



**REGULATORY COMPLIANCE
REPORT
WASTEWATER AND
STORMWATER SYSTEMS
2011 ANNUAL SUMMARY REPORT**

Prepared for:

City of Ottawa
800 Green Creek Drive
Gloucester, ON K1J 1A6

Prepared by:

Stantec Consulting Ltd.
1505 Laperriere Avenue
Ottawa, ON K1Z 7T1

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Executive Summary

The following report provides a summary of the 2011 regulatory compliance undertakings of the various operating groups that are responsible for the delivery of wastewater services. The report reviews documentation of yearly activities and confirms status with respect to compliance with legislative requirements. The report is divided into nine unique sections that represent the services under the authority of Wastewater Services.

- 1) Robert O. Pickard Environmental Centre (ROPEC)
- 2) Biosolids Management
- 3) Wastewater Collection (Sanitary and Combined Sewers)
- 4) Stormwater Collection (Stormwater Sewers)
- 5) Lees Avenue Stormwater Pumping & Leachate Treatment Plant
- 6) First Response
- 7) Sewer Use By-law Enforcement
- 8) Pollution Prevention Plan
- 9) National Pollutant Release Inventory (NPRI)

The Robert O. Pickard Environmental Centre (ROPEC) is a facility that provides centralized domestic, industrial, and commercial wastewater treatment for the majority of the urban area of the City of Ottawa. Discharging its effluent into the Ottawa River, ROPEC removes over 90% of pollutants from the influent, and in 2011 it operated at 71% of its design capacity. ROPEC had no reported exceedances of its effluent limits or objectives and had no raw sewage bypasses in 2011. There were nine unusual incidents reported to MOE when digester gas was vented to atmosphere. There were nine complaints of odour logged for ROPEC.

Biosolids is a by-product of wastewater treatment and can be processed and used as a soil amendment on agricultural lands. At ROPEC, a biosolids management program is in place to ensure that the reuse of this by-product is optimized. In 2011, a total of 36,122 wet tonnes were applied to agricultural land, while 15,198 wet tonnes were disposed of in landfills or used as landfill cover material. The City of Ottawa's Biosolids Management Program is being operated in conformance with biosolids utilization regulatory requirements.

Lees Avenue Stormwater Pumping and Leachate Treatment Station is a decentralized treatment facility operated by Wastewater Services Branch. This facility provides treatment to groundwater that passes through a coal tar contaminated site. In 2011, this station operated within its Certificate of Approval limits, and was compliant with the City's Sewer Use By-Law.

The majority of the City of Ottawa is serviced by a centralized wastewater collection system. Wastewater collected in local sanitary sewers is transferred to one of three major trunk sanitary sewers that each feed into ROPEC. There are 2,507 km of sanitary sewer lines and 115 km of combined (sanitary & storm) sewers used to transfer the wastewater in Ottawa. In 2011, there was a total of 215 km of sanitary and combined sewers cleaned as part of the routine maintenance program, and another 149 km cleaned as part of the Special Cleaning Program (Hot Spot preventive and reactive cleaning).

High level details of the raw sewage by-passes, spills or abnormal events (unaudited at the time of printing) for 2011 include:

- Total Volume of Wastewater Discharged under Combined Sewer Overflow conditions for the entire year: – 545,000 m³
- Total Number of Collection System Sanitary Sewage Spills for the entire year – 3 events (totaling 1,903 m³)
- Total Number of Collection System permitted CSO Class I Spills¹ for the entire year – 32 Discharge Events²

Wastewater collection and treatment statistics for the Control Period (annually between April 15 and November 15) include:

- Total Volume of Wastewater Collected Citywide During Control Period – 82,154,319 m³
- Total Volume of Wastewater Treated at the R.O. Pickard Environmental Centre During Control Period – 81,963,000 m³
- Percentage of Collected Sewage Treated to Secondary Level (during Control Period) – 99.7%
- Rainfall During the Control Period – 583 mm, approximately 12% above the normal Control Period rainfall of 522 mm.

Storm sewers carry rainfall and other surface run-off directly to the nearest creek, stream or river, generally without treatment. In some parts of the City, combined sewers carry both wastewater and run-off to ROPEC for treatment. There are over 2,585 km of storm sewers in Ottawa, of which approximately 555 km are classified as local or regional trunk sewers with diameters of 900mm or more. In 2011, there were no storm sewers cleaned as part of the routine maintenance program. A total of 25 km were cleaned as part of the Special Cleaning Program (Hot Spot preventive and reactive). In summary, the City of Ottawa has operated and

¹ Class I Spills are discharges authorized by and in accordance with a certificate of approval, provisional certificate, order, license or permit issued under the *Environmental Protection Act*, and the *Ontario Water Resources Act*.

² Discharge events are rainfall or snow melts that cause a combined sewer overflow to occur at any one of the 18 combined sewer overflow locations within the City of Ottawa.

maintained the wastewater collection and stormwater drainage systems in accordance with both Federal and Provincial regulations and certificates of approval for the sewage works.

First Response is a group that operates 24/7 responds to customer calls, but primarily is responsible for field investigations and customer support for sewer back-ups. It also contracts out and supervises sewer lateral pipe cleaning crews & closed circuit television inspections, and reports findings to the sewer lateral technicians. In 2011, a total of 1,104 work orders were generated as a result of sewer calls to the First Response Unit. 91% of those work orders were responded to within the 3 hour objective.

The Sewer Use By-law defines what is permitted to be discharged into a sewer, whether sanitary, combined or storm sewers. Some substances and materials are completely prohibited; others are restricted to defined safe limits. In 2011, there were 1,202 customer service activities logged, 97 compliance measures addressed and 580 enforcement responses carried out by the Sewer Use By-law Enforcement Unit. The 2011 cost recoveries generated by Sewer Use By-law Enforcement were \$3,644,723.

Another program related to environmental protection is the Pollution Prevention (P2) Plan, which is defined as the use of processes, practices, materials, products or energy to avoid or minimize the creation of pollutants or waste at the source. In 2007 the City of Ottawa implemented a P2 plan in accordance with the requirements of the December 2004 Notice issued by Environment Canada to address chlorinated municipal wastewater effluents. There are four components associated with this plan: chemical audits & the sewer use bylaw, the optimization of sodium hypochlorite consumption, environmental effects monitoring, and good operating procedures. The City of Ottawa has met its requirements to develop a Pollution Prevention (P2) Plan under the Canadian Environmental Protection Act (CEPA, 1999). The City will continue to monitor and report on each of the main components of the P2 Implementation Plan. The City is currently engaged in a capital upgrade project that, when completed, will virtually eliminate residual chlorine from effluent produced at ROPEC.

The National Pollutant Release Inventory (NPRI) is used as a starting point for identifying and monitoring sources of pollution in Canada. In 2011, the Wastewater Services Branch filed the sewage works' 2010 NPRI report in accordance with the Canadian Environmental Protection Act.

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1.0 Objective of Report

The following report represents an annual operations summary for the year 2011. The purpose of this report is to ensure that Council is aware of the operating condition and quality of the wastewater and stormwater services provided by the City of Ottawa.

This report provides a brief description of each business unit's activities associated with day to day operation of the Wastewater Services Branch. It also provides a summary of the respective operational and regulatory requirements, and reviews compliance with these requirements.

2.0 Robert O. Pickard Environmental Centre (ROPEC)

2.1 BACKGROUND

ROPEC provides municipal wastewater treatment for the urban area of the City of Ottawa. ROPEC is amongst the largest wastewater treatment facilities in Canada. Located on a 60-hectare area of land, ROPEC treats domestic, commercial and industrial wastewater before returning the treated water to the Ottawa River.

2.2 CERTIFICATE OF APPROVAL COMPLIANCE

ROPEC operates under the authority of Certificate of Approval No. 7359-8HLNDP issued by the Ontario Ministry of the Environment on June 30, 2011. All non-compliance limits as set out in the Certificate of Approval and corresponding results for 2011 are indicated in **Table 2.1**.

The compliance limits for cBOD5 and suspended solids concentrations are based on the annual average of all samples taken. The compliance limits for cBOD5, suspended solids, and total phosphorus mass loadings are based on the annual average concentration multiplied by the annual average flow rate. Certificate of Approval compliance limits with respect to the total phosphorus concentration are based on monthly averages.

The annual daily average flow rate of raw sewage treated in 2011 was 389,000 m³ or 71% of the design annual average day flow rate capacity (545,000 m³). The Certificate of Approval also limits the instantaneous peak capacity at 15.77 m³/s (1362.5 MLD). The instantaneous peak flow for March 11th was 1,366 MLD. This flow was sustained for approximately 20 minutes before subsiding.

Table 2.1: Certificate of Approval Compliance Limits & 2011 Results

Parameter	C of A Limits	C of A Objectives	2011 Results	# of Exceedances	
				Limit	Objective
Average Flow	N/A	545,000m ³ /d	389,000m ³ /d (71%)	0	0
Peak Flow	N/A	1,362,500m ³ /d	1,055,000m ³ /d (77%)	0	0
cBOD ₅ ¹ (Conc.)	25 mg/L	15 mg/L	8 mg/L	0	0
cBOD ₅ ¹ (Mass)	13,625 kg/d	N/A	3,112 kg/d	0	0
SS ² (Conc.)	25 mg/L	15 mg/L	12 mg/L	0	0
SS ² (Mass)	13,625 kg/d	N/A	4,668 kg/d	0	0
TP ³ (Conc.)	1 mg/L (Monthly)	N/A	0.49 mg/L (Annual)	0	0
TP ³ (Mass)	545 kg/d	N/A	191 kg/d	0	0
E.coli ⁴ (May 16 – November 15)	200 CFU/100 ml	N/A	all <200	0	0

¹cBOD₅ (Carbonaceous Biochemical Oxygen Demand) is a measure of the quantity of oxygen consumed by microorganisms to break down organic matter in water.

²Total Suspended Solids (SS) are pollutants that would be captured on a fine filter paper and are visible in the water.

³Total Phosphorus (TP) is generated mostly from detergents and human waste. Too much phosphorous can cause excessive weed and algae growth in a river.

⁴E.coli refers to the thermally tolerant forms of Escherichia bacteria that can survive at 44.5 degrees Celsius. E.coli Limits based on monthly geometric mean for the disinfection period of May 16, 2011 to November 15, 2011.

2.2.1 Air and Noise Emissions

ROPEC is currently in operation under the Certificate of Approval (CofA) #0105-6FJRV2 issued Oct. 19, 2005. This CofA covers many of the significant nitrogen oxides sources such as 3 emergency diesel generators, 8 natural gas-fired boilers, 3 co-gen generators, and 1 flare stack that burns excess digester gas. However, 2 boilers at each of the two RAS/WAS buildings, a diesel emergency generator at the Technical Service Building, and 16 unit heaters were not included in any previous CofAs. These additional sources will be recognized and incorporated in a consolidated Environmental Compliance Approval (ECA) which replaces the existing CofA. Additionally, the Orleans Cumberland Collector Pump Station and the Dechlorination Facility, both currently under construction, will be included in the new ECA. An application for the new consolidated ECA has been submitted to the Ministry of Environment.

2.3 RAW SEWAGE BYPASSES, SPILLS & DIGESTOR GAS VENTING EVENTS

There were no raw sewage by-pass events in 2011, marking the thirteenth consecutive year that this success has been reported.

The Robert O. Pickard Environmental Centre contacted the MOE to report nine incidents in which digester gas had been vented to the atmosphere. Two incidents were Class IV Planned Spills (January 10 – 12, and May 12). All occurrences are documented in **Table 2.2**.

Table 2.2: Digester Gas Venting Occurrences

Date/Time	Duration	Estimated Quantity [m³]	Cause
10 January (17:05)	~ 32 hr	42,240	Corrective maintenance – Gas train retrofit for new gas booster installation
29 January (11:45)	~ 3 min	76	False ignition indication on flare (thermocouple)
11 April (05:22)	~ 6 min	148	Power failure
12 May (09:00)	~ 12 hr	775	Digester 4 essential maintenance (purging of headspace)
08 June (16:55)	~ 4 min	100	Power failure
10 June (08:30)	~ 3 min	75	Contractor tripped emergency stop pushbutton relay for gas boosters
17 July (19:30)	~ 4 min	89	Power failure
10 August (13:40)	~ 1 min	18	Power failure
13 September (15:55)	~ 1 min	18	Power failure

2.4 QUERIES & COMPLAINTS

Nine odour complaints were filed in 2011. These odour complaints were received between August and November. Low flow conditions due to lack of rain, in conjunction with spent carbon in the odour adsorbers at the Raw Sewage Pumping Station, Thickening and Dewatering Building, and the Screen and Degrit Facility were the primary cause of odours.

2.5 INTERPROVINCIAL MOVEMENT OF HAZARDOUS WASTE REGULATIONS

The shipping of ferrous chloride from Quebec to Ontario for use at ROPEC is regulated by the Interprovincial Movement of Hazardous Waste Regulations (SOR/2002-301) since ferrous chloride is considered to be a waste product. The goal of this Regulation is to ensure that the Canadian manifest tracking and hazards classification conditions for waste are maintained for the interprovincial movements of hazardous wastes. The City complies with this regulation by maintaining the appropriate documentation related to the deliveries of ferrous chloride.

2.6 OPERATOR TRAINING

In 2011, the Wastewater Treatment Unit achieved its training requirement for about 98% of its staff. At the end of the year, 43 of 44 operators had received a minimum of 40 hours of training through the year. One staff member, requiring an additional 10 hours to achieve 40 hours of training was on sick leave and is no longer employed by the City since March 2012.

2.7 CONCLUSION

The Robert O. Pickard Environmental Centre was operated according to the terms and conditions of its Certificate of Approval and other relevant regulations.

3.0 Biosolids Management

3.1 BACKGROUND

Biosolids are a by-product of wastewater treatment. As sewage makes its way through the different treatment processes at the Robert O. Pickard Environmental Centre (ROPEC), solids are removed from the wastewater stream. These solids are then broken down in heated digesters by bacterial action. This process significantly reduces the amount of pathogens and the mass of solids. Solids that remain at the end of the treatment process are called biosolids. The Biosolids Management Program strives to beneficially use 100% of the produced biosolids from ROPEC.

3.2 OPERATIONS

The total quantity of dewatered biosolids produced in 2011 was 49,706 wet tonnes. The disposal of the biosolids is contracted out with a 100% beneficial reuse objective. The quantity, quality and end-use of the Biosolids is shown in **Table 3.1** and **Table 3.2**.

Biosolids can be applied to agricultural lands in Ontario upon meeting the provincial guideline criteria outlined in the Ontario Ministry of Agriculture Food and Rural Affairs/Ministry of Environment “Guidelines for the Utilization of Biosolids and Other Wastes on Agricultural Land”. **Table 3.3** lists the biosolids metal analysis and the maximum permissible metal concentrations that are suitable for land application.

Table 3.1 Final use of biosolids produced at ROPEC in 2011

Final Use	Quantity (in wet tonnes)
Change in storage inventory	+960
Landfill / Landfill cover	15,198
Total Land Application	33,548
Total Produced	49,706

Table 3.2 Quality of Dewatered Digested Sludge

	TS	VS	TP	TKN	NH3-N	NO2-N	NO3-N
MIN	25	49	25,000	27,400	903	1	1
AVERAGE	28	57	33,918	42,004	2893	2	1
MAX	34	63	43,000	70,100	4620	7	3
#	27	27	27	27	27	27	27

Note: All values except Total Solids (TS) are reported as mg/kg dry solids. TS is reported as % TS. The # row represents the number of samples collected.

Table 3.3 Biosolids Metal Analysis

Date	Biosolids Metal Analysis (mg/kg)										
	As	Cd	Cr	Co	Cu	Pb	Hg	Mo	Ni	Se	Zn
MIN	3	0.5	32	1	276	27	0.303	1	16	2	425
MAX	5	1	89	12	507	71	2.240	7	33	7	755
AVG	4	0.8	60	6	396	46	0.833	5	21	4	609
Max. Permissible concentration (mg/kg).	170	34	2800	340	1700	1100	11	94	420	34	4200

3.3 QUERIES & COMPLAINTS

Table 3.4 summarizes the queries and complaints about the biosolids program.

Table 3.4: Biosolids Unit summary of contact for 2011

Type of Inquiry	Number of Inquiries
Farmers inquiring about biosolids	18
Residents asking questions about biosolids	8
Resident opposed to land application	2
Request for well testing	50
Asked to have land licensed for spring application	1
Resident visit to discuss land application concerns	1
Questions about Notification	2
Odour Complaint & Mud tracking on the Road	1
Well Testing follow-up	2
Requested a larger setback/buffer	2
Concerned about health effects	2
Questions about legality of the program	1

3.4 CONCLUSION

The City of Ottawa's Biosolids Management Program is being operated in conformance with biosolids utilization regulatory requirements. The Environmental Services Department is committed to continuous improvement and is continuing to implement changes and updates to the Biosolids Management System to improve its effectiveness and efficiency.

4.0 Wastewater Collection

4.1 BACKGROUND

The City's wastewater collection system is a complex network of gravity sewers, wastewater-pumping stations and forcemains. Collection sewers gather wastewater from the user, transporting the wastewater to main or trunk sewers. In turn, these sewers transport the sewage to the Robert O. Pickard Environmental Centre (ROPEC).

Wastewater is conveyed to ROPEC via three main Trunk Sanitary Collector Systems:

1. *Orleans/Cumberland Collector*: Receiving flows from the City's east end;
2. *Ottawa Interceptor-Outfall Sewer*: Receiving flows from the City core and the West Nepean Collector System; and;
3. *Green Creek Collector/South Ottawa Tunnel System*: Receiving flows from the South Ottawa Collector System and the City's west end.

The City of Ottawa's sewer system covers an area of 2,767 square kilometers and extends from West-Carleton to Cumberland. There are 2,622 km of sanitary and combined sewers in Ottawa, of which approximately 345 km are classified as local or regional trunk sewers with diameters of 600 mm or more. There are currently in the order of 115 km of combined sewers that remain in the City of Ottawa. Sewer pipes range in size from 20 centimetres to three metres in diameter.

In the rural areas, methods of dealing with wastewater vary. Richmond, Munster Hamlet, and Carp are connected to the municipal trunk sewer system by pumping. Elsewhere, wastewater is not under City's responsibility as it is discharged into individual septic tanks. Sludge pumped from septic tanks can be transported to ROPEC for treatment.

4.1.1 Odour and Corrosion Control Systems

All wastewater collection systems are prone to odour release as a result of the characteristics of wastewater itself as well as the need to maintain adequate system ventilation to prevent the build-up of explosive gases. The City of Ottawa has a total of seven sites where odour and corrosion control systems have been implemented to mitigate the effects of emissions from wastewater collection facilities. There are currently three pump stations where odour is controlled with chemical addition, one pump station and two other sites where odour is controlled through biological filtering, and one site using activated carbon.

4.2 SEWER OPERATION AND MAINTENANCE

In 2011, 215 km of sanitary and combined sanitary/storm sewers were cleaned as part of the routine maintenance program. The Special Cleaning Program (Hot Spot preventive and reactive cleaning) resulted in 149 km of sanitary and combined sewers being cleaned.

4.2.1 Raw Sewage By-pass, Spills or Abnormal Discharge Events

High level details of the raw sewage by-passes, spills or abnormal events for 2011 include:

-
- Total Volume of Wastewater Discharged under Combined Sewer Overflow conditions:
– 545,000 m³
- Total Number of Collection System Sanitary Sewage Spills – 3 events (total 1,903 m³)
 - Valley Drive Pumping Station (588 m³ on April 11)
 - Hemlock Pumping Station (15 m³ on April 13)
 - Orient Park and Valley Drive Pumping Stations (1300 m³ on June 24)
- Total Number of Collection System permitted CSO Class I Spills¹ – 32 Discharge Events²

Wastewater collection and treatment statistics for the Control Period (annually between April 15 and November 15) include:

- Total Volume of Wastewater Collected Citywide During Control Period (annually between April 15 and November 15) – 82,154,319 m³
- Total Volume of Wastewater Treated at the R.O. Pickard Environmental Centre During Control Period – 81,963,000 m³
- Percentage of Collected Sewage Treated to Secondary Level (during Control Period) – 99.7%
- Rainfall During the Control Period – 583 mm, approximately 12% above the normal Control Period rainfall of 522 mm.

4.3 OPERATOR TRAINING

In 2011, the Wastewater Collection Unit achieved its training requirement for approximately 92% of its staff. At the end of the year, 49 of 53 operators had received a minimum of 40 hours of

¹ Class I Spills are discharges authorized by and in accordance with a certificate of approval, provisional certificate, order, license or permit issued under the *Environmental Protection Act*, and the *Ontario Water Resources Act*.

² Discharge events are rainfall or snow melts that cause a combined sewer overflow to occur at any one of the 18 combined sewer overflow locations within the City of Ottawa.

training through the year. One staff member required between 11 and 20 hours to achieve the 40 hours of training. One staff member required an additional 21 to 30 hours to achieve 40 hours of training. Two staff members required more than 30 hours to achieve the 40 hours of training. Staff that did not achieve minimum training hours were on sick leave.

4.4 CONCLUSION

This report demonstrates that the City of Ottawa has operated and maintained the wastewater collection and stormwater drainage systems in accordance with both Federal and Provincial regulations and certificates of approval for the sewage works.

5.0 Stormwater Collection

5.1 BACKGROUND

Urban and rural stormwater management refers to activities involving the establishment and operation of drainage systems designed to safely drain and convey runoff from built-up or occupied land areas as well as the connection of these urban and rural drainage systems to streams. While sanitary sewers carry wastewater from homes, commercial and industrial buildings to ROPEC, storm sewers carry rainfall and other surface run-off directly to the nearest creek, stream or river, generally without treatment. In some parts of the City, combined sewers carry both wastewater and run-off to ROPEC for treatment. There are over 2,585 km of storm sewers in Ottawa, of which approximately 555 km are classified as local or regional trunk sewers with diameters of 900mm or more. There are nine (9) stormwater pumping facilities in the City.

In certain locations of the City, high water levels in the Ottawa and Rideau Rivers can exceed the elevation of local sewers and, in some cases, basements. To protect local residences from flooding, a check valve (backflow preventor) is activated when the river levels exceed a certain level and stormwater flows from the sewers are pumped to the river. There are currently five such Pumping Station (PS) facilities in the City: Kempster Avenue PS, Ritchie Street PS, Croft Street PS, Windsor Park PS, and Brewer Park PS.

In certain locations of the City, road way underpasses are at too low an elevation to drain out to a local storm outlet. In order to prevent excessive accumulation of surface drainage in these low areas, stormwater pumping stations are installed to safely evacuate the stormwater. There are currently four such PS facilities in the City: Craig Henry PS, Dolan & Antler PS, Cedarview PS and the Lees Avenue Transitway Stormwater PS.

5.2 SEWER OPERATION AND MAINTENANCE

In 2011, no storm sewers were cleaned as part of the routine maintenance program. Twenty-five (25) km were cleaned as part of the Special Cleaning Program.

6.0 Lees Avenue Stormwater Pumping & Leachate Treatment Plant

6.1 BACKGROUND

In 1986, coal tar contamination was discovered as a result of leakage from several abandoned underground storage tanks associated with a former coal/oil gasification plant adjacent to Lees Avenue. After this discovery, the following remedial work was conducted:

- cleaning and lining of the storm sewer system,
- cleaning and parging of the stormwater pumping station to prevent contaminant infiltration,
- construction of a separate collection system in the Transitway to collect the groundwater formerly collected by the stormwater system,
- and construction of a new treatment plant.

The treatment facility is located within the premises of Lees Avenue Transit station at 195 Lees Avenue in central Ottawa.

6.1.1 Lees Avenue Stormwater System

The existing stormwater system in the vicinity of Lees Avenue has been upgraded since the discovery of groundwater contamination. To prevent the entry of contaminated groundwater, stormwater sewers in the area have an epoxy impregnated liner and the catch basin manholes have been grouted and parged using epoxy. Stormwater is collected in the stormwater pumping station wet well. This stormwater is then pumped to a 1,200mm diameter storm sewer which conveys the water by gravity to the Rideau River.

6.1.2 Lees Avenue Leachate System

Records indicate that the Lees Avenue treatment process was installed to deal with contaminated groundwater. For the purposes of this report, the contaminated groundwater will be referred to as leachate. The leachate system collects the leachate separately from the stormwater, provides treatment and then discharges to the sanitary sewer system. The monthly average flow rate for 2011 at the Lees Avenue Leachate Treatment Plant was 122.1 m³/d of leachate. The highest month was June at 135.3 m³/d. The lowest month was November at 109.96 m³/d.

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Lees Avenue Stormwater Pumping & Leachate Treatment Plant
June 1, 2012

6.2 SUMMARY OF 2011 COMPLIANCE ACTIVITIES**6.2.1 Certificate of Approval Compliance**

The Lees Avenue facility operates under Certificate of Approval Number 3-1458-86-006 (Leachate Treatment) and Certificate of Approval Number 3-1317-86-007 (Stormwater Pumping). In 2011, the monitoring program (monthly sampling) continued for both the leachate treatment and the stormwater pumping system in accordance with the Certificate of Approval requirements.

As per the amendment of October 14, 1987 granted by the Ministry of Environment, analysis of only benzo(a) pyrene is required for the effluents from the stormwater pumping station and the leachate treatment system. In 2011, concentration and daily loading of benzo(a) pyrene in the stormwater and treated leachate were found to be well within the allowable limits of the Certificate of Approvals. For the leachate facility, the concentration limit is 0.00107 g/L and the average daily mass loading is 350 g/day. Actual concentrations always tested below 0.0000015 g/L and loadings always tested below 0.125 g/day. For the stormwater facility, the concentration limit is 0.000001 g/L and the average daily mass loading is 6.7g/day. Actual concentrations always tested below 0.0000007 g/L and loadings always tested below 0.13 g/day .

6.2.2 Sewer Use Bylaw Compliance

The Lees Avenue treatment system is operating in compliance with the City Sewer use by-law.

6.2.3 Operations and Maintenance

Maintenance works carried out by the City at the facilities during 2011 consisted of routine maintenance and repair activities of the facility and equipment. The lining of the storm sewer was CCTV inspected and the stormwater pumping station wet well was cleaned and inspected.

6.3 CONCLUSION

The plant was well within Ministry of Environment compliance limits for benzo(a) pyrene concentration and loading for both the storm sewer and the treated leachate in 2011. The plant discharge to the sewer was compliant with the City's Sewer Use By-Law for 2011. Visual inspection showed the system to be in satisfactory condition.

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7.1 BACKGROUND

The First Response group is primarily responsible for carrying out field investigations on sewer laterals to investigate sewer back-ups and proceeding with a closed circuit television inspections. The First Response group deals directly with the public in several manners including the provision of information related to City policy. The First Response group gathers the necessary information to relay back to both the operating and engineering groups.

The First Response Group is available to respond to customer calls immediately since staff are scheduled to be on shift 24 hours per day, 7 days per week. The First Response group works very closely with the City Call Centre (311) to meet a service level objective to respond to all priority calls, such as odour complaints and sewer back-ups, within three (3) hours of receiving the call.

7.2 SUMMARY OF 2011 COMPLIANCE ACTIVITIES

Table 7.1 summarizes the total First Response calls logged in the ITX database from 2010 and 2011.

Table 7.1: First Response Call Log for 2010 and 2011.

Activity Code	Activity Description	2010	2011
LIDT	L (Investigate Drain Trouble)	1117	1104

Table 7.2 compares response times from 2010 and 2011 for the above activities.

Table 7.2: Percent of Work Orders Complete in 3 Hours for 2010 and 2011.

Activity Code	Activity Description	2010	2011
LIDT / LIDT2	L (Investigate Drain Trouble)	91	91

8.0 Sewer Use By-Law Enforcement

8.1 BACKGROUND

The City of Ottawa’s Sewer Use Program was established in 1993. It is a regulatory strategy aimed at reducing or eliminating the discharge of contaminants to the sewer system by dealing with waste at its source. The objectives of the program are to protect: the health and safety of sewer workers, the integrity of infrastructure, the wastewater treatment process, and the quality of biosolids and plant effluent discharged to the Ottawa River. It also serves as a mechanism to ensure that steps are being taken to maintain the City’s compliance with environmental legislation such as the *Fisheries Act*, *Ontario Water Resources Act* and the *Canadian Environmental Protection Act*.

The Sewer Use By-Law provides the legal framework necessary to achieve these objectives by delineating what types of matter may or may not be discharged to the sewage works. It establishes discharge limits for various pollutants being discharged into sewers and specifies provisions to enable staff to monitor and control contaminants.

8.2 SUMMARY OF 2011 COMPLIANCE ACTIVITIES

Table 8.1 provides a summary of the day to day and compliance activities performed by staff in the Sewer Use By-Law Program.

Table 8.1: Sewer Use By-Law Enforcement – “Activities at a Glance 2009-2011”

Source Control Activity		2009	2010	2011
Customer Service	Enquiries & Requests for Information	533	509	326
	Discharge Requests	242	251	105
	Meetings with Industry	74	51	46
	Company Correspondence (non-enforcement)	902	575	725
Industry Monitoring	Samples Analyzed	4176	4044	1958
	Self-Monitoring Reports Reviewed	1797	1844	1262
	Non-Compliant Discharges	1575	1176	639
	Inspections	388	240	171
	Investigations	13	16	19
	Spill Responses	113	41	131
Hauled Liquid Waste	Queries/Issues	332	302	163
	Permits Issued	42	43	37
	Volume Received (excluding leachate)	75ML	66ML	57.6ML
	Total # of Loads (excluding leachate)	6193	5906	4864
	Loads Sampled	583	754	414
Compliance Measures	Compliance Programs	1	3	3
	Special Discharge Agreements	31	29	32
	Sanitary Sewer Agreements	31	31	39
	Combined Agreements	5	7	7
	Leachate Agreements	3	3	3

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	Sludge Agreements	12	13	13
	Agreements Requested	47	79	75
Enforcement Response	Written Advisories	220	127	161
	Warning Letters	130	64	207
	Notices of Violation	106	66	172
	Tickets Issued	25	8	40
Cost Recovery	Hauled Liquid Waste	\$663,842	\$639,758	\$714,241
	Discharge Agreements	\$3,714,729	\$3,015,545	\$2,930,482
	Total Cost Recovery	\$4,378,571	\$3,655,303	\$3,644,723

9.0 Pollution Prevention Plan

9.1 BACKGROUND

Pollution Prevention (P2) is defined by the Canadian Council of Ministers of the Environment (CCME) as the use of processes, practices, materials, products or energy to avoid or minimize the creation of pollutants and wastes, at the source. P2 is a priority initiative for Environment Canada and is considered to be a cornerstone of the Canadian Environmental Protection Act (CEPA, 1999). The Final Notice requiring P2 Plans for certain wastewater facilities was posted on December 4, 2004. Under the P2 notice, owners of wastewater collection systems that discharge treated effluent to surface water with an annual average effluent discharge of at least 5,000 m³/day and a total residual chlorine in the effluent greater than 0.02 mg/L in any one sample are subject to the Final Notice. The P2 Notice requires ROPEC to implement a P2 plan to address the release of chlorinated effluent as well as the following P2 substances: nonylphenol and its ethoxylates, textile mill effluents, mercury, lead, hexavalent chromium, inorganic cadmium, inorganic arsenic and ammonia. The City is currently engaged in a capital upgrade project that, when completed, will virtually eliminate residual chlorine from effluent produced at ROPEC.

9.2 SUMMARY OF 2011 COMPLIANCE ACTIVITIES

9.2.1 P2 Plan Implementation

The City's P2 plan contains four components: Chemical Audits and Sewer Use By-Law Enforcement; Optimization of Sodium Hypochlorite Consumption; Good Operating Procedures; and Environmental Effects Monitoring. Each of these components will be internally monitored and reported as described in **Table 9.1**.

Table 9.1: P2 Plan Implementation & Reporting

Activity	Frequency	Executed by	Reported by
Chemical Audits			
a) sewer survey	twice annually	SUBLE	SUBLE
b) ROPEC influent, effluent	twice annually	WWT	WWT
Assess Monitoring Results			
a) identify trends & changes in trends	annually	WWT & SUBLE	WWT
b) address adverse changes in effluent quality	annually	WWT & SUBLE	WWT
Investigate Extent & Magnitude of Effects			
a) determine river water quality for TRC, NH3 & Notice's "CEPA toxic" substances	every spring, winter & fall	WEP	WEP
b) assess benthos community	annually	WEP	WEP
c) identify additional studies	annually	WWT, WEP & SUBLE	WWT
Public Consultation			
a) determine level of concern for effects	if & when effects increase	WWT	WWT
b) confirm action to mitigate effects	if & when effects increase	WWT	WWT
c) implement mitigative measures	when effects are undue or increase substantially	WWT	WWT
Investigate Alternatives			
a) identify cost neutral alternatives	on going	WWT	WWT
b) pilot test potential alternatives	when opportunities exist	WWT	WWT

WWT = Wastewater Treatment Unit;
 SUBLE = Sewer Use By-Law Enforcement Unit
 WEP = Water Environment Protection Unit

9.3 CONCLUSION

The City of Ottawa has met its requirements to develop a Pollution Prevention (P2) Plan under the Canadian Environmental Protection Act (CEPA, 1999). The City will continue to monitor and report on each of the main components of the P2 Implementation Plan.

10.0 National Pollutant Release Inventory (NPRI)

10.1 BACKGROUND

The National Pollutant Release Inventory (NPRI) is Canada's legislated, publicly-accessible inventory of pollutants released, disposed of and recycled by industrial, institutional and commercial facilities across the country. It is a major starting point for identifying and monitoring sources of pollution in Canada, as well as in developing indicators for the quality of our air, land, and water. Information collected through the NPRI is used by Environment Canada in its chemicals management programs, and it is made publicly available to Canadians each year. Public access to the NPRI motivates industry to prevent and reduce pollutant releases. NPRI data helps the Government of Canada track progress in pollution prevention, evaluate releases and transfers of substances of concern, identify and take action on environmental priorities, and implement policy initiatives and risk management measures.

All facilities that meet NPRI reporting requirements must report their releases, disposals, and transfers of NPRI-listed substances every year by June 1. ROPEC is subject to NPRI reporting.

10.2 SUMMARY OF 2011 COMPLIANCE ACTIVITIES

The 2010 annual loads for pollutants of concern for ROPEC as required by CEPA (1999) and reported to the NPRI in 2011 are listed in Table 14.1. The City is currently compiling the 2011 annual loads for the 2012 reporting year.

Table 10.1: 2010 NPRI Substances Reported in 2011 for ROPEC

Contaminant	Threshold (kg/yr)	2010 Effluent (kg/yr)	2010 Biosolids (kg/yr)	2010 Air Emissions (kg/yr)	2009 Total Emitted (kg/yr)	2010 Total Emitted (kg/yr)	Total % change
Arsenic	50	26.552	68.23	non-significant	80.33	94.78	17.99%
Cadmium	5	Non-detect	30.80	non-significant	43.85	30.796	-29.76%
Mercury	5	4.24	20.67	non-significant	29.71	24.91	-16.16%
Manganese	10,000	7,896	3,199.61	non-significant	10,772	11,096	3.00%
Ammonia/ Ammonium (as NH3)*	10,000	3,283,185	98,348.31	344,027	4,029,464	3,725,560	-7.54%
Nitrate (as NO3)	10,000	1,121,543	n/a	n/a	648,593	1,121,543	72.92%
Total Phosphorus	10,000	82,611	472,936.15	n/a	619,717	555,547	-10.35%
Lead	50	Non-detect	748.82	non-significant	834.87	748.82	-10.31%
Zinc	10,000	3,055	9,763.85	non-significant	13,364	12,819	-4.08%

*The emission factor used for Ammonia is 2.28kg/ML of wastewater

10.3 CONCLUSION

The City of Ottawa has met its requirements to report annual pollutant releases to the National Pollutant Release Inventory per the requirements of the Canadian Environmental Protection Act (CEPA, 1999).

11.0 Conclusion

This report represents an annual operations summary of wastewater and stormwater systems for the year 2011. The purpose of this report is to ensure that Council is aware of the operating condition and quality of the wastewater and stormwater services provided by the City of Ottawa.

As can be seen in the previous sections of this report, the regulatory requirements of the nine unique sections that represent the services under the authority of Wastewater Services have been met for the year 2011.