of disinfection:**	Chlorination
b)	**Disinfection Period:**	Seasonal
c)	**Comment on the seasonal disinfection period for each year:**	Disinfection required from May 16th to November 15
d)	**Disinfection Required By:**	Certificate of Approval
e)	**Residual monitoring technique:**	Autoanalyser
f)	**Was there a measurable chlorine residual in the final effluent after contact:**	Not obtained

The plant is currently disinfecting seasonally. They have approval, under the current ECA, for a dechlorination system. The City is currently adapting the chlorination contact channels to accommodate the dechlorination system. It is expected that the dechlorination system will be on line some time in June 2012. Once the system in on line, the plant will be chlorinating on a continuous basis.

2.8 PLANT CLASSIFICATION & OPERATOR CERTIFICATION

a)	**Plant classification:**	
	i) Facility Level:	Level IV
	ii) Certificate Number:	128
	iii) Date of Issue:	1990/02/22
b)	**Plant operators have the appropriate level of certification for this plant:**	● Yes ○ No

2.9 FLOW MEASUREMENT

a) Flows are being metered at: Raw Sewage, Final effluent, Bypass
b) Date of last calibration of effluent flow meter: 2011/09/01

Calibration is done in-house on an annual basis. Occurs between September and November.

2.10 BYPASSES, AND/OR OVERFLOWS

	Plant	Collection System
Are bypasses and overflows routinely reported?	● Yes ○ No	● Yes ○ No
Are bypasses and overflows routinely monitored?	● Yes ○ No	● Yes ○ No
Are bypasses and overflows routinely sampled?	● Yes ○ No	● Yes ○ No

PLANT INFORMATION:

	Plant Bypass			Plant Overflow		
Item	**Year 1 2009**	**Year 2 2010**	**Year 3 2011**	**Year 1 2009**	**Year 2 2010**	**Year 3 2011**
Total number of events?	0	0	0	0	0	0
Total duration of event(s)? (Hour(s))						
Of the total number of events, how many are dry-weather events?						
Total quantity with no treatment? (1000 m^3)						
Total quantity with only disinfection? (1000 m^3)						
Total quantity with primary treatment? (1000 m^3)						
Total quantity with primary treatment and disinfection? (1000 m^3)						
Total quantity with other treatment? (1000 m^3)						
Total quantity with other treatment and disinfection? (1000 m^3)						
What is the most common reason for event(s)?						
What is the name of the receiving water?	Ottawa River			Ottawa River	Ottawa River	Ottawa River
Name the most important type of sensitive receptor?	beach			beach	beach	beach
What is the approximate distance to the sensitive receptor? (km)	8			8	8	8

COLLECTION SYSTEM INFORMATION: (Satellite(s), Lift Station(s) and Regulator(s))

	Lift Station Overflow			Other Location Overflow		
Item	**Year 1 2009**	**Year 2 2010**	**Year 3 2011**	**Year 1 2009**	**Year 2 2010**	**Year 3 2011**
Total number of events?	3	0	4	381	61	30
Total duration of event(s)? (Hour(s))	14		35	1123	1000	0
Of the total number of events, how many are dry-weather events?	0		0	0	0	0
Total quantity with no treatment? (1000 m^3)	24.300		16.795	647.195	891.250	387.288
Total quantity with only disinfection? (1000 m^3)	0.000		0.000	0.000	0.000	0.000

Total quantity with other treatment? (1000 m^3)	0.000		0.000	0.000	0.000	0.000
Are any overflow(s) at combined sewer locations? (Yes/No)	No		No	Yes	Yes	Yes
What is the most common reason for event(s)?	weather		weather	weather	weather	weather
What is the name of the receiving water?	Ottawa River	Ottawa River	Ottawa River	Ottawa River	Ottawa River	Ottawa River
Name the most important type of sensitive receptor?	beach	beach	beach	beach	beach	beach
What is the approximate distance to the sensitive receptor? (km)	8	8	8	8	8	8

Comments:

There were no overflows reported at the plant.

There were three reported overflows at pumping stations noted in the above table under lift station overflow.
April 10th - overflow at the Valley pumping station
June 24th - overflow at the Park pumping Station
June 24th - overflow at the Valley Drive pumping station
All three overflows were attributed to wet weather flows.

The City has 5 combined sewer regulators that can overflow into the Ottawa River, these combined sewer overflows are noted in the above table under Other Location Overflow. The 2011 Combined Sewage Report has not been released yet, the quantities listed in the above table are obtained by reports given at the time of the events to the Ministry's Spills Action Centre (SAC). City staff have not been reporting duration of by-pass events, only flow amounts making it impossible to estimate the total duration of the events from the SAC reports. It is recommended that when City staff report CSO's to SAC they also indicate the duration of the event.

Since October 2011, real time flow monitoring equipment and automatic samplers have been installed and operational in the 5 regulators. This will enable the City to more accurately determine CSO volumes and effluent quality.

The 2010 Combined Sewage Report has the following statements:

- Total combined sewer overflow volume for the 2010 Control Period is estimated to be 443,000m3.
- The August 15-16 event caused approximately 28% of the total CSO volume for the Control Period. Just under 44 mm rain was recorded by Environment Canada at their Experimental Farm gauge on August 15; however, this followed a non-trivial 16 mm of rain on the previous day, therefore the antecedent conditions to the large August 15 event would have been considered "wet", which leads to higher runoff and infiltration and hence more overflow.
- In decreasing order of CSO volumes, the 6 largest overflow sites were;
Rideau Canal Interceptor Overflow
Booth Street Sewer Overflow (to Tailrace)
Rideau River Collector Overflow (Keefer Regulator) at John Street
Manor Park Overflow (Sandridge Sewer)
Bolton Street Overflow (Cathcart)
Cave Creek Collector Overflow (to Tailrace)
- Taken together, the above 6 sites generated approximately 94% of the system's total CSO.
- The City has programs and projects underway that will significantly reduce overflows from these sites.
- Major regulator upgrades have been implemented at five of the six sites listed above, namely the Booth Street Sewer Regulator, Rideau Canal Interceptor Regulator, Keefer Regulator, Cave Creek Collector Regulator and Cathcart Regulator. Real Time Control capability is a feature at the first three of these

In-Line storage in the West Nepean Collector has also been implement as part of the overall upgrade program. Together, these upgrades are expected to allow the City to reduce CSO volumes for an average year by roughly two thirds. Permanent, real time flow monitoring equipment is now in place these five upgraded regulators, although instrumentation challenges are still being resolved.
- For the Manor Park Overflow site (i.e. the 4th largest site), construction of a new storage facility was recently completed, and separation in the area continues. It is expected that these improvements will virtually eliminate CSOs from this site, for all but very large rain events.
- Based on simulations and monitoring, overflows per site ranges from 0 to 53, with an average of 17.
- For the 2010 Control Period, the total duration of overflow per site ranged from 0 hours to 219 hours, with an average of 42 hours.
- For the 2010 Control Period;
The total number of individual CSO event, as defined by MOE Polity F-5-5, was 69.
Wet Weather Flow Capture rate, per F-5-5 definition, was 95%; this is significantly better then F-5-5's target of 90%.
Total flow capture rate for the entire system was 99.5%

2.11 SLUDGE (BIOSOLIDS) MANAGEMENT

Sludge Stabilization:	Anaerobic
Sludge Storage:	Holding Tank
Total available storage:	
Volume	800 m3/day
Retention Time	3 days
Certified waste hauler	Yes
Certificate numbers of haulers are:	Third High Farms, H480300
Method of Disposal/Utilization:	Agricultural
Certified waste disposal facility	Yes
Certificate number(s) of facilities are:	various

Most of the bioslids are land applied, other uses include compost, landfill and daily land cover.

2.12 WASTEWATER COLLECTION SYSTEMS

1. Does this plant receive sewage from a Combined Sewer Collection System (sanitary sewage, roof leaders, foundation drains, catch basins and/or storm water conveyed within a single pipe)? ● Yes ○ No

If yes, approximately, what percentage of the sewer collection system is combined? ○ > 25% ● 11 - 25 % ○ 6 - 10 % ○ 0 - 5 %

2. How are bypasses, overflows and/or combined sewers being minimized or eliminated?

a) Pollution Prevention and Control Plan (As described in Procedure F-5-5)	● Yes	○ No	○ Developing
i. Other Plan	● Yes	○ No	○ Developing
b) Characterization Study?	● Yes	○ No	○ Developing
c) Implementation Plan?	● Yes	○ No	○ Developing

Comments:

All 5 regulators are now on Real Time control and linked to the SCADA system. There are two groups of operators at the plant, one group looks after the plant while the other looks after the collection system.

A pollution Prevention and Control Plan was presented to the Ministry in November 2008. A floatables study was presented in June 2009. City council has approved a five-year, $251.64 million plan to fund an underground storage system that's meant to nearly eliminate discharges of raw sewage into the Ottawa River.

The following key projects are ongoing:

- CSO Storage tunnel
- Pollution Prevention and Control Plan
- Sewer Separation
- Wet Weather Infrastructure Management Plan
- Outfall Renewal EA

3.0 REVIEW OF PREVIOUS NON-COMPLIANCE ISSUES

No previous non compliance issues

4.0 SUMMARY OF INSPECTION FINDINGS (HEALTH/ENVIRONMENTAL IMPACT)

Was there any indication of a known or anticipated human health impact during the inspection and/or review of relevant material, related to this Ministry's mandate ?

No

Specifics:

Was there any indication of a known or anticipated environmental impact during the inspection and/or review of relevant material ?

No

Specifics:

Was there any indication of a known or suspected violation of a legal requirement during the inspection and/or review of relevant material which could cause a human health impact or environmental impairment ?

No

Specifics:

Was there any indication of a potential for environmental impairment during the inspection and/or the review of relevant material ?

No

Specifics:

Was there any indication of non-conformance or minor administrative non-compliance?

No

Specifics:

5.0 ACTION(S) REQUIRED

6.0 OTHER INSPECTION FINDINGS

7.0 INCIDENT REPORT

Not Applicable

8.0 ATTACHMENTS

PREPARED BY:
Environmental Officer:
Name: **Tracy Hart**
District Office: **Ottawa District Office**
Date: **2012/03/28**
Signature

REVIEWED BY:
District Supervisor:
Name: **Tara MacDonald**
District Office: **Ottawa District Office**
Date: **2012/03/29**

Signature:

File Storage Number: SI OC GL GR 430

Note:
"This inspection report does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they may apply to this facility. It is, and remains, the responsibility of the owner and/or the operating authority to ensure compliance with all applicable legislative and regulatory requirements"