

City of Guelph

2019 Annual Report – Waste Resource Innovation Centre

ECA No. A170128 & 9496-9NFKJ9

Prepared by:

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Date: March, 2020

Project #: 60598828

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Mr. Cameron Walsh, CFM, CET
Division Manager
Solid Waste Resources
Infrastructure, Development and Enterprise
City of Guelph
1 Carden Street
Guelph, ON N1H 3A1

March 25, 2020

Project #
60598828

Dear Mr. Walsh:

**Subject: 2019 Annual Report – Waste Resource Innovation Centre
ECA No. A170128 & 9496-9NFKJ9**

Enclosed, please find our annual report for this project, addressing the requirements of the WRIC Environmental Compliance Approval (ECA) A170128.

Please do not hesitate to call me should you have any questions about this report. Thank you for allowing AECOM to be of continued service to the City of Guelph.

Sincerely,
AECOM Canada Ltd.



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PW:mm
Encl.

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Executive Summary

The City of Guelph Solid Waste Transfer Station, Materials Recovery Facility (MRF) and Organic Waste Facility are adjacent facilities that operate under a combined Amended Provisional Certificate of Approval/Environmental Compliance Approval (C of A/ECA) issued by the Ministry of Environment, Conservation and Parks (MECP), dated February 10, 2011 (C of A No. A170128) and an amended ECA dated January 7, 2015 (ECA No. 9496-9NFKJ9).

The following table presents a summary of the 2019 Annual Report for the City of Guelph Waste Resource Innovation Centre. The C of A/ECA specifies annual reporting requirements. These have been outlined in the left-hand column below, while the right hand column provides a reference to the section of this report where the reader will find further details.

A. Amended Provisional C of A (Waste Disposal Site) No. A170128

C of A Annual Report Requirement (Condition N)	Report Reference and Summary
<p>52. <i>The City shall submit an annual report on the operation of the Site for the previous calendar year to the District Manager by March 31st of each year. This report will include the information required as follows:</i></p> <p>(a) <i>the information required by Condition 63(8) of the Certificate dealing with the Composting Site;</i></p> <p>63(8) <i>By March 31st following the end of each operating year, the Owner shall prepare and submit to the District Manager, an Annual Report summarizing the operation of the Composting Site covering the previous calendar year. This Annual Report shall include, as a minimum, the following information:</i></p> <p>63(8)(a) <i>A monthly mass balance of the Organic Waste received, processed and transferred from this composting site, including waste type, quantity, sources and/or disposal destinations;</i></p>	<ul style="list-style-type: none"> Table 1 (Section 2.1) provides details on the organic materials received, processed and transferred from the site. The compost facility received 30,898 tonnes of material. Of the materials received, source separated organic materials constituted 30,460 tonnes, brush constituted 279 tonnes and amendment/mulch made up the remaining 158 tonnes. During 2019, the site accepted source separated organic material from the City of Guelph and the Region of Waterloo. Amendment material was received from the City of Guelph in the form of wood chips from the City of Guelph Parks and Recreation Department and the Region of Waterloo. A total of 6,860 tonnes of finished compost was removed from the facility in 2019). The finished compost was shipped to locations in Guelph, Huron County, Simcoe, Eramosa, Clinton and Blyth. A total of 991 tonnes of screening, residual compost and organic rejected material were shipped to the Transfer Station and then to the Waste Management Twin Creeks Landfill in Sarnia, Ontario. 816 tonnes of overs (oversized particles that have been through the composting process and provide structure and porosity to the composting mix) was generated.
<p>63(8)(b) <i>An annual summary mass balance of the organic waste, the wood waste, the waste wood and the amendment material, received, processed and transferred from this composting site, including waste type, quantity, sources, and/or disposal destination;</i></p>	<ul style="list-style-type: none"> Table 1 (Section 2.1) provides details on the organic materials received, processed and transferred from the site including amendment material.
<p>63(8)(c) <i>An annual summary of any deficiencies, items of non-compliance or process aberrations that occurred at this composting site and any remedial/mitigative action taken to correct them;</i></p>	<ul style="list-style-type: none"> As reported in Section 2.5, there were no deficiencies, items of non-compliance, or process aberrations in 2019.
<p>63(8)(d) <i>a descriptive summary of any spills, incidents or other emergency situations which have occurred at this composting site, any remedial measures taken and the measures taken to prevent future occurrences;</i></p>	<ul style="list-style-type: none"> As reported in Section 2.2, no reportable spills occurred in 2019 at the composting site.

A. Amended Provisional C of A (Waste Disposal Site) No. A170128

C of A Annual Report Requirement (Condition N)	Report Reference and Summary
63(8)(e) <i>A summary describing any rejected waste including quantity, waste type, reasons for rejection and origin of the rejected waste;</i>	<ul style="list-style-type: none"> As reported in Section 2.2, there were 19.1 tonnes of rejected material from the organics plant due to contamination. The contaminated material usually consists of curbside recyclable collection (blue cart) material that is either inadvertently placed in with the organics (green cart) by the home owner or the blue cart material is inadvertently placed in the wrong area of the split box collection trucks. The rejected material was sent to the transfer station and then onto Twin Creeks landfill for final disposal.
63(8)(f) <i>The quantity, by weight and volume of compost and residues produced and the quantity of compost and residues removed from the facility;</i>	<ul style="list-style-type: none"> Table 1 (Section 2.1) shows that 6,860 tonnes of finished compost was removed from the facility. 1,788 tonnes of screening and residual compost waste from the composting process were shipped to the Transfer Station and then the Waste Management Twin Creeks Landfill in Sarnia, Ontario or to various other locations.
63(8)(g) <i>Any environmental and operational problems, that could negatively impact the environment, encountered during the operation of the composting site or identified during the facility inspections and any mitigative actions taken;</i>	<ul style="list-style-type: none"> As reported in Section 2.2, there were no environmental or operational problems that could negatively impact the environment, encountered during the operation of the composting site or identified during the facility inspections in 2019. The facility is operating as designed.
63(8)(h) <i>Any changes to the WRIC Environmental Emergency Plan, the Operations Manual or the Closure Plan that have been approved by the Director since the last Annual report;</i>	<ul style="list-style-type: none"> As reported in Section 2.2, there were no changes to the, the Operations Manual or the Closure Plan since the last annual report. WRIC Environmental Emergency Plan was updated in 2019 with new contact information.
63(8)(i) <i>Any recommendations to minimize environmental impacts from the operation of the composting site and to improve the composting site operations and monitoring programs in this regard;</i>	<ul style="list-style-type: none"> As discussed in Section 2.5, there were no deficiencies/non-compliance or environmental/operational issues related to the compost facility in 2019. The facility is operating as designed.
63(8)(j) <i>A summary of any complaints received and the responses made, as required by the C of A (Air/Noise) for the composting site;</i>	<ul style="list-style-type: none"> Section 2.3 discusses the two (2) complaints received in 2019 at the Waste Resources Innovation Centre. The complaints and remedial actions were reported to the Ministry, and a response letter was provided to each complainant. None of these two complaints was confirmed to have originated from the WRIC site.
63(8)(k) <i>A description of the compost distribution/markets;</i>	<ul style="list-style-type: none"> As reported in Section 2.1, all compost produced at the site was shipped to a farmer in Atwood, Ontario, northwest of Guelph.
63(8)(l) <i>Conclusions from the advanced pathogen testing as the results relate to the pasteurization temperature monitoring; and</i>	<ul style="list-style-type: none"> Section 2.4 reports samples taken from the maturation hall of the compost stream indicate that all compost that has been shipped off the site has passed the conditions for a Class A compost under the CCME Guidelines and the conditions within the C of A/ECA. Temperature monitoring logs of the tunnels at the composting facility show that pasteurisation at 55 degrees C was maintained for 72 hours, as required.
63(8)(m) <i>A condition-by-condition analysis of compliance with all Conditions of this Certificate.</i>	<ul style="list-style-type: none"> Section 2.6 reports that based on a review of the 2019 information provided by the City, there are no non-compliance issues for 2019.
52(b) <i>A monthly summary of the waste and/or recyclable materials received at the Site, including quantity, source and Ontario Regulation 347 waste classes;</i>	<ul style="list-style-type: none"> Table 2 (Section 5.1) provides details of the incoming materials. 101,581 tonnes of material was received by the site. The compost facility received 30,898 tonnes of organics. Recyclables and mixed dry materials constituted 14,876 tonnes of the total materials received at the site. There were 7,646 tonnes of brush, leaves, yard waste and mixed organics received. Non-recyclable materials (mixed solid waste and organic rejected materials) constituted 48,161 tonnes of the total materials received at the site in 2019.

A. Amended Provisional C of A (Waste Disposal Site) No. A170128

C of A Annual Report Requirement (Condition N)	Report Reference and Summary
	<ul style="list-style-type: none"> Recyclables accepted by the WRIC originated mainly from the City of Guelph and the remaining sources from other areas in Ontario. Materials accepted at the Transfer Station were mainly from the City of Guelph, of which 91% was mixed solid waste. The Regulation 347 waste classes received at the site are summarized on Table 2.
<p>52(c) <i>A monthly summary of wastes and/or recyclable materials processed at the Site, including quantity and Ontario Regulation 347 waste classes.</i></p>	<ul style="list-style-type: none"> Table 3 (Section 5.2) provides details on processed waste at the site. There were 15,501 tonnes of marketable processed material was transferred off the site from the WRIC (MRF/PDO) facility. 5,319 tonnes was mainly paper-and cardboard products. There were 102 tonnes (0.1%) less of incoming material (excluding the compost facility) compared to outgoing material at the end of 2019. This 0.1% difference is negligible and may be attributed to a margin of error. Materials that are accepted by the site are either diverted to be re-used or sent to the landfill for disposal.
<p>52(d) <i>A monthly summary of wastes and/or recyclable materials transferred off-Site, including quantity, destination, and Ontario Regulation 347 waste classes.</i></p>	<ul style="list-style-type: none"> Table 3 (Section 5.2) provides details on the outgoing materials. Of the 53,654 tonnes of non-processed outgoing materials from the Transfer Station, 51,242 tonnes (95.5% of the outgoing materials) was sent to the Waste Management Twin Creeks Landfill in Lambton County, 1,220 (2.3%) was sent to Waste Management Inc. and 1,193 tonnes (2.2%) was sent to Try Recycling in London. About 2,412 tonnes (4%) of non-processed materials is marketable consisting of other recyclable materials such as shingles, clean wood, drywall, concrete and rubble. Of the 79,451 tonnes of outgoing material, 15,501 tonnes of marketable material (20%) is processed on-site through the Material Recovery facility (MRF) and 6,860 tonnes of finished compost was produced. 816 tonnes of overs from the organic compost plant was generated in 2019. 51,242 tonnes of non-recyclable materials were shipped off-site from the transfer station to other destinations. In 2019, the MHSW facility received and diverted a total of about 206,295 L and 12,166 kg of municipal and household special wastes, in addition, 1,058 20 lb. propane tanks, 5,000 1-lb. propane cylinders and 7,158 (27,672 ft.) fluorescent tubes were received. 15,501 tonnes of marketable processed material was transferred off the site from the WRIC (MRF/PDO) facility. 5,319 tonnes (34%) was paper-based goods such as cardboard and newsprint, 7,624 tonnes (49%) was organics, 556 tonnes (4%) was plastics and the remaining 2,002 tonnes (13%) was other recyclable materials such as aluminum, steel cans, glass, tires and metal.
<p>52(e) <i>An annual summary of the analytical results for the groundwater and surface water monitoring program including an interpretation of the results and any remedial/mitigative action undertaken,</i></p>	<ul style="list-style-type: none"> Section 8 discusses groundwater quality. Groundwater monitoring results indicate road salt effects at some up-gradient groundwater monitoring locations (5-96, 14b-01, 19b-08, 20b-08, 23b-12). These are related to off-site winter road salting of the adjacent major roadways. Road salt effects are detected in some on-site downgradient groundwater monitors (6b-96, 7 96, 11b-00, 13b-01, 15b-01, 17b-08, 19b-08). Monitors 5 96, 6b-96, 7-96 and 14b-01 exceeded ODWS for sodium and/or chloride in 2018 as a result of road salt effects. There were no apparent leachate impacts observed in the groundwater at the site boundary. Monitor 15b-08 exceeded the sodium and chloride ODWS in June 2019 and 15a-08 exceeded the chloride ODWS in June 2019, which may be related to PDO area water line installation and subsequent regrading activities, including the completion of a drainage ditch. The nitrate ODWS has historically been exceeded at 7-96 but was within ODWS in 2019 as observed since late 2012. Historically, elevated nitrate concentrations were prevalent across the site at all

A. Amended Provisional C of A (Waste Disposal Site) No. A170128

C of A Annual Report Requirement (Condition N)	Report Reference and Summary
	<p>locations prior to development of the site and have shown a decreasing trend over the past several years. Elevated nitrates are most likely a result of surrounding and historic land use in the area and are not a result of site operations.</p> <ul style="list-style-type: none"> • Exceedances of the iron ODWS occurred at many of the monitoring locations during the December 2011 and also continue to be noted in 2019. The highly elevated iron concentrations at 18b-14, which declined considerably in 2019 but still remain elevated, are considered to be due to the residual effects of drilling mud used during installation of these monitors. The cause of the overall increase in iron concentrations is unknown. These elevated iron concentrations will continue to be investigated further in future monitoring events. Aside from the sodium, chloride and iron exceedances discussed above, there were no other exceedances of the Ontario Drinking Water Standards in 2019 for the groundwater monitors sampled for the site monitoring programs. • As the shallow outwash water quality is not affected by site operations, no effects to the deeper bedrock groundwater would be expected. No leachate effects were detected in the bedrock monitors sampled in 2019. • Section 8.5 discusses organic groundwater results. The 2019 organic sampling showed that there were detections of naphthalene, bis(2-ethylhexyl) Phthalate (DEHP), m p-cresol, bromodichloromethane, chloroform, dibromochloromethane and phenols at some of the on-site monitors. However, based on the historic detections of occasional low levels of VOC throughout the site in both upgradient and downgradient monitors, the 2019 VOC detections are not considered to be related to site operations. There are no sources of VOCs on the WRIC or Transfer station property as waste is handled within the covered buildings, truck boxes are covered when outside (preventing contact between the waste and precipitation) and no waste processing occurs on-site. • Section 8.7 discusses the Guideline B-7 assessment for monitor nest 22-11, located along the western property boundary. The iron concentration at monitor 22a-11 exceeded Guideline B-7 limits during both 2019 monitoring event. As previously discussed, iron concentrations at some of the monitor locations have been unusually high since the December 2011 monitoring event. The elevated iron concentrations occurred in both upgradient and downgradient monitors and therefore, do not appear to be related to site operations. The December 2019 chloride concentration at 22b-11 (in the outwash) exceeded B-7 limits. The elevated chloride at 22b-11 may be a result of road salt impacts. • Of the eight sets of samples collected in 2019 at EPTS-01 (the existing background on-site surface water pond, East Pond), the PWQO for zinc was exceeded during all of the 2019 monitoring events. Zinc has consistently exceeded PWQO in the past at this location. PWQO was also exceeded for phenols during one 2019 event. The phenol PWQO has only been exceeded on four past occasions. All the leachate indicator parameters concentrations were within background overburden ranges. Surface water organic sampling in April 2019 showed low concentrations of acenaphthene, naphthalene, bis(2-ethylhexyl)Phthalate and chloroform at the background surface water station, EPTS-01. Low chloroform levels have historically occasionally been detected at this location though the other three VOCs have not historically been detected at this location.

A. Amended Provisional C of A (Waste Disposal Site) No. A170128

C of A Annual Report Requirement (Condition N)	Report Reference and Summary
	<ul style="list-style-type: none"> • Section 8.8 discusses surface water quality results. Monthly monitoring of the stormwater management pond in the northwest corner of the site was conducted, with samples collected at the discharge at the north end of the pond (TP1 (out)) on eight occasions in 2019. SWM pond samples exceeded the PWQO for zinc, iron, total phosphorus and phenols during two or more 2019 sampling events. The elevated total phosphorus is a result of surrounding land use and not a result of operations at the site. Elevated zinc, total phosphorus and iron concentrations appear to be related to external factors since background surface water have also exceeded PWQO for these parameters. Metals are a common contaminant from roadway runoff. Elevated phosphorus is typical in rural and urbanized areas. Low concentrations of acetone, benzene, bis(2-ethylhexyl)Phthalate, m-Xylene and p-Xylene, naphthalene, styrene and toluene were detected at TP1 (out) in April 2019. The low 2019 detections may have been related to the fire at the waste transfer station three days prior to this monitoring event. Water from fire fighting efforts was directed to the SWM Pond where TP(out) is located. It is expected that these VOC concentrations have quickly dissipated such that they are below the laboratory detection limits. No VOCs were detected at EPTS-01 or TP1(out) during the July 2019 event. • c) As due diligence, the SW 1 (Stormwater Detention Area 2) was only sampled in May and June 2019 though the water levels in the detention pond were below the trigger level of 0.46 m. Only sodium and potassium were slightly elevated at SW1 during the May 2019 event compared to the East Pond (background). However, the majority of the leachate indicator parameter concentrations were lower at SW1 compared to EPTS-01. The Provincial Water Quality Objectives (PWQO) was exceeded for total phosphorus, iron and June zinc for one or both 2019 sampling events, which has also consistently to occasionally been observed in the East Pond and is considered natural to the area. No discharge was required from the Detention Pond 2 in 2019. • As previously discussed, the design and operation of the WRIC and compost facility minimizes the potential for leachate generation from site activities.
52(f) <i>An annual summary of any deficiencies, items of non-compliance or process aberrations that occurred and remedial/mitigative action taken to correct them.</i>	<ul style="list-style-type: none"> • Section 11 of the report briefly discusses site compliance. As reported by the City, there were no deficiencies or items of non-compliance in 2019.
52(g) <i>A summary to any changes to the Engineer's Report and/or the Design and Operations Report that have been approved by the Director since the last annual report;</i>	<ul style="list-style-type: none"> • As stated in Section 11, there have been no changes to the Engineer's Report or to the Design and Operations Report since the last annual report. There were no changes to the WRIC Environmental Emergency Plan in 2018.
52(h) <i>A summary of any changes to the Design and Operations Report Design and the WRIC Environmental Emergency Plan that were made in accordance with Condition 68(1) of this Certificate;</i>	<ul style="list-style-type: none"> • As stated in Section 11, there have been no changes to the Engineer's Report since the last annual report. The Design and Operations Report has been updated to include the new Public Drop Off. There were no changes to the WRIC Environmental Emergency Contingency Plan in 2018.
52(i) <i>A summary of any changes to the Design and Operations Report that have been approved by the Director since the last annual report;</i>	<ul style="list-style-type: none"> • As stated in Section 11, there have been no changes to the Engineer's Report since the last annual report. The Design and Operations Report has been updated to include the new Public Drop Off. The WRIC Environmental Emergency Contingency Plan was updated in 2019 with new contact information.
52(j) <i>Update on activities of the PLC.</i>	<ul style="list-style-type: none"> • Section 9 summarizes the 2019 PLC activities, as provided by the City.

B. Amended ECA No. 9496-9NFKJ9

ECA Monitoring and Reporting (Condition 5)	Report Reference and Summary
<p>5(1) <i>The Owner shall implement a groundwater and surface water sampling program to ensure early detection of contaminants in the event that such contaminants escape the Waste Resources Innovation Centre (WRIC) site, as follows:</i></p> <p>5(2) <i>Groundwater and surface water shall be sampled and analyzed for the following parameter suite (see Section 1.1 for table of parameters)</i></p>	<ul style="list-style-type: none"> • The results of the groundwater monitoring program at the WRIC is discussed in Section 8. There were no observable effects attributed to the WRIC operations on the groundwater quality beneath the site. No effects were observed at the site boundaries. Road salt effects continue to be observed at monitoring locations both upgradient of the site and on-site. • The results of the surface water monitoring program are discussed in Section 8.7. SWM pond samples exceeded the PWQO for zinc, iron, total phosphorus and phenols during two or more 2019 sampling events. The elevated total phosphorus is a result of surrounding land use and not a result of operations at the site. Elevated zinc, total phosphorus and iron concentrations appear to be related to external factors since background surface water have also exceeded PWQO for these parameters. Metals are a common contaminant from roadway runoff. Elevated phosphorus is typical in rural and urbanized areas. Low 2019 VOC detections may have been related to the fire at the waste transfer station three days prior to this monitoring event. Water from fire fighting efforts was directed to the SWM Pond where TP(out) is located. It is expected that these VOC concentrations have quickly dissipated such that they are below the laboratory detection limits.
<p>5(3) <i>The surface water monitoring shall include obtaining grab samples at the discharge locations of the final surface water off the Waste Resources Innovation Centre (WRIC) site, for at least three (3) wet events per year (a wet event is defined as a minimum of 15 mm of rain in the previous 24 hours), and tested for Total Suspended Solids (mg/L), and the results recorded. Two (2) of the events must occur within the May to September time period.</i></p>	<ul style="list-style-type: none"> • Section 8.7.2 provides details on the three wet event samples collected from TP1(out) in May, June and July 2019. • TSS concentrations from the three wet events ranged from 3 mg/L to 8 mg/L. • Discharge only occurred during the June 2019 monitoring event when the TSS concentration was 8 mg/L.
<p>5(4) <i>The Owner shall annually review and update the groundwater and surface water sampling programs, designed to detect and quantify any impacts originating from the Waste Resources Innovation Centre (WRIC) site.</i></p>	<ul style="list-style-type: none"> • As reported in Section 8.7.2, the results of the groundwater and surface water sampling program are reviewed annually with the results presented herein.
<p>5(5) <i>Sampling frequency and parameters for analysis may be adjusted upon the written approval of the Water Supervisor, from time to time, as groundwater and surface water information becomes available.</i></p>	<ul style="list-style-type: none"> • As reported in Section 8.8, no changes to the current monitoring program is recommended at this time.
<p>5(6) <i>All groundwater monitoring wells which form part of any monitoring program shall be protected from damage. Any groundwater monitoring wells that are damaged shall be repaired or replaced forthwith or properly abandoned in accordance with Ontario Regulation 903.</i></p>	<ul style="list-style-type: none"> • As reported in Section 6.1, groundwater monitors are inspected during each of the monitoring events and their condition recorded by field staff. If any monitor is found to be damaged or in need of maintenance, a work order is submitted for repairs and repairs are completed as soon as possible.
<p>5(7) <i>The Owner shall annually review and update, if required, the detailed maintenance schedules for the stormwater management facilities on the Waste Resources Innovation Centre (WRIC) site.</i></p>	<ul style="list-style-type: none"> • As discussed in Section 4.1, The City undertakes daily inspections of the stormwater (SWM) facilities on site and completes maintenance, as needed.

B. Amended ECA No. 9496-9NFKJ9

ECA Monitoring and Reporting (Condition 5)	Report Reference and Summary
<p>5(8) <i>The Owner shall submit to the Water Supervisor, every year, a copy of the test results as per Condition 5, Subsection (2) and Subsection (3), above.</i></p>	<ul style="list-style-type: none"> As reported in Section 13, the Water Supervisor is provided a copy of the annual report each year, containing the test results.
<p>5(9) <i>The Owner shall submit to the Water Supervisor, an annual report on the groundwater and surface water sampling and monitoring program described herein, and shall include an interpretation of the results prepared by a qualified hydrogeologist, engineer or scientist, and shall identify any remedial/mitigative action taken.</i></p>	<ul style="list-style-type: none"> As reported in Section 13, the Water Supervisor is provided a copy of the annual report each year, which includes an interpretation of the groundwater and surface water results. This report is prepared by a qualified professional geoscientist and reviewed by a professional engineer.

Table of Contents

Executive Summary

	page
1. Introduction and Background	1
1.1 Annual Reporting Requirements	3
2. Composting Facility	6
2.1 Material Received, Processed and Transferred	6
2.2 Deficiencies / Non-Compliance and Environmental / Operational Issues.....	6
2.3 Public Complaints.....	6
2.4 Enhanced Pathogen Testing and Operations Summary	8
2.5 Site Operation Recommendations	8
2.6 Compliance with the Conditions of the Certificate of Approval	8
3. Municipal Hazardous and Special Waste (MHSW) Operations	9
4. Waste Transfer Station Operations	10
4.1 Facility Inspection and Routine Maintenance	10
4.2 Contaminant Sources.....	10
4.2.1 Site Design and Operations.....	10
5. Incoming and Outgoing Waste and/or Recyclables	12
5.1 Summary of Incoming Materials.....	12
5.2 Summary of Wastes/Recyclables Processed and Outgoing	16
6. Groundwater and Surface Water Monitoring Program	20
6.1 Groundwater Monitoring Program	20
6.2 Surface Water Monitoring Program.....	21
7. Leachate Quality	23
7.1 Leachate Indicators.....	23
7.2 Petroleum Indicators	23
8. Groundwater, Leachate and Surface Water.....	24
8.1 Groundwater Elevation and Flow Directions	24
8.2 Groundwater Monitoring.....	26
8.2.1 Transfer Station Area	26
8.2.2 WRIC	26
8.2.3 Groundwater Quality	28
8.2.3.1 Background Outwash Water Quality	28
8.2.3.2 Background Bedrock Water Quality	30

8.3	Downgradient Groundwater Quality	32
	8.3.1 Shallow Outwash Groundwater Quality	32
	8.3.2 Downgradient Bedrock Groundwater Quality	34
8.4	Groundwater Organics Results	35
8.5	General Groundwater Quality Discussion	35
8.6	Guideline B-7 Assessment	36
8.7	Surface Water Monitoring.....	38
	8.7.1 Transfer Station Area	38
	8.7.2 WRIC	40
8.8	Adequacy of Program and Proposed Changes	42
9.	Public Liaison Committee (PLC) Activities	44
10.	Environmental Management System – ISO 14001 Certification Progress	45
11.	WRIC Contingency Plans	46
	11.1 Spills.....	46
	11.2 Fire or Similar Emergency.....	46
	11.3 Composting Facilities	46
	11.4 Power or Equipment Failure.....	47
	11.5 Odour	47
	11.6 Aircraft Hazards/Bird Control.....	47
	11.7 Un-Authorized Waste	47
	11.8 Groundwater/Surface Water Contamination.....	48
	11.9 Quality/Fungal Contamination	48
12.	Current Health & Safety Program & Staff Training Program	49
	12.1 Safety Management System	49
	12.2 Health, Safety & Environmental Compliance.....	49
	12.3 Loss Control Activities	50
	12.4 Training Activities	50
	12.5 Records Management.....	50
	12.6 Policies/ Procedures/Plans /Programs	50
	12.7 Auditing	50
13.	Summary of Site Operational Changes and Compliance	51
14.	Conclusions.....	52
15.	Recommendations	55
16.	References.....	57

List of Figures

Figure 1:	Groundwater Monitor Location Map	2
Figure 2:	Bedrock Groundwater Flow (September 2019).....	25
Figure 3:	Shallow Groundwater Flow (September 2019)	27

List of Tables

Table 1:	2019 Monthly Summary of Incoming and Outgoing Material, Composting Facility	7
Table 2:	2019 Monthly Summary of Incoming Material.....	13
Table 3:	2019 Monthly Summary of Outgoing Materials	17
Table 4:	Summary of Incoming, Outgoing and Processed Quantities	18
Table 5:	Groundwater Monitoring Program	20
Table 6:	Analytical Parameter List.....	20
Table 7:	Summary of Leachate Quality from the Waste Monitors, Eastview Landfill.....	23
Table 8:	Guideline B-7 Calculated Maximum Parameter Concentrations – Overburden	37
Table 9:	Guideline B-7 Calculated Maximum Parameter Concentrations – Bedrock	37
Table 10:	Summary of 2019 MECP Guideline B-7 (Reasonable Use) Calculations at the Northwest Boundary	37
Table 11:	Monitoring Program Summary	56

Appendices

Appendix A.	Groundwater Elevations and Hydrographs
Appendix B.	Groundwater Chemistry and Time-Concentration Plots – Routine and Organics
Appendix C.	Surface Water Chemistry – Routine and Organics
Appendix D.	2019 Laboratory Reports (CD in report pocket)
Appendix E.	Certificate of Approval – WRIC and Transfer Station
Appendix F.	MECP Correspondence

Selected Definitions

Note: additional definitions are also found in the site C of A/ECA, Appendix E

“Amendment material” means materials added to the Organic Waste to assist in the performance of the process and/or ameliorate the quality of the Marketable Product.

“Clean Wood” means wood that is not painted wood, treated wood or laminated wood. Clean Wood does not include wood waste or waste wood

“Compost” means the material produced by an aerobic composting process which can be used as soil amendment or for other similar uses, and which meets:

- (i) the quality requirements for metals, non-biodegradable particulate matter, and organic chemicals contained in the most recent version of the Ministry of the Environment’s “Interim Guidelines for the Production and Use of Aerobic Compost in Ontario”, dated November, 2004; and,
- (ii) the Category A quality criteria for sharp foreign matter, stability/maturity, and pathogen reduction contained in the Canadian Council of Ministers of the Environment’s “Guidelines for Compost Quality” dated October, 2005.

“Contaminant” means the term as defined in the *Environmental Protection Act*.

“Food Waste” means all edible and non-edible food products including, but not limited to: baked goods, animal bones, cereal and grains, dairy products, coffee filters and grounds, dough, eggs and eggshells, fish and fish parts, flour, fruit and vegetables, herbs and spices, jams and jellies, mayonnaise and condiments, meat and meat products, nuts and nut shells, pasta, peanut butter, pizza, popcorn, pumpkins, shellfish, sugar, tea bags.

“Leaf and Yard Waste” includes, but is not limited to, leaves, grass clippings, brush and branches and tree limbs up to 10 cm (4 inches) in diameter, twigs, plants, hedge clippings, woody plants including vines, rose bushes and the like, flowers and weeds and other types of organic yard and garden waste that is collected by the City separately from the wet fraction, either at curbside or through City drop-off depots.

“Material Recovery Facility” means the material recovery facility located at the WRIC.

“Organic Waste” means any compostable material delivered to the Facility either from sources outside the City’s geographical limits or from sources within the City’s geographical limits, which is delivered to the Facility for processing at the Facility. For certainty, Organic Waste includes SSO and Third-Party Organic Waste, but does not include Amendments or Leaf and Yard Waste provided by the City for use as an Amendment.

“Overs” means oversized particles that have been through the composting process and provide structure and porosity to the composting mix.

“Rejected Waste” means the load of incoming waste received at the Composting Site and deemed by Owner to contain waste that does not meet the incoming Organic Waste quality criteria set out in this Certificate or that cannot be Composted;

“Residual Compost Waste” means a type of residue created during the composting process.

“Residual Waste” means any solid non-hazardous waste resulting from the processing of organic waste accepted at the Facility by the Operator, and that requires disposal by the Operator.

“Source Separated Organics” or “SSO” means the components of the solid waste stream that are separated by residential households into the "Wet" fraction of the City’s "Wet-Dry+ program", and are separately collected by the City. SSO generally includes any organic material that is compostable, including but not limited to fruit and vegetable peelings, food scraps, meat, bones, fish and shell fish, pasta, eggs and shells, vegetable oil and fat, dairy products, pumpkins, and wood shavings. SSO also includes tissues and other soiled paper, and feces, ashes, and pet litter as described in the Certificates of Approval. For certainty, SSO does not include Leaf and Yard Waste unless it is collected as part of wet stream.

“Spill” has the meaning ascribed thereto under the *Environmental Protection Act*, R.S.O. 1990, c. E.19, as amended from time to time.

1. Introduction and Background

In June 2000, Guelph's City Council made the decision to seek future solid waste disposal capacity through an agreement with a landfill owner outside of the City's corporate boundaries. Since the potential disposal site was to be distant from Guelph, the City needed a Transfer Station to facilitate waste bulking from small collection vehicles into larger transport vehicles. The City constructed the Solid Waste Transfer Station adjacent to the existing Waste Resource Innovation Centre (WRIC), formerly the Wet-Dry Recycling Centre. The WRIC was designed as a composting and multi-material recovery operation for the County of Wellington and the City of Guelph. The 29.54 ha site is located at 110 Dunlop Drive in the southeast part of Guelph. **Figure 1** shows the location and layout of the Transfer Station and WRIC.

The Transfer Station has been designed to manage up to 299 tonnes/day of waste, calculated on a weekly average (six days), including municipal, industrial, commercial, and institutional wastes. The Transfer Station began receiving waste on October 14, 2003.

The City carries out a number of waste management operations at the WRIC. These operations include processing of recyclables from the City's "dry" waste stream, transfer of non-compostable materials and non-recyclable waste residues to disposal off-site, a public waste drop-off area, and a municipal hazardous special waste (MHSW) depot. The City's current composting operations have been active since 2011. The site is licensed to handle up to 1,000 tonnes of residual waste transported for disposal per day. Both the Transfer Station and WRIC facility operate under a combined Ministry of the Environment Amended Provisional Certificate of Approval C of A/ECA) No. A170128, dated February 10, 2011 and amended ECA No. 9496-9NFKJ9, dated January 7, 2015.

Amended Provisional C of A/ECA #A170128, Notice No. 1, dated September 22, 2011, amended Condition 58(1) with respect to the composting operation to add item 58(1)(c) on cross-contamination prevention and to add supporting reference documents to Schedule A. Amended Provisional C of A/ECA, Notice No. 2, dated November 2, 2012, provided additions to Condition 54(1) regarding the service area, approved waste types, rates and storage. Amended Provisional C of A/ECA, Notice No. 3, dated January 24, 2013, was an amendment to condition 29(4) of the C of A/ECA that provided the Public Liaison Committee to serve as a forum for their mandate for the whole site and not just for the composting site. Notice No. 3 also expanded the site service area to include New York and Michigan State. Amendment to ECA #A170128, Notice No. 4, dated January 9, 2015, provided minor changes to the ECA (i.e., amended the pre-amble of the ECA and a few of the definitions, etc.) and removed the references to the groundwater and surface water monitoring program from the waste disposal site ECA #A170128 and transferred them to the Municipal and Private Sewage Works ECA #9496-9NFKJ9, issued January 7, 2015. Notice No. 5, dated May 3, 2016, provided clarification on the definition of the Organic Waste Processing Facility (OWPF) and prohibits recyclable material from being stored in the former OWPF. These amendments are included in Appendix E.

A Public Drop Off (PDO) facility was added to the site in 2015. An MECP amendment was granted in support of this change and included an updated Design and Operations Report.

As part of the requirements to develop and design the WRIC, a hydrogeological assessment was conducted in 1991¹. Further groundwater sampling at the proposed site was completed in 1992, 1994 and 1995 prior to the construction of the site².

-
1. *Jagger Hims Limited; Hydrogeological Assessment, Proposed Wet/Dry Facility, Guelph, Ontario; Report prepared for the City of Guelph, October 1991.*
 2. *Jagger Hims Limited; Groundwater Monitoring Program; Guelph Wet/Dry Recycling Facility; Draft Report completed for the City of Guelph, September 1995.*

FILE NAME: 60598828-2019AMR-FIG01.DWG
 BY: ----
 PLOT: 23/01/2020 10:50:22 AM
 A SIZE 8.5" x 11" (215.9mm x 279.4mm)



Notes:
 • Site Boundary and Fence Based on drawing "MW-1 Monitor Well Locations" Revision B dated Jan 13/09, from Lonsdale Consulting Engineers Inc.
 • Google Earth Pro Aerial Photo, Imagery Date: 7/8/2018.

DO NOT SCALE THIS DOCUMENT. ALL MEASUREMENTS MUST BE OBTAINED FROM STATED DIMENSIONS.

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**Transfer Station / WRIC
 City of Guelph
 Annual Monitoring Program
 Groundwater Monitor
 Location Map**

Legend	
	Approximate Site Boundary
	Fence
	Monitoring Well
	Surface Water Location

PROJECT NUMBER 60598828
DATE January 2020
FIGURE 1

The main conclusions of these reports were:

- a) Groundwater flow in the shallow subsurface is towards the northeast to the Correctional Centre pond and Clythe Creek.
- b) Background groundwater quality in the area is considered hard with calcium, magnesium, and alkalinity the dominant ions. The concentrations of the other major ions (i.e., sodium, potassium, sulphate and chloride) were found for the most part to be low. The exception to this was the 1995 sample collected from monitor 5-91, which exhibited higher than background concentrations of sodium and chloride. The source of the sodium and chloride was considered unknown at that time. The only other parameter of concern was nitrate. This was found at consistently elevated levels at monitors 1a-91, 1b-91, 2b-91 and 3-91, from 1991 until locations 1a-91, 1b-91 and 3-91 were destroyed due to construction activities.

1.1 Annual Reporting Requirements

Section N, Condition 52 of the Amended Provisional Certificate of Approval (Waste Disposal Site) states that:

Composting Site

- 52(a) *the information required by Condition 63(8) of the Certificate dealing with the Composting Site;*
- 63(8) *By March 31st following the end of each operating year, the Owner shall prepare and submit to the District Manager, an Annual Report summarizing the operation of the Composting Site covering the previous calendar year. This Annual Report shall include, as a minimum, the following information:*
- 63(8)(a) *A monthly mass balance of the Organic Waste received, processed and transferred from this composting site, including waste type, quantity, sources and/or disposal destinations.*
 - 63(8)(b) *An annual summary mass balance of the organic waste, the wood waste, the waste wood and the amendment material, received, processed and transferred from this composting site, including waste type, quantity, sources, and/or disposal destination.*
 - 63(8)(c) *An annual summary of any deficiencies, items of non-compliance or process aberrations that occurred at this composting site and any remedial/mitigative action taken to correct them.*
 - 63(8)(d) *A descriptive summary of any spills, incidents or other emergency situations which have occurred at this composting site, any remedial measures taken and the measures taken to prevent future occurrences.*
 - 63(8)(e) *A summary describing any rejected waste including quantity, waste type, reasons for rejection and origin of the rejected waste.*
 - 63(8)(f) *The quantity, by weight and volume of compost and residues produced and the quantity of compost and residues removed from the facility.*
 - 63(8)(g) *Any environmental and operational problems, that could negatively impact the environment, encountered during the operation of the composting site or identified during the facility inspections and any mitigative actions taken.*
 - 63(8)(h) *Any changes to the WRIC Environmental Emergency Plan, the Operations Manual or the Closure Plan that have been approved by the Director since the last Annual report.*
 - 63(8)(i) *Any recommendations to minimize environmental impacts from the operation of the composting site and to improve the composting site operations and monitoring programs in this regard.*

- 63(8)(j) *A summary of any complaints received and the responses made, as required by the C of A (Air/Noise) for the composting site.*
- 63(8)(k) *A description of the compost distribution/markets.*
- 63(8)(l) *Conclusions from the advanced pathogen testing as the results relate to the pasteurization temperature monitoring.*
- 63(8)(m) *A condition-by-condition analysis of compliance with all Conditions of this Certificate.*

Transfer/WRIC Site

The City shall submit an annual report on the operation of the Site for the previous calendar year to the District Manager by March 31st of each year. This report will include the information required as follows:

- 52(b) *A monthly summary of the waste and/or recyclable materials received at the Site, including quantity, source and Ontario Regulation 347 waste classes.*
- 52(c) *A monthly summary of the waste and/or recyclable materials processed at the Site, including quantity and Ontario Regulation 347 waste classes.*
- 52(d) *A monthly summary of the waste and/or recyclable materials transferred at the off-Site, including quantity, destination and Ontario Regulation 347 waste classes.*
- 52(e) *An annual summary of the analytical results for the groundwater and surface water monitoring program including an interpretation of the results and any remedial/mitigative action undertaken.*
- 52(f) *An annual summary of any deficiencies, items of non-compliance or process aberrations that occurred and remedial and mitigative measures taken to correct them.*
- 52(g) *A summary of any changes to the Engineer’s Report and/or Design and Operations Report that have been approved by the Director since the last annual report.*
- 52(h) *A summary of any changes to the Design and Operations Report Design and the WRIC Environmental Emergency Plan that were made in accordance with the information specified for a waste processing site as described in the most recent version of the Ministry publication “Guide for Applying for Approval of a Waste Disposal Site”.*
- 52(i) *A summary of any changes to the Design and Operations Report that have been approved by the Director since the last annual report.*
- 52(j) *An update on the activities of the PLC.*

Condition 5 on Monitoring and Reporting under amended ECA No. 9496-9NFKJ9, issued January 7, 2015, states that:

- 5(1) *The Owner shall implement a groundwater and surface water sampling program to ensure early detection of contaminants in the event that such contaminants escape the Waste Resources Innovation Centre (WRIC) site, as follows:*
- 5(2) *Groundwater and surface water shall be sampled and analyzed for the following parameter suite:*

	Biological Oxygen Demand (BOD)	Chloride (Cl)
Parameters <i>(sampled semi-annually in the spring and fall)</i>	Chemical Oxygen Demand (COD)	Sodium (Na)
	Total Kjeldahl Nitrogen (TKN)	Calcium (ca)
	Ammonia as Nitrogen (NH3-N)	Boron (B)
	Total Phosphorus (Total P)	Total Iron (Fe)

	Biological Oxygen Demand (BOD)	Chloride (Cl)
	Total Sulphate (SO ₄)	Phosphorus (P)
	Phenols	Zinc (Zn)
	Nitrate (NO ₃) and Nitrite (NO ₂)	
General Parameters (semi-annually)	pH	Magnesium (Mg)
	Conductivity	Potassium (K)
	Alkalinity	
Organics (sampled annually)	EPA 624, 625 (ATG 16+17+18) & ATG (19+20)	
Field Parameters	pH, Conductivity, Temperature	

- 5(3) *The surface water monitoring shall include obtaining grab samples at the discharge locations of the final surface water off the Waste Resources Innovation Centre (WRIC) site, for at least three (3) wet events per year (a wet event is defined as a minimum of 15 mm of rain in the previous 24 hours), and tested for Total Suspended Solids (mg/L), and the results recorded. Two (2) of the events must occur within the May to September time period.*
- 5(4) *The Owner shall annually review and update the groundwater and surface water sampling programs, designed to detect and quantify any impacts originating from the Waste Resources Innovation Centre (WRIC) site.*
- 5(5) *Sampling frequency and parameters for analysis may be adjusted upon the written approval of the Water Supervisor, from time to time, as groundwater and surface water information becomes available.*
- 5(6) *All groundwater monitoring wells which form part of any monitoring program shall be protected from damage. Any groundwater monitoring wells that are damaged shall be repaired or replaced forthwith or properly abandoned in accordance with Ontario Regulation 903.*
- 5(7) *The Owner shall annually review and update, if required, the detailed maintenance schedules for the stormwater management facilities on the Waste Resources Innovation Centre (WRIC) site.*
- 5(8) *The Owner shall submit to the Water Supervisor, every year, a copy of the test results as per Condition 5, Subsection (2) and Subsection (3), above.*
- 5(9) *The Owner shall submit to the Water Supervisor, an annual report on the groundwater and surface water sampling and monitoring program described herein, and shall include an interpretation of the results prepared by a qualified hydrogeologist, engineer or scientist, and shall identify any remedial/mitigative action taken.*

The current C of A/ECA's for the site are included in Appendix E.

Annual reports are submitted to the Ministry of the Environment, Conservation and Parks, MECP (formerly the Ministry of the Environment and Climate Change, MOECC), as required by the C of A/ECA. The last MECP review was completed on the 2014 Annual Monitoring Report (MECP Memorandums dated April 15, 2015 and August 13, 2015, included in Appendix F). These comments were addressed in the 2015 Annual Monitoring Report (AECOM, 2016). No further MECP review comments have been received to-date.

2. Composting Facility

The original compost facility was shut down in 2006. The City commissioned a new compost facility design, which was completed by the summer of 2011. The composting facility is fully enclosed with all processing and finished product remaining indoors.

2.1 Material Received, Processed and Transferred

As per Section N, Condition 63(8) (a) and (b), **Table 1** presents a summary of the waste volumes received, processed and transferred from the site. 30,897.5 tonnes of material was received by the composting facility. Of the materials received, source separated organic materials constituted 30,460.4 tonnes (brush constituted 279.3 tonnes and amendment/mulch made up the remaining 157.8 tonnes). During 2019, the site accepted organic material from the City of Guelph and the Region of Waterloo. Amendment material was received from the City of Guelph or in the form of wood chips from the City of Guelph Parks and Recreation Department and the Region of Waterloo.

A total of 6,859.5 tonnes of finished compost was removed from the facility in 2019. The finished compost was shipped to locations in Guelph, Huron County, Simcoe, Eramosa, Clinton and Blyth. A total of 991 tonnes of screening, residual compost and organic rejected material from the composting process were shipped to the Transfer Station and then to the Waste Management Twin Creeks Landfill in Sarnia, Ontario.

2.2 Deficiencies / Non-Compliance and Environmental / Operational Issues

There were no environmental or operational problems that could negatively impact the environment, encountered during the operation of the composting site or identified during the facility inspections in 2019. The facility is operating as designed.

No reportable spills³ occurred in 2019 at the composting site.

There were 19.1 tonnes of rejected material from the organics plant due to contamination. The contaminated material consists of curbside recyclable collection (blue cart) material that is either inadvertently placed in with the organics (green cart) by the home owner or the blue cart material is inadvertently placed in the wrong area of the split box collection trucks. The rejected material was sent to the transfer station for final disposal.

There were no changes to the WRIC Environmental Emergency Plan or the Closure Plan since the last annual report. The compost facility operated without any major incidents in 2019.

2.3 Public Complaints

City staff received two (2) complaints in 2019. These were investigated by the site management staff. The complaints and remedial actions were reported to the Ministry, and a response letter was provided to each complainant. None of these two complaints was confirmed to have originated from the WRIC site

3. A reportable spill is a spill that results in adverse environmental impact/effects.

Table 1. 2019 Monthly Summary of Incoming and Outgoing Material, Organics Compost Facility

Incoming Material	Jan Tonnes	Feb Tonnes	March Tonnes	Apr Tonnes	May Tonnes	June Tonnes	July Tonnes	Aug Tonnes	Sept Tonnes	Oct Tonnes	Nov Tonnes	Dec Tonnes	Yearly Total
Mixed Organics	2592.11	2,039.5	2,190.2	2,372.3	2,561.9	2,328.3	2,685.2	2,479.8	2,699.3	3,017.8	3,106.8	2,387.2	30,460.4
Paper Fiber Sludge													0.0
Brush	41.63	0.0	27.8	29.3	54.7	46.9	48.8	23.3	6.9	0.0	0.0	0.0	279.3
Ammendment/Mulch	0	31.1	56.5	2.4	0.0	0.0	0.0	0.0	0.0	34.1	0.0	33.8	157.8
Total Month	2,633.7	2,070.6	2,274.4	2,404.0	2,616.6	2,375.2	2,734.1	2,503.1	2,706.2	3,052.0	3,106.8	2,421.0	30,897.5

Outgoing Mixed Waste	Jan Tonnes	Feb Tonnes	March Tonnes	Apr Tonnes	May Tonnes	June Tonnes	July Tonnes	Aug Tonnes	Sept Tonnes	Oct Tonnes	Nov Tonnes	Dec Tonnes	Yearly Total
Finished Compost	994.0	856.8	309.9	683.1	466.2	678.9	382.9	350.5	650.8	541.7	581.3	363.4	6,859.5
Overs		237.3	70.2	10.1			34.8	201.2	62.8	133.9	65.6		816.0
Screening Waste	46.6	42.7	57.0	49.6	35.4	39.8	62.0	35.5	43.7	47.3	44.0	34.6	538.2
Residual Compost Waste	26.1	34.3	46.9	8.3	28.7	43.7	40.0	59.3	33.4	40.7	45.5	26.9	433.7
Organic Rejected Load	0.0	3.5		0.0	0.0	3.0	2.6	3.8	1.8	0.0	0.7	3.8	19.1
Total Month	1,066.7	1,171.0	484.0	751.0	530.3	762.4	519.8	646.5	790.7	763.7	736.4	424.8	8,666.5

Notes: overs = oversized particles that have been through the composting process and provide structure and porosity to the composting mix.

Each time a complaint was received, the complainant was contacted, and a letter advising the complainant of the investigation findings was provided. The City keeps record of each complaint and investigative actions. The City also informs the Ministry and the PLC, about each complaint and the investigation findings

2.4 Enhanced Pathogen Testing and Operations Summary

Samples taken from the maturation hall of the compost stream indicate that all compost that has been shipped off the site has passed the conditions for a Class A⁴ compost under the CCME⁵ Guidelines and the conditions within the ECA.

To reduce the health risks of pathogenic organisms, organic waste must attain a temperature of 55°C for a period of three days (72-hours) using in-vessel composting methods. The compost material goes through a series of tunnels to get to its finished state. There are seven tunnels at the facility. When material is in a tunnel the temperature in each of those tunnels is measured every five minutes and the logs are stored within a supervisory control and data acquisition (SCADA) system. The operator provides a weekly report which contains a snap shot of the tunnel temperatures. The Operator also takes readings of the curing piles that are maturing in the maturation building. The spreadsheet for the weekly readings of the compost temperatures and all the weekly reports for the snapshots of tunnel temperatures are available upon request. Temperature monitoring logs of the tunnels at the composting facility show that pasteurisation at 55°C was maintained for 72 hours.

2.5 Site Operation Recommendations

There were no confirmed deficiencies/non-compliance or environmental/operational issues related to the compost facility in 2019 as per condition 63(8)(c) and 52(f). The facility is operating as designed.

2.6 Compliance with the Conditions of the Certificate of Approval

Section N, 52(a) refers to reporting requirements associated with the Composting site. Condition 63 (8)(m) of this Section requires:

A condition-by-condition analysis of compliance with all Conditions of this Certificate.

Based on a review of the 2019 information provided by the City, there are no non-compliance issues for 2019. The City provided the following statement with respect to this condition:

The Deputy CAO of Infrastructure, Development and Enterprise Services, the General Manager of Environmental Services and the Division Manager of Solid Waste Resources continue to put a very high priority on compliance with applicable laws. Staff training continues to be provided both in-house and by external providers, and included inspections, reporting, due diligence, environmental regulations, competent person, contingency plans, emergency procedures, certificate of approval conditions, spills, TDGA, laboratory packing and other relevant topics.

-
4. Category A = Unrestricted use. Compost that can be used in any application (i.e., agricultural, residential gardens, horticultural operations, nursery industry, other businesses).
 5. CCME = Canadian Council of Ministers of the Environment, 2005: Guidelines for Compost Quality, PN 1340.

3. Municipal Hazardous and Special Waste (MHSW) Operations

The Municipal Hazardous Special Waste (MHSW) screening procedures and acceptance criteria has been fully discussed in the 2015 Annual Report (AECOM, 2016). As required by the City, all MHSW employees must be trained in WHMIS, TDG, Spills Response, Competent Person, and First Aid.

The Annual Review for 2019, has shown that all operations at the Municipal Hazardous and Special Waste Transfer Station were done in accordance with Conditions 41, 42, 43 and 44 of the ECA. Only wastes outlined in the ECA, 42(a), were collected and transferred and the site did not store more than 15 tonnes of materials. The City ensured that a competent person was on duty at all times during operating hours and inspections were completed daily. As per the requirement of Condition 43(f), a fire and explosion prevention inspection was carried out in 2019 which included checking all fire extinguishers on site and revising the fire safety plan such that Conditions 43(d) and 43(e) were met.

4. Waste Transfer Station Operations

4.1 Facility Inspection and Routine Maintenance

The following information was reported by the City of Guelph. The facility is inspected on an ongoing basis by site employees. Corrective maintenance is carried out as required. There were no environmental or operational problems reported during 2019.

A log of all security and grounds inspections are recorded daily. Routine maintenance is conducted at the site that includes litter pick-up, dust control, rodent control and clean-up of external roads within 1 km of the facility. The compactor is cleaned and inspected monthly when in use. Inspection of the inside floor drains, oil and grit separator, etc., are conducted weekly. The floor drain in the loading ramp is pumped and cleaned as required. Maintenance was conducted on the holding tanks, floor drains and oil and grit separator as required. The overhead doors are oiled monthly. All preventative maintenance performed on equipment are filed under the equipment number (hard copy) as well as recorded electronically in the Synergen program to indicate that the required maintenance has been completed.

A log book recording the daily inspection of the detention ponds, ditches and facility inspections is kept on-site. Daily inspections were recorded in 2019. The City undertakes daily inspections of the stormwater (SWM) facilities on site and completes maintenance, as needed. City has confirmed that maintenance schedules for the SWM facilities on the WRIC site are reviewed annually and updated as needed (Condition 5(7)).

4.2 Contaminant Sources

4.2.1 Site Design and Operations

To determine if the site is having an impact on the ground and surface water in the area, it is important to examine what are the potential sources of impact. The site has been designed to minimize the possible sources of impacts and limit the risk of their emission to the environment, as discussed below.

Waste is dumped from incoming collection vehicles onto an indoor tipping floor located within the transfer building. The transfer building is a steel framed, metal clad building with a reinforced, surface-hardened slab-on-grade floor. The tipping floor is curbed such that liquid discharges onto the floor cannot readily flow off the floor to the building exterior. It is drained by floor drains and routed through an oil-water separator, with the provision to divert flows to holding tanks prior to reaching the pumping station through the sanitary sewer. Spill cleanup materials (e.g., sorbents) are kept on hand and any liquid spills on the tipping floor are cleaned up immediately. Washing of spilled materials into the floor drain system is avoided to the greatest degree possible. In the event of any potential for leachate or liquid discharge from the building, the shut-off valve for the stormwater management pond will be closed to prevent any off-site discharge.

No waste processing is undertaken in the Transfer Station, with the exception of removal of recyclable material that arrives in incoming wastes (i.e., metal, wood, cardboard). Truck boxes (both incoming waste and transfers out) are tarped when outside of the transfer building to prevent odour and dust emissions as well as to prevent contact between the waste and precipitation that could potentially produce impacted runoff.

The Transfer Station building and the scale house are serviced with a connection to the City sanitary sewer. Domestic sewage from the washrooms in the transfer building and the scale house are discharged directly to the sewage pumping station. The stormwater management pond has a valved connection to the pumping station, which will permit any stormwater that becomes impacted to be discharged to the sanitary sewer system. The site is graded such that all runoff drains to the stormwater management pond. As all waste handling occurs within the Transfer Station building, runoff from the site will be initially considered to be unimpacted.

Ditches are located on both sides of the driveway to collect road runoff and to convey upstream runoff to the pond. A culvert conveys flow from the ditch on the west side of the driveway to the ditch on the east side and ultimately to the pond. MOECC approved dust suppressant and road salt for the internal paved areas may be used occasionally.

A Public Drop Off (PDO) facility was added to the site in 2015. There have been no changes to the Engineer's Report since the last annual report.

On April 13, 2019, there was a fire inside the waste transfer station building. The MECP was notified, as well as the City's environmental protection officers (spill response personnel). Water samples from the SWM Pond were collected on the day of the fire and on April 16 to examine potential impacts to water quality as a result of the fire. Water quality in the SWM pond on the day of the fire showed possible leachate effects based on elevated Major Ions concentrations. Although effects were observed in the SWM pond on the day of the fire, they had largely dissipated by April 16, except for the minor detection of BTEX. April 16 SWM Pond water quality was within PWQO limits.

5. Incoming and Outgoing Waste and/or Recyclables

5.1 Summary of Incoming Materials

As per Section N, Condition 52(b) of the amended ECA Table 2 is a monthly summary of the incoming materials received at the site during 2019, based on data recorded by City staff.

As shown on **Table 2**, 101,581 tonnes of material was received by the site. The compost facility received 30,898 tonnes of organics. Recyclables and mixed dry materials constituted 14,876 tonnes (15%)⁶ of the total materials received at the site. This included about 12,395 tonnes of paper products⁷ and 0.1 tonnes of plastics⁸. There were 7,646 tonnes⁹ (7.5%) brush, leaves, yard waste and mixed organics received. Non-recyclable materials (mixed solid waste and organic rejected materials) constituted 48,161 tonnes (47%) of the total materials received at the site in 2019. 203 tonnes of clean wood was accepted at the Transfer Station.

The on-site Municipal Hazardous Special Waste (MHSW) depot serves residents of the City of Guelph. The depot accepted 18,340 drop offs of materials during 2019. A monthly summary of the 2019 drop off numbers are shown on the table below.

Public	Drop Offs
January	818
February	643
March	990
April	1,498
May	2,104
June	2,077
July	1,949
August	2,091
September	1,814
October	1,782
November	1,356
December	1,220
Totals	18,340

6. Table 2 paper incoming (12,396 tonnes)+ plastic incoming (0.1 tonnes)+ other recyclable incoming to the Transfer Station and the WRIC (2,481 tonnes) = 14,876 tonnes

7. Table 2 incoming mixed papers (345.5 tonnes) + OCC baled (163 tonnes) + OCC loose (1642.3 tonnes) + OWP Fine-Loose (0 tonnes)+ ONP#8 bales (2.2 tonnes) + OWP fine loose (260.9 tonnes) + single stream loose (9,981.1 tonnes) = 12,395 tonnes

8. Table 2 incoming HDPE#2 loose = 0.1 tonnes

9. Table 2 incoming mixed organics (1.5 tonnes) + leaves (1,877 tonnes) + yard waste (14.9 + 3,784 tonnes) + brush (5.2 + 1,963 tonnes) = 7,646 tonnes

Table 2. 2019 Monthly Summary of Incoming Material

Transfer Station Incoming Material

Incoming Material	Jan Tonnes	Feb Tonnes	March Tonnes	Apr Tonnes	May Tonnes	June Tonnes	July Tonnes	Aug Tonnes	Sept Tonnes	Oct Tonnes	Nov Tonnes	Dec Tonnes	Yearly Total
Mixed Solid Waste	2,768.6	2,734.9	3,305.9	4,214.7	5,187.3	4,498.7	4,569.8	4,574.4	4,460.0	4,775.8	3,821.3	3,249.5	48,160.8
Mixed Glass Residue	56.8	31.5	48.6	18.8	66.5	17.4	32.4	36.4	38.4	34.0	35.9	39.9	456.4
MRF Residue	100.3	105.4	61.0	98.4	117.5	43.9	126.7	83.7	136.0	111.9	105.3	87.7	1,177.8
Shingles	130.9	36.8	0.0	61.8	110.3	70.8	212.4	176.1	176.9	111.8	69.4	35.6	1,192.5
Drywall	49.0			90.4	67.1		51.3	23.5	25.2	86.2	29.4		422.0
Single Stream Bagged													0.0
Single Stream - Loose													0.0
Mixed Reclables													0.0
C & D													0.0
Medical Waste					1.2	0.6	1.4	1.6	0.3		8.1		13.1
Residual Compost Waste	26.1	34.3	46.9	8.3	28.7	43.7	40.0	59.3	33.4	40.7	45.5	26.9	433.7
Rubble/Brick/Toilets	18.6	9.6	19.3	22.7	51.7	48.7	41.8	36.3	49.8	65.0	26.2	11.6	401.2
Screening Waste	46.6	42.7	57.0	49.6	35.4	39.8	62.0	35.5	43.7	47.3	44.0	34.6	538.2
Clean Wood	10.9	11.4	16.4	20.5	23.9	22.2	9.5	22.3	14.9	20.8	19.4	10.6	202.9
Leaves													0.0
Organic Rejected Load	0.0	3.5		0.0	0.0	3.0	2.6	3.8	1.8	0.0	0.7	3.8	19.1
Occ - Loose													0.0
Yardwaste					11.3	2.2					0.5	1.0	14.9
Mixed Papers													0.0
Clean Fill													0.0
Brush										3.2		2.0	5.2
Commingle													0.0
HDPE#2 Loose													0.0
OWP/Fine - loose													0.0
Bulky Item Program													0.0
Mixed Organics								1.5					1.5
Overs													0.0
Total Month	3,207.9	3,009.8	3,555.1	4,585.0	5,700.7	4,791.1	5,149.8	5,054.3	4,980.5	5,296.6	4,205.5	3,503.1	53,039.3

Table 2. 2019 Monthly Summary of Incoming Material (continued)

MRF Recycling /PDO Facility Incoming Material

Incoming Material	Jan Tonnes	Feb Tonnes	March Tonnes	Apr Tonnes	May Tonnes	June Tonnes	July Tonnes	Aug Tonnes	Sept Tonnes	Oct Tonnes	Nov Tonnes	Dec Tonnes	Yearly Total
Aluminum - Loose							4.4						4.4
Brush	126.3	15.0		59.3	170.4	457.3	114.7	97.7	439.2	336.8	84.1	62.6	1,963.4
Clothing	0.8	0.1	0.3	0.5	0.6	0.5	0.3	0.5	0.7	0.7	0.7	0.3	6.0
Containers	4.3	3.4	3.0	3.5	3.5	3.7	4.6	3.7	4.3	3.3	3.3	4.5	45.1
Electronics	17.5	7.8	19.6	11.8	19.3	7.7	17.4	15.8	20.0	8.5	9.0	25.0	179.5
Empty Oil Containers													0.0
HDPE #2			0.1										0.1
Leaves											1,876.7		1,876.7
Mixed Glass													0.0
Mixed Papers	29.8	20.9	31.4	33.4	26.2	32.7	25.8	19.9	40.7	24.7	28.5	31.5	345.5
Mixed Plastics													0.0
Mixed Recyclables		0.8					4.5	3.9					9.2
Non-Ferrous Metal				1.0									1.0
OCC - Baled	42.2	21.3	26.5	11.2	15.8	9.2	7.6	26.2		2.9			163.0
OCC - Loose	151.1	115.4	135.4	146.0	172.2	149.3	135.2	132.2	121.8	138.2	108.5	137.1	1,642.3
ONP#6 Baled													0.0
ONP#6 Loose													0.0
ONP#8 Bales						2.2							2.2
ONP#8 Loose													0.0
OWP/Fine - loose	21.6	14.4	26.7	8.5	23.7	33.9	35.8	13.0	19.3	21.2	23.1	19.6	260.9
Plastic Film - PDO Bin													0.0
PET #1				3.8									3.8
Polycoat/Tetra Pak/Cartons													0.0
Scrap Metal													0.0
Single Stream Bagged													0.0
Single Stream Baled													0.0
Single Stream Loose	910.4	707.5	783.1	848.6	951.4	754.5	841.5	771.8	823.3	895.8	839.1	854.9	9,981.8
Steel Cans - Baled													0.0
Polystyrene													0.0
Tires													0.0
Yardwaste	142.8	15.8		473.0	840.9	430.2	271.0	158.9	156.6	396.4	665.4	233.3	3,784.2
Total Month	1,446.8	922.2	1,026.2	1,600.5	2,223.9	1,881.3	1,462.8	1,243.6	1,626.0	1,828.6	3,638.4	1,368.9	20,269.1

Table 2. 2019 Monthly Summary of Incoming Material (continued)

Organics Compost Facility Incoming Material

Incoming Material	Jan Tonnes	Feb Tonnes	March Tonnes	Apr Tonnes	May Tonnes	June Tonnes	July Tonnes	Aug Tonnes	Sept Tonnes	Oct Tonnes	Nov Tonnes	Dec Tonnes	Yearly Total
Mixed Organics	2592.11	2,039.5	2,190.2	2,372.3	2,561.9	2,328.3	2,685.2	2,479.8	2,699.3	3,017.8	3,106.8	2,387.2	30,460.4
Paper Fiber Sludge													0.0
Brush	41.63	0.0	27.8	29.3	54.7	46.9	48.8	23.3	6.9	0.0	0.0	0.0	279.3
Ammendmant/Mulch	0	31.1	56.5	2.4	0.0	0.0	0.0	0.0	0.0	34.1	0.0	33.8	157.8
Total Month	2,633.7	2,070.6	2,274.4	2,404.0	2,616.6	2,375.2	2,734.1	2,503.1	2,706.2	3,052.0	3,106.8	2,421.0	30,897.5

Notes:

- All volumes in tonnes
- MRF = Materials Recovery Facility
- PDO = Public Drop Off
- Single Stream = all recyclable products mixed together (bottles, cans, paper, cardboard, etc.)
- OCC = Old Corrugated Cardboard
- OWP = Office Waste Paper (also known as Fine paper)
- overs = oversized particles that have been through the composting process and provide structure and porosity to the composting mix.
- Overall Site Total = (Transfer Station Annual Tonnage + WRIC Annul Tonnage + Compost Facility Annual Tonnage) - (Transfer Station Residue from MRF and Organics)

Facility Totals	104,205.8
Residue from MRF and Organic Plant	2,625.2
Overall Site Total	101,580.6

Incoming MHSW is sent to hazardous waste haulers for disposal or recycling. The City's Paint Plus Re-Use Program was conducted between April 23 and October 12, 2019. A monthly summary of the amounts of MHSW (separated by waste class) received at the site for the Paint Plus Re-Use Program for 2019 are tabulated below.

Material/Month	April	May	June	July	August	September	October	Total
Paints and coatings Non-aerosol; #145	195	450	950	1025	775	405	76	3876
Paints and coatings Aerosol; # 331 (kg)	2	28	125	125	225	36	22	563
Solvents # 213 (L)	2	22	75	45	40	15	5	204
Antifreeze (L)	4	4	26	10	10	6	2	62
Propane Cylinders (kg)	0	1	6	15	10	5	0	37
Cleaners/Detergents #148 (L)	4	18	132	50	30	5	0	239
Car products #213 (L)	1	16	80	65	75	5	2	244
Non-paint aerosols #331 (kg)	1	1	20	20	15	9	0	66
Motor Oil (L)	4	1	40	30	20	8	0	103
Plaster/cement/Grout (kg)	0	0	10	15	5	3	0	33
Client Count	23	86	218	212	156	40	15	750

A total of about 206,295 L and 12,166 kg of municipal and household special wastes¹⁰ were received in 2019. In addition, 1,058 20-lb. propane tanks, 5,000 1-lb. propane cylinders and 7,158 (27,672 ft.) fluorescent tubes were received in 2019. All materials accepted at the MHSW depot are re-used, recycled or shipped off-site for disposal.

As shown on **Table 2**, the source of the bulk of the materials received was primarily mixed solid waste of domestic origin. Recyclables accepted by the MRF/PDO originated mainly from the City of Guelph and the remaining sources from other areas in Ontario. Materials accepted at the Transfer Station were mainly from the City of Guelph, consisting mainly of mixed solid waste. The Transfer Station can accept waste from anywhere in Ontario, New York and Michigan States as long as it is within the acceptable daily tonnage limit.

There were no rejected and no suspect loads received during 2019.

5.2 Summary of Wastes/Recyclables Processed and Outgoing

Materials that are accepted by the site are either processed (composted), diverted to be re-used or sent to the Waste Transfer Station for disposal. Section N, Condition 52(c) requires monthly reporting of processed materials from the site, which are presented on **Table 3**. Of the 79,451 tonnes of outgoing material, 15,501 tonnes (20%)¹¹ is processed on-site through the Material Recovery facility (MRF) and 6,860 tonnes of finished compost was produced. 1,788 tonnes of residual compost waste and overs from the organic compost plant was generated in 2019. 51,242 tonnes of non-recyclable materials were shipped off-site from the transfer station to other destinations. In 2019, the MHSW facility received and diverted a total of about 206,295 L and 12,166 kg of municipal and household special wastes, in addition 1,058 20 lb. propane tanks, 5,000 1-lb. propane cylinders and 7,158 (27,672 ft.) fluorescent tubes.

10. Paints, flammables, aerosols, acids, bases, pesticides, oxidizers, batteries (alkaline, car, household), pharmaceuticals, motor oil, cooking oil, glycol, sharps, peroxide, mercury, fire extinguishers, compressed gas, oxygen (welding), expanding foam

11. Total of 19,756 tonnes outgoing from the WRIC – 456.4 tonnes mixed glass residue – 1,177.8 tonnes residue from processing – 2,619.9 tonnes mixed solid waste (baled) shipped to Twin Creeks Landfill = 15,501 tonnes.

Table 3. 2019 Monthly Summary of Outgoing Material

Transfer Station Outgoing Materials

Outgoing Mixed Waste	Jan Tonnes	Feb Tonnes	March Tonnes	Apr Tonnes	May Tonnes	June Tonnes	July Tonnes	Aug Tonnes	Sept Tonnes	Oct Tonnes	Nov Tonnes	Dec Tonnes	Yearly Total
Mixed Solid Waste	3,266.1	2,740.2	3,520.4	4,148.9	5,863.2	4,479.5	4,815.4	4,881.9	4,814.4	5,074.4	4,112.8	3,525.0	51,242.1
Single Stream (returned to MRF)													0.0
Mixed Recyclables (Single Stream)													0.0
Shingles	130.9	36.8	0.0	61.8	110.3	70.8	212.4	176.1	176.9	111.8	69.4	35.6	1,192.5
Clean Wood	32.4	18.4		22.1					15.2	32.2	30.1		150.3
Drywall	49.0			90.4	67.1		51.3	23.5	25.2	86.2	29.4		422.0
Concrete, Rubble	13.4	0.0	32.1		91.2	76.0	107.4	76.5	107.2		80.0	63.7	647.5
Total Month	3,491.8	2,795.3	3,552.6	4,323.2	6,131.7	4,626.2	5,186.4	5,157.9	5,138.9	5,304.5	4,321.6	3,624.3	53,654.4

MRF Recycling & PDO Facility Outgoing Materials

Outgoing Mixed Waste	Jan Tonnes	Feb Tonnes	March Tonnes	Apr Tonnes	May Tonnes	June Tonnes	July Tonnes	Aug Tonnes	Sept Tonnes	Oct Tonnes	Nov Tonnes	Dec Tonnes	Yearly Total
Aluminum	2.7	20.8	3.0	19.5	2.8		20.3	5.9	1.4	21.4	40.0	2.4	140.3
Brush	126.3	15.0		59.3	170.4	457.3	114.7	97.7	439.2	336.8	84.1	62.6	1,963.4
Clothing	0.8	0.1	0.3	0.5	0.6	0.5	0.3	0.5	0.7	0.7	0.7	0.3	6.0
Electronics	17.5	7.8	19.6	11.8	19.3	7.7	17.4	15.8	20.0	8.5	9.0	25.0	179.5
Empty Oil Containers	0.1	0.0	0.8	0.1	0.2		0.1	0.3	0.7	0.6	0.2		3.1
Mixed Glass Residue	56.8	31.5	48.6	18.8	66.5	17.4	32.4	36.4	38.4	34.0	35.9	39.9	456.4
HDPE#2 - BALED	17.9		16.3	18.5		13.2	18.5		13.6	20.2		11.0	129.2
Leaves											1,876.7		1,876.7
Mixed Glass	74.6	48.0	71.2	33.8	68.4	31.8	56.2	98.0	24.1	64.9	71.1	52.9	695.0
Mixed Paper	203.6	164.3	152.2	25.5	147.7	77.5	28.2			74.2			873.1
Mixed Recyclables													0.0
Baled MSW from MRF	279.5	132.0	132.7	240.3	264.0	205.8	188.8	222.7	249.0	232.5	191.0	281.6	2,619.9
Non Ferrous Metal													0.0
OCC	225.2	259.7	231.3	195.7	335.4	323.7	216.6	276.3	252.8	274.4	192.9	226.7	3,010.8
ONP #8 Baled	86.8	57.1		112.5	23.3	272.7		127.0	126.7	124.8	94.4	115.8	1,141.0
OWP/Fine Paper	37.2	19.9	20.8	21.0		18.8	57.6	21.6	21.7	19.8	39.6	16.2	294.3
PET #1	18.8	42.1	57.8	20.3	38.9	40.7	40.9	21.8	25.4	61.7	38.2	20.3	427.0
Polystyrene (Styrofoam)	0.3		0.5		0.4		0.8	0.5		0.4			2.9
Residue (from processing)	100.3	105.4	61.0	98.4	117.5	43.9	126.7	83.7	136.0	111.9	105.3	87.7	1,177.8
Scrap Metal	120.3	18.2	31.5	51.4	53.4	18.4	74.0	56.4	30.5	75.3	34.7	52.2	616.3
Single Stream Loose													0.0
Steel Cans Baled	21.9	21.2	41.0	42.5	21.7	22.2	21.7	43.8		43.2	21.4	41.4	341.8
Tires	3.0												3.0
Tubs and Lids							7.1					6.9	14.0
Yard Waste	142.8	15.8		473.0	840.9	430.2	271.0	158.9	156.6	396.4	665.4	233.3	3,784.2
Total Month	1,536.2	958.8	888.6	1,442.8	2,171.4	1,981.9	1,293.1	1,267.4	1,536.8	1,901.9	3,500.5	1,276.1	19,755.5

Organic Compost Plant Outgoing Materials

Outgoing Mixed Waste	Jan Tonnes	Feb Tonnes	March Tonnes	Apr Tonnes	May Tonnes	June Tonnes	July Tonnes	Aug Tonnes	Sept Tonnes	Oct Tonnes	Nov Tonnes	Dec Tonnes	Yearly Total
Finished Compost	994.0	856.8	309.9	683.1	466.2	678.9	382.9	350.5	650.8	541.7	581.3	363.4	6,859.5
Overs		237.3	70.2	10.1			34.8	201.2	62.8	133.9	65.6		816.0
Screening Waste	46.6	42.7	57.0	49.6	35.4	39.8	62.0	35.5	43.7	47.3	44.0	34.6	538.2
Residual Compost Waste	26.1	34.3	46.9	8.3	28.7	43.7	40.0	59.3	33.4	40.7	45.5	26.9	433.7
Organic Rejected Load	0.0	3.5		0.0	0.0	3.0	2.6	3.8	1.8	0.0	0.7	3.8	19.1
Total Month	1,066.7	1,171.0	484.0	751.0	530.3	762.4	519.8	646.5	790.7	763.7	736.4	424.8	8,666.5

Facility Totals	82,076.3
MRF & Organic Residue to Site Transfer Station	2,625.2
Overall Site Total	79,451.1

Materials received at the organics compost facility are much heavier due to moisture retention compared to when it leaves the site in a processed, dry and degraded state. Moisture loss for the compost facility was calculated to be 75% (i.e., 75% of incoming mixed organics is moisture and 25% is compost material). This was applied to the incoming compost tonnage to account for moisture, as presented below in Table 4. Outbound residual compost waste from the organics facility (434 tonnes) was included in the outbound tonnage from the transfer station.

For 2019, we have based the incoming, outgoing and processed quantities on the 2019 weigh scale readings. **Table 4** is an estimated reconciliation of the incoming and outgoing materials and materials processed from the site in 2019.

Table 4: Summary of Incoming, Outgoing and Processed Quantities

2019	Inbound Tonnage	Outbound Tonnage	Remaining On-site in process	Difference Between Inbound and Outbound Tonnage plus tonnage remaining on-site
Transfer Station	53,039	53,654		-615
MRF Recycling/PDO Facility	20,269	19,755		514
Compost Facility	30,898	8,667	9,200	13,031
2019 Overall Site Total	104,206	82,076		12,930

There is a difference of about 12,900 tonnes (21%) between incoming and outgoing wastes/materials calculated for 2019, attributed to moisture loss and margin of error. Materials received at the organics compost facility are much heavier due to moisture retention compared to when it leaves the site in a processed, dry and degraded state. The City estimates that there is approximately 9,200 tonnes at any point in time processing in the compost facility (tunnels, mat hall and overs). Taking this in consideration, there is a moisture loss of approximately 13,000 tonnes due to evaporation from within the organic waste, which explains the difference between the weights.

Table 3 shows a monthly summary of the outgoing materials shipped off-site during 2019 as per Section N, Condition 52(d) of the amended ECA. Of the 53,654 tonnes of non-processed outgoing materials from the Transfer Station, 51,242 tonnes (95.5% of the outgoing materials) was sent to the Waste Management Twin Creeks Landfill in Lambton County, 1,220 tonnes (2.3%) was sent to Waste Management Inc. and 1,193 tonnes (2.2%) was sent to Try Recycling in London. About 2,412 tonnes (4%) of non-processed materials is marketable consisting of other recyclable materials such as shingles, clean wood, drywall, concrete and rubble.

In 2019, 15,501 tonnes of marketable processed material was transferred off the site from the WRIC (MRF/PDO) facility. 5,319 tonnes (34%) was paper-based goods such as cardboard and newsprint, 7,624 tonnes (49%) was organics, 556 tonnes (4%) was plastics and the remaining 2,002 tonnes (13%) was other recyclable materials such as aluminum, steel cans, glass, tires and metal. As reflected in the volumes above, the majority of the marketable materials sold were paper products.

The WRIC achieved a 47% overall diversion rate¹² in 2019.

12. Diversion rate from the landfill = Material to the landfill (49,073.3 tonnes transfer station + 4,251.1 tonnes MRF + 991 tonnes organics = 54,318.5 tonnes). Material inbound to the site (50,414 tonnes transfer station + 20,269.1 MRF+ organics 30,897.5 tonnes organics = 101,581 tonnes). Therefore, diverted amount 101,581 tonnes – 54,318.5 tonnes = 47,262.1 tonnes; (47,262.1 tonnes/101,581 tonnes) x 100 = 46.53% or 47%

Outgoing municipal and household hazardous waste materials were manifested to Photech Environmental, Thorold (the waste removal contractor for 2019) and disposed of by the companies identified below for recycling and re-use.

Waste Types	List of Intended Receivers
Paints	• Photech Environmental Solutions Inc.
Oil Filters	• Safety Kleen, Breslau, ON
Bulk Oil/Antifreeze	• Safety Kleen, Breslau, ON
Pesticides	• Clean Harbours, Thorold, ON
Pharmaceuticals	• Phase Separation Solutions
Oxidizers/Acids/Bases	• Stablex Canada Inc., Quebec
Pathological Wastes/Syringes	• Stericycle, Toronto, ON
Car Batteries	• Benmet Steel & Metal
Fluorescent Tubes/Lamps	• Aevitas/Greentec
Household Batteries/Mercury	• Raw Materials Corp.
Propane Tanks	• Simcoe Energy & Technical Services
Aerosols	• Peintures Recuperees Du Quebec
Organics/Flammables	• Newalta Industrial Services Inc., ON

Destinations/buyers for dry recyclable processed materials include:

Material Type	Destinations/Major Buyers
Mixed Solid Waste	Twin Creeks Landfill, Watford
Bagged Yard Waste and Brush	Waste Management/All Treat Farms
Loose Leaves	Kieswetter Excavating
Tires	Highland Starter
PET Bottles (#1 plastics)	ReMM, Canadian Plastics, Canada Fibers
HDPE (#2 plastics)	Entropex, Canadian Plastics, Pnewko Brothers
Mixed Plastics(#4,5,7)	Entropex, Canadian Plastics, ReMM
Aluminum Cans	Triple M Metals, Ram Iron and Metals, the Beer Store
Corrugated Cardboard	ReMM, Continental Grading, Canada Fibers
Newsprint	Continental Paper Grading, Canada Fibres, ReMM
Steel Cans	Triple M Metals RAM Iron and Metal
Polycoat: Tetra Pak and Milk Cartons	Continental Paper Grading
Mixed Glass	Nexcycle
Scrap Metal/White Goods	Triple M Metals, Ben- Met
Electronics	Electro Shred/Waxman Industrial, Greetec
Used Clothing	Canadian Diabetes Society
Shingles	Waste Management
Clean Wood (lumber)	Budget Environmental Disposal Ltd.
Drywall	Waste Management
Concrete/Brick/Rubble/Toilets	Waste Management
Finished Compost	Guelph, Huron County, Simcoe, Eramosa, Clinton and Blyth

6. Groundwater and Surface Water Monitoring Program

6.1 Groundwater Monitoring Program

Groundwater levels are measured at all monitoring locations on a quarterly basis each year. During 2019, groundwater level measurements were conducted on; April 16, June 1, September 9 and December 1. As per Condition 5 of the ECA #9496-9NFKJ9, groundwater sampling was conducted on a semi-annual basis in the spring and fall in 2019; in June (dry period, late spring) and in December (wet period, late fall). Each of the 2019 sampling events included analyses for leachate indicator parameters, general chemistry and organics. **Tables 5 and 6** below summarize the groundwater monitoring program and analytical parameters, respectively.

Table 5: Groundwater Monitoring Program

Location	April	June	September	December
13a-01	•	S	•	S
13b-01	•	S	•	S
14a-01	•	S	•	S
14b-01	•	S	•	S
15a-01	•	S	•	S
15b-01	•	S	•	S
16a-08	•	S	•	S
16b-08	•	S	•	S
17a-08	•	S	•	S
17b-08	•	S	•	S
18a-14*	•	S	•	S

Location	April	June	September	December
18b-14	•	S	•	S
19a-08	•	S	•	S
19b-08	•	S	•	S
20a-08	•	S	•	S
20b-08	•	S	•	S
21-08	•	S	•	S
22a-11	•	S	•	S
22b-11	•	S	•	S
23a-12	•	S	•	S
23b-12	•	S	•	S

Notes: • = Water Levels Only / S = Sampling and Water Levels

* = BH18-08 was replaced in 2014 therefore was re-named 18-14

Table 6: Analytical Parameter List

Leachate Indicator Parameters	<ul style="list-style-type: none"> Biological Oxygen Demand (BOD) Chemical Oxygen Demand (COD) Total Kjeldahl Nitrogen (TKN) Ammonia as Nitrogen (NH₃-N) Total Phosphorus (Total P) Total Suspended Solids (TSS) for surface water and leachate only Total Sulphate (SO₄) Phenols 	<ul style="list-style-type: none"> Chloride (Cl) Sodium (Na) Calcium (Ca) Boron (B) Total Iron (Fe) Phosphorus (P) Zinc (Zn) Nitrate (NO₃) and Nitrite (NO₂)
General Parameters	<ul style="list-style-type: none"> pH Conductivity Alkalinity 	<ul style="list-style-type: none"> Magnesium (Mg) Potassium (K)
Field Parameters	<ul style="list-style-type: none"> pH Conductivity 	<ul style="list-style-type: none"> Temperature
Organics	<ul style="list-style-type: none"> EPA 624,625 (ATG 16+17+18 & ATG 19+20) 	

The organic compound parameter list for the ATG MISA Groups are as follows:

Misa Group 16	Misa Group 19	
1,1,2,2-Tetrachloroethane	Acenaphthene	2-Methylnaphthalene
1,1,2-Trichloroethane	5-Nitroacenaphthene	Naphthalene
1,1-Dichloroethane	Acenaphthylene	Perylene
1,1-Dichloroethylene	Anthracene	Phenanthrene
1,2-Dichlorobenzene	Benzo(a)anthracene	Pyrene
1,2-Dichloroethane	Benzo(a)Pyrene	Benzyl Butyl Phthalate
1,2-Dichloropropane	Benzo(b)Fluoranthene	bis(2-ethylhexyl)Phthalate
1,3-Dichlorobenzene	Benzo(g,h,i)perylene	Di-N-butylPhthalate
1,4-Dichlorobenzene	Benzo(k)Fluoranthene	Di-N-octylPhthalate
Bromodichloromethane	Biphenyl	4-Bromophenyl phenyl Ether
Bromoform	Camphene	4-Chlorophenyl Phenyl Ether
Bromomethane	1-Chloronaphthalene	bis(2-chloroisopropyl)Ether
Carbon Tetrachloride	2-Chloronaphthalene	bis(2-Chloroethyl)Ether
Chlorobenzene	Chrysene	Diphenyl ether
Chloroform	Dibenzo(a,h)Anthracene	2,4-Dinitrotoluene
Chloromethane	Fluoranthene	2,6-Dinitrotoluene
Cis-1,3-Dichloropropylene	Fluorene	bis(2-chloroethoxy)Methane
Dibromochloromethane	Indeno(1,2,3-cd)Pyrene	Diphenylamine
1,2-Dibromoethane	Indole	N-Nitrosodiphenylamine
Methylene Chloride	1-Methylnaphthalene	N-Nitrosodi-N-propylamine
Tetrachloroethylene		
trans-1,2-Dichloroethylene		
Trans-1,3-Dichloropropylene		
Trichloroethylene		
Trichlorofluoromethane		
Vinyl chloride		
Misa Group 17	Misa Group 20	
Benzene	2,3,4,5-Tetrachlorophenol	2,6-Dichlorophenol
Ethylbenzene	2,3,4,6-Tetrachlorophenol	4,6-Dinitro-o-Cresol
Styrene	2,3,5,6-Tetrachlorophenol	2-Chlorophenol
Toluene	2,3,4-Trichlorophenol	4-Chloro-3-methylphenol
o-Xylene	2,3,5-Trichlorophenol	4-Nitrophenol
m-Xylene and p-Xylene	2,4,5-Trichlorophenol	m-,p-Cresol
Misa Group 18	2,4,6-Trichlorophenol	o-Cresol
Acrolein	2,4-Dimethylphenol	Pentachlorophenol
Acrylonitrile	2,4-Dinitrophenol	Phenol
	2,4-Dichlorophenol	

Groundwater monitoring was conducted at all locations in June and December 2019. The results of the groundwater monitoring are discussed in Sections 8.4 to 8.7.

Groundwater monitors are inspected during each of the monitoring events and their condition recorded by field staff. If any monitor is found to be damaged or in need of maintenance, a work order is submitted for repairs and repairs are completed as soon as possible.

6.2 Surface Water Monitoring Program

The surface water monitoring program for the site is outlined in the ECA in Conditions 5 (2) (parameter list) and Condition 5 (3) of ECA #9496-9NFKJ9, for the final off-site surface water station (stormwater management pond - TP1(Out)) and in the Follow-up Response to Ministry of the Environment Comments on the Surface Water Monitoring Program and Proposed Action Plan, dated December 3, 2013 (Appendix E) for the Wet/Dry property. These monitoring programs are discussed below.

As requested by the MECP, a revised surface monitoring program was recommended for the WRIC in December 2013. A summary of the response to the MECP, including the revised monitoring are provided in Section 8.9. On March 6, 2014, the City met with the MECP to discuss the Public Drop off facility (PDO) application. It was agreed that sampling at the WRIC Detention Pond 1 (SW 2 and SW 3) would be discontinued. Detention Pond 2 (SW1) would only be sampled once the levels in the pond reached 0.46 m above the pond invert and that the SWM pond (TP1(out)) would continue to be sampled monthly. During 2019, monitoring of surface water runoff into Detention Pond 2 (SW 1) was completed on May 10 and June 6 only even though the water level was below 0.46 m (dry for the remainder of the year and frozen in December). On May 10 and June 6, the pond levels were measured at 0.35 m and 0.28 m, respectively, following a rain event of at least 15 mm. Nevertheless, as due diligence, samples were collected at SW1. No discharge occurred. The results of the surface water monitoring are discussed in Section 8.8.

Surface water sampling is undertaken on a monthly basis in the East pond (SWM) for the parameters (excluding organics) shown in Table 6. Organic sampling of the SWM and East pond surface water stations was conducted on April 16, 2019 and July 18, 2019. During each month, sampling will be undertaken unless stagnant conditions occur (no discharge). Measurements of discharge, surface water runoff events and overall conditions of the detention ponds (e.g., dry, or stagnant water) will be documented on a weekly basis throughout each month. One surface water station in the SWM pond was monitored by the City staff in 2019; TP1 (out), located at the discharge at the north end of the pond. 2019 monthly inorganic monitoring was conducted at TP1(out) from April to November (nine events). TP1(out) was not sampled from January to March and in December due to ice/snow cover or frozen conditions. As per condition 5 (3), TP1(out) surface water sampling is also to include at least three wet events per year (as defined by 15 mm of rain in the previous 24 hours) of which two must occur within May to September for TSS. This sampling was completed during the May 10, June 6 and July 18, 2019 monitoring events. There were no wet events in August and September.

The existing surface water pond (“East Pond” in **Figure 1**) was sampled from April to November (for inorganic parameters shown on Table 6). The East Pond was not sampled from January to March and in December due to ice/snow cover or frozen conditions. The East Pond setting is similar to the other on-site ponds (influenced by road salting) though it is within a different catchment area. As suggested by the MECP, surface water quality from the samples collected from the in the East Pond (designated EPTS-01) can be considered as background surface water quality as it is upstream of both facilities¹³ and will be used as comparison to the on-site surface water features.

A ditch located between the stormwater management pond and the East Pond is designed to receive pond overflow and direct it in a northwesterly direction beneath Dunlop Drive.

13. Memorandum from Lynnette Latulippe (MOECC) to Bill Shields (City of Guelph), Re: Annual Monitoring Report – 2009 Guelph Wet-Dry Recycling Centre and Waste Transfer Station, dated February 7, 2011.

7. Leachate Quality

7.1 Leachate Indicators

To determine the potential leachate quality that may be generated from the site, the leachate quality from the City of Guelph closed Eastview Road Landfill was examined. Prior to closure in 2003, this landfill accepted a similar mix of waste as the Transfer Station. Groundwater monitoring has been routinely conducted on this site since 1991. Leachate quality is measured by a series of groundwater monitors in the waste and in the outwash layer beneath the waste. In general, the leachate quality is characterized by elevated concentrations of chloride, boron, phenols (critical leachate parameters), sodium, potassium, magnesium, iron, manganese, ammonia and alkalinity (leachate indicator parameters). Though monitoring continues at the site, leachate quality up to 2009 was only considered since leachate strength is expected to decrease over time with closure of the landfill. Table 7 provides a summary of the historic leachate concentrations (1997 to 2009) for the leachate monitors.

Table 7: Summary of Leachate Quality from the Waste Monitors, Eastview Landfill

Parameters	Avg.	Min.	Max.	
General	• pH	7.68	7.09	8.63
	• Conductivity (µS)	14,364	3,880	21,500
	• Alkalinity (mg/L)	6,195	2,900	9,050
	• Hardness (mg/L)	2,161	1,010	2,900
Critical Indicators	• Chloride (mg/L)	1,841	101	2,660
	• Boron (mg/L)	22.8	6.22	47
	• Phenol (µg/L)	100	0.72	830
Leachate Indicators	• Calcium (mg/L)	96	33	221
	• Sodium (mg/L)	1,468	424	2,300
	• Magnesium (mg/L)	468	144	661
	• Potassium (mg/L)	794	149	1,410
	• Iron (mg/L)	11	1.1	41.4
	• Manganese (mg/L)	0.10	0.027	0.688
	• Ammonia (mg/L)	583	0.05	1,200

With regard to the site, downgradient water quality is compared to background water quality for the critical leachate indicator parameters, as identified above, to determine potential impacts from site operations.

The site operation is not expected to generate any significant quantities of leachate because all waste handling operations are conducted in an indoor environment within the transfer building. The Design and Operations plan incorporates a number of features to protect the groundwater and surface water resources. This includes features such as a completely contained waste tipping floor and collection system and operating procedures that ensure that waste is handled indoors in a closed environment and is not stored on-site for any length of time. Nevertheless, it is still appropriate to examine water quality at the site for indicators of leachate affects to confirm that all of the safeguards are functioning.

7.2 Petroleum Indicators

The site operations do not involve the use, storage or handling of significant quantities of potential contaminants, other than machine fuel/lubricants. If these are handled with normal, reasonable precaution (according to the regulations) then the risk of groundwater contamination is very low. Established procedures for spills response and contingency are in place. BTEX analysis results are examined to determine if there is any indication of hydrocarbon contamination. Downgradient organic water quality is discussed in Section 8.5.

8. Groundwater, Leachate and Surface Water

A ground and surface water monitoring program is conducted on the sites as outlined in Section 3.

8.1 Groundwater Elevation and Flow Directions

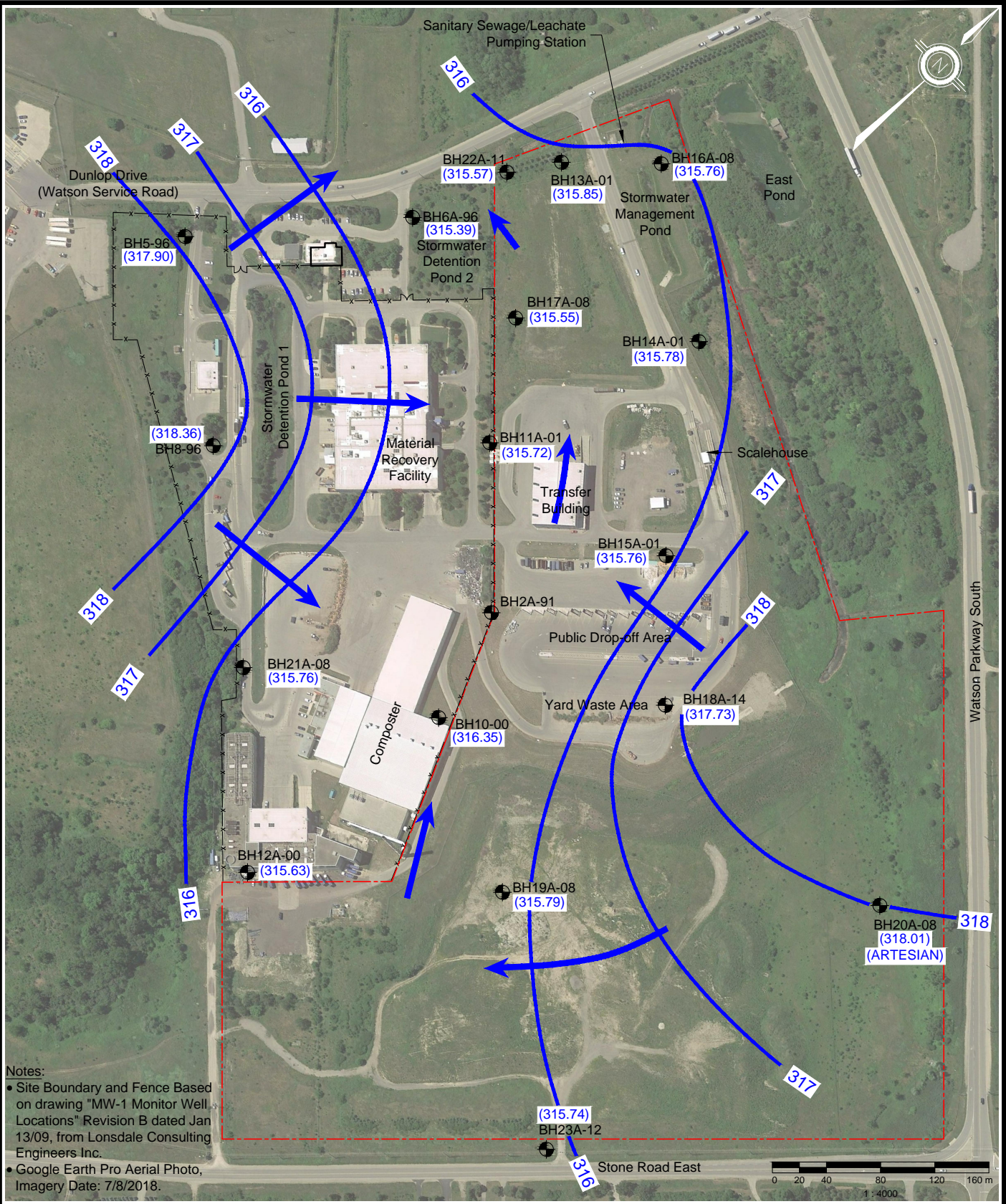
The ECA requires collection of water levels four times per year. Groundwater levels were collected in April, June, September and December during 2019. Groundwater elevations were measured at 18 locations that included a total of 32 monitors. The monitors are outlined below with the geological unit they are measuring. Groundwater elevations are appended. Hydrographs for each location are presented in Appendix A.

Monitor	Geological Unit	Groundwater Zone	Monitor	Geological Unit	Groundwater Zone
5-96	Dolostone Bedrock	Water Table/Bedrock	15b-01 ³	Gravelly Outwash	Water Table
6a-96	Dolostone Bedrock	Bedrock	16a-08 ³	Dolostone Bedrock	Bedrock
6b-96	Sandy Outwash	Water Table	16b-08 ³	Gravelly Outwash	Water Table
7-96	Sandy Outwash	Water Table	17a-08 ³	Dolostone Bedrock	Bedrock
8-96	Dolostone Bedrock	Water Table/Bedrock	17b-08 ³	Gravelly Outwash	Water Table
9-96	Sandy Outwash	Water Table	18a-08/18a-14 ³	Dolostone Bedrock	Bedrock
10-00 ¹	Dolostone Bedrock	Bedrock	18b-08/18b-14 ³	Gravelly Outwash	Water Table
11a-01 ¹	Dolostone Bedrock	Bedrock	19a-08 ³	Dolostone Bedrock	Bedrock
11b-00 ¹	Gravelly Outwash	Water Table	19b-08 ³	Gravelly Outwash	Water Table
12a-00 ²	Dolostone Bedrock	Bedrock	20a-08 ³	Dolostone Bedrock	Bedrock
12b-00	Gravelly Outwash	Water Table	20b-08 ³	Gravelly Outwash	Water Table
13a-01 ³	Dolostone Bedrock	Bedrock	21-08	Dolostone Bedrock	Water Table/Bedrock
13b-01 ³	Gravelly Outwash	Water Table	22a-11 ³	Dolostone Bedrock	Bedrock
14a-01 ³	Dolostone Bedrock	Bedrock	22b-11 ³	Gravelly Outwash	Water Table
14b-01 ³	Gravelly Outwash	Water Table	23a-12	Gravelly Outwash	Water Table
15a-01 ³	Dolostone Bedrock	Bedrock	23b-12	Dolostone Bedrock	Bedrock

- Notes: (1) Locations recommended by MECP.
(2) Replaces 3-97.
(3) Locations in Transfer Station Area.

The bedrock groundwater flow is discussed first as the understanding of the geology controlling this flow is important to the shallow water table flow. In general, the groundwater flow is similar to previous years (**Figure 2**). Groundwater flow is generally from southwest to northeast (bedrock high) and northeast to southwest (from Watson Road) coming into the site from both directions. It is expected that flow would ultimately merge and be directed northerly based on the assessment of the bedrock surface topography, which suggests that the bedrock is deepening to the north. This is important as previous hydrogeological assessments in the area suggest that the bedrock low observed in this area is a former paleo river valley (incised bedrock low) that trends to the north. Therefore, it would be expected that the groundwater flow would follow this feature. The 2008 monitoring nests (bedrock and overburden) were placed to the east of the facility (BH18-08, BH19-08 and BH20-08) to confirm the geology and groundwater flow in this area. Southeast of the Transfer Station, the bedrock elevation is generally highest at BH20-08, sloping to the northwest towards the paleo river valley. A more detailed assessment of the geology in the area incorporating the 2008 borehole data was provided in the 2009 Annual report (AECOM, 2010), which confirms that there is a pronounced incised bedrock low that trends through the site to the north. The addition of the BH23-12 location on Stone Road, also suggest that the flow in the incised bedrock low is generally to the north.

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Notes:
 • Site Boundary and Fence Based on drawing "MW-1 Monitor Well Locations" Revision B dated Jan 13/09, from Lonsdale Consulting Engineers Inc.
 • Google Earth Pro Aerial Photo, Imagery Date: 7/8/2018.

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	Transfer Station / WRIC City of Guelph Annual Monitoring Program Bedrock Groundwater Flow (Sept 2019)	Legend Approximate Site Boundary Fence Monitoring Well Bedrock Groundwater Elevation Bedrock Groundwater Contour	PROJECT NUMBER 60598828
			DATE January 2020
			FIGURE 2

In general, the shallow groundwater flow beneath the site is similar to previous years (**Figure 3**) though flows have been refined and confirmed based on the groundwater elevation information from the monitors installed in 2008 and the updated geological model assessment in 2009. Shallow groundwater flow in the sandy outwash is expected to follow the bedrock topography and be similar to the bedrock groundwater flow. Overall, the shallow flow is similar, directed into the site from the bedrock high on the southwest area of the site and from along Watson Road. It is also expected that flow would ultimately merge and be directed northerly within the alignment of the incised bedrock low. The 2008 drilling also identified a bedrock high (similar to the high to the west) southeast of the site in the vicinity of BH20a-08, between which the bedrock trends. The shallow water table elevation is generally similar to BH19b-08 to apparently slightly lower (BH19b-08 was 315.63 mASL, whereas BH23b-12 was 315.80 mASL in September 2019) in the southern area of the site. The slight difference is most likely related to the actual positioning in the bedrock low as the new location intercepted the bedrock at a deeper elevation than at BH19 indicating that BH19 is most likely higher up on the edge of the bedrock low. Though this is the case, the overall trend of the bedrock low is to the northwest.

In their review of the 2006 Annual Monitoring report, the MECP commented that though water levels are collected four times per year, only one data set was used to plot the groundwater contour map. It should be noted that for our assessment of groundwater flow conditions, each set of water level data are plotted and reviewed. However, for reporting purposes, only one set of data are presented as flow contours from season to season (and from year to year) as flows have been quite similar. Should significant differences between the seasonal flow conditions be noted, they would be identified and discussed.

8.2 Groundwater Monitoring

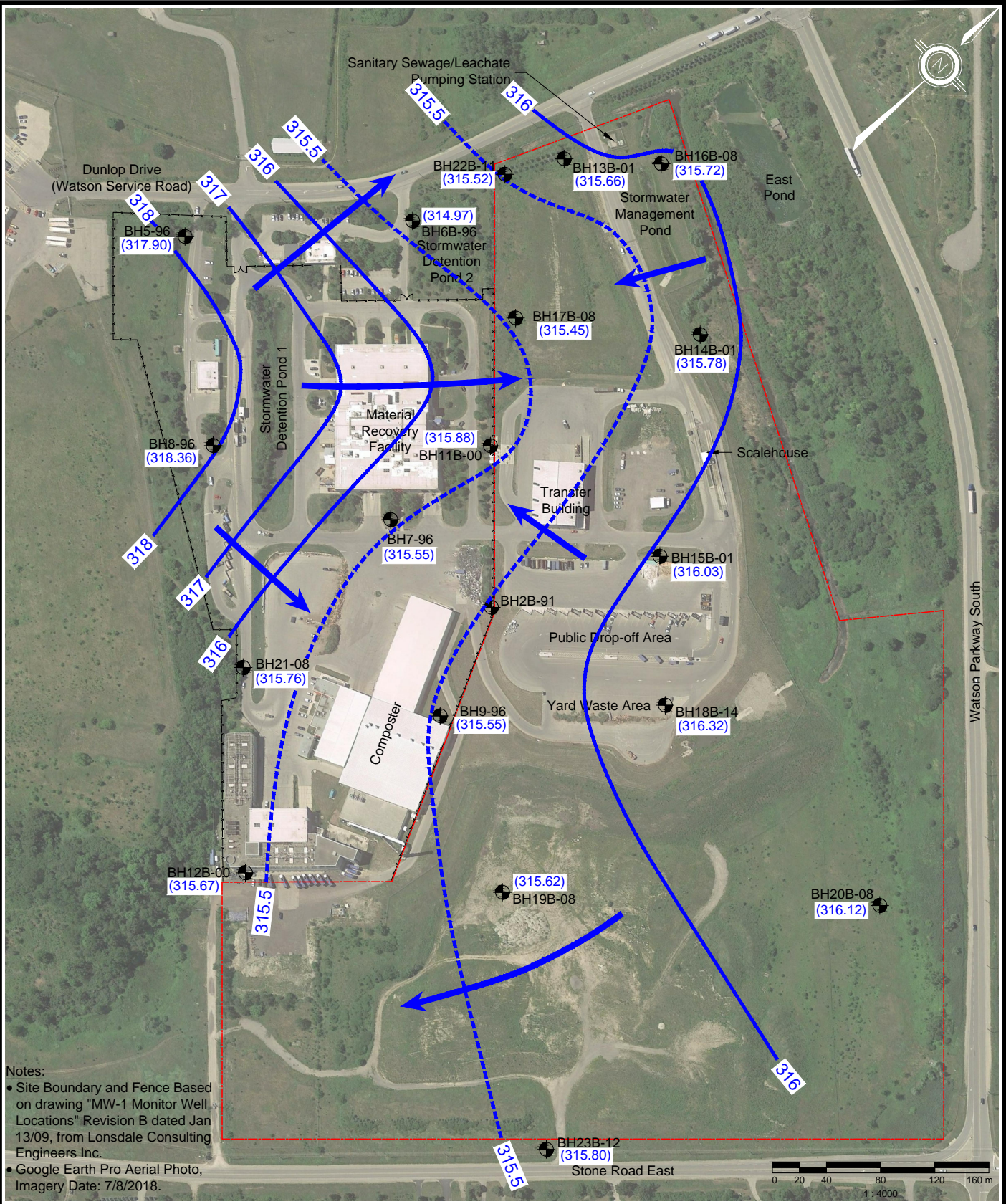
8.2.1 Transfer Station Area

The original monitoring program for the site included three overburden monitors (in outwash materials) 13b-01, 14b-01 and 15b-01 and three bedrock monitors 13a-01, 14a-01 and 15a-01. The MECP completed a review of the 2004 and 2005 Annual Monitoring reports for the Eastview Landfill and the Transfer Station. The MECP recommended installation of additional monitoring locations to better address the geological setting with respect to the groundwater flow. Based on the MECP review comments, six monitoring nest locations (BH16-08 to BH21-08) were completed in 2008, at the locations shown on **Figures 1 to 3**. These monitors consist of overburden outwash (16b-08, 17b-08, 18b-08, 19b-08, 20b-08) and bedrock monitors (16a-08, 17a-08, 18a-08, 19a-08, 20a-08, 21-08). These monitors were incorporated into the routine monitoring program in 2008. Based on the confirmation of groundwater flow at the site, the MECP recommended that a new monitoring location be established at the northerly boundary to serve as a Guideline B7 (RUP) boundary compliance point. This location was completed in 2011 and consists of a deep bedrock and shallow overburden outwash monitor (22a-11 and 22b-11). A further location along Stone Road was completed in the summer of 2012, as recommended to the MECP, to better assess the potential effects, if any, from the soils that had been stored on site. This location also consists of a deep bedrock and shallow overburden outwash monitor (23a-12 and 23b-12).

8.2.2 WRIC

Baseline groundwater monitoring was conducted from 1991 to 1995, prior to construction at the WRIC site (monitor locations 1a-91, 1b-91, 2a-91, 2b-91, 3-91 and 5-91). Monitoring of the groundwater at the WRIC Facility commenced in April 1996 at the remaining monitoring locations that were not destroyed during construction (**Figure 1**). In late 1996, replacements for the monitors that were destroyed were completed and added to the program. The present monitoring program, initiated in 1999 after MECP approval, is twice per year (June and December).

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Notes:
 • Site Boundary and Fence Based on drawing "MW-1 Monitor Well Locations" Revision B dated Jan 13/09, from Lonsdale Consulting Engineers Inc.
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	Transfer Station / WRIC City of Guelph Annual Monitoring Program Shallow Groundwater Flow (Sept 2019)	Legend Approximate Site Boundary Fence Monitoring Well Shallow Groundwater Elevation Shallow Groundwater Contour	PROJECT NUMBER 60598828
			DATE January 2020
			FIGURE 3

The City commenced construction of the Public Drop off (PDO) area in the late summer of 2014 (**Figures 1 to 3**). Monitoring nests BH18-08a/b (within the pad area) and BH2-91a/b (on the berm between the Wet/Dry and transfer properties) were found to be within the construction area. The MECP was contacted to discuss the decommissioning and need for replacement of these monitoring nests. It was decided that monitoring nest 18-08 would be decommissioned and re-located just to the south of the PDO pad, between the pad and the new pond.

As for BH2-91, this location was the only one with a deep monitor in the till. Water quality had generally remained similar since about 1991 in the deep till and shallow groundwater (when sampled as it generally had very little water). A slight change (around 2011) in quality did occur in the deep monitor at the time of construction of the compost facility, which may suggest that the monitor was compromised. This was an old monitor installation (1991) and probably only had a surface seal and seal above sand pack. Although this was the case, based on the overall long term historical water quality and the difficulty in sampling the shallow well, it was recommended that this location was to be decommissioned and not replaced. The MECP hydrogeologist, confirmed through e-mail correspondence on September 8, 2014 that he was in agreement with the re-location of monitoring nest 18 as well as the elimination of BH2a/b-91 from the current monitoring program.

Monitoring nest BH2a/b-91 and 18-08 (consisting of bedrock monitor 18a-08 and water table monitor 18b-08) were decommissioned in September 2014 as per O. Reg. 903 to accommodate expansion of the Public Drop off (PDO) pad. A new monitoring nest (18a-14 and 18b-14) was installed by the City in September 2014 with a mud-rotary drill rig and screened to the same depth/within the same formations as 18a-08 and 18b-08. These new monitors were located about 15 m northeast of the former 18-08 location, just off the PDO pad and were incorporated into the monitoring program for the site.

8.2.3 Groundwater Quality

Groundwater sampling was conducted for the site in June and December 2019. Groundwater quality results are appended.

8.2.3.1 Background Outwash Water Quality

Background outwash groundwater quality was historically measured at locations 14 and 15 on the adjacent eastern property. Location 15 is now considered a downgradient location due to the construction of the compost pad and PDO area to the south. Groundwater flow is directed towards the site from these areas. Monitors BH18b-14, BH19b-08 and BH20b-08, located southeast of the Transfer Station and 16b-08, located north of the Transfer Station are also representative of background outwash conditions based on the groundwater flow patterns in this area. Water quality for the indicator parameters are summarized in the table below.

Monitor		Alkalinity (ppm)	Chloride (ppm)	Sodium (ppm)	Calcium (ppm)	Magnesium (ppm)	Potassium (ppm)
14b-01	Historical Range	267 - 438	22.3 - 360	0.1 - 170	0.2 - 280	0.05 - 80	0.2 - 2.9
	2019 Average	400	315	210	150	31.5	1.8
16b-08	2008-2018 Range	318 - 597	10 - 260	20 - 150	89 - 170	26 - 51	1.1 - 3.1
	2019 Average	305	116.5	51	115.5	32.5	2.2
18b-08	2008-2014 Range*	260 - 424	8 - 19	6.2 - 270	29 - 65	12 - 26	0.73 – 5.5
18b-14	2015 - 2018 Range	180 - 230	22 - 210	18 - 180	11 - 69	3.1 - 28	1 - 2.4
	2019 Average	225	89.5	87	57	15.2	1.8
19b-08	2008-2018 Range	289 - 700	7 - 60	110 - 480	23 - 100	10 - 32	4.5 - 12
	2019 Average	525	62	145	97.5	33	8.6
20b-08	2008-2018 Range	235 - 330	7 - 170	3.5 - 58	78 - 120	25 - 41	1.1 - 3.3
	2019 Average	320	94	50	120	35.5	1.9
23b-12	2012-2018 Range	320 - 400	110 - 270	79 - 200	96 - 380	29 - 150	1.9 - 5.4
	2019 Average	350	165	120	115	27	2

Note: Historical Ranges include all data up to and including 2018, except where specified.

*Only three historic samples were collected from monitor 18b-08: March 2008, June 2011 and May 2014

Monitors 18b-08/14, 19b-08, 20b-08 and 23b-12 have chemistry generally similar to monitor 14b-01, located northeast of the WRIC though a few parameters at 19b-08 were notably higher than the other overburden background monitors. Monitor 19b-08 showed elevated concentrations of alkalinity and potassium. Sulphate concentrations at 19b-08, which were previously elevated prior to 2013, continued to decrease to about 83 mg/L but is still slightly elevated compared to the other overburden background monitors which were generally between about 22 mg/L (18b-14) and 58 mg/L (14b-01) but similar to 20b-08 (86 mg/L). Alkalinity appeared to be showing a slight increasing trend over time at 19b-08 but concentrations have stabilized since about 2015. Elevated iron previously noted at this location and related to the drilling mud that is still present in the monitor is decreasing such that it is at a concentration of 1.2 mg/L in 2019. The 2019 results from 18b-14 were generally similar to historic results from 18b-08/18b-14, though the June 2019 concentrations showed lower concentrations for several parameters (COD, total phosphorus, chloride, sodium, iron) but higher concentrations of other parameters (sulphate, calcium, zinc) compared to historic results from 18b-14 (since 2015). Since 19b-08 and 18b-14 are upgradient of the site, the elevated concentrations are not a result of site activities. Monitor 18b-14 is now located at the eastern edge of the recently completed PDO and yard waste area. Concentrations at most of the background monitors were generally similar to previous years with some parameters at a few locations slightly higher or lower than historic ranges due natural variability.

Elevated iron at 14b-01, 16b-08, 19b-08 and 20b-08 were noted since December 2011 but decreased in 2013 with the iron concentrations at these monitors below the laboratory detection limits in December 2013. However, the 2015 iron at 14b-01, 19b-08 and 20b-08 again showed elevated concentrations (averages of 22 mg/L, 3.4 mg/L and 4.1 mg/L, respectively). At 19b-08 and 20b-08, the iron concentrations remained elevated in 2016 and 16b-08 returned to slightly elevated concentrations. In 2019, iron concentration at 14b-01, 16b-08, 19b-08 and 20b-08 remained elevated (but slightly lower than 2019) compared to pre-2011 concentrations when iron was generally below the laboratory detection limits but were not as high as 2012 concentrations. The cause of the increase in iron concentrations is unknown. As these elevated concentrations were apparent in the background monitors, it is concluded that they are not a result of site operations.

The 2019 parameter concentrations at monitor 14b-01 were within the historic range of concentrations at this monitor for both sampling events (except for sodium), with no trends noted. The 2019 average sodium and chloride concentrations were elevated compared to historic results. The December 2019 sodium concentration of 250 mg/L is higher than the previous maximum chloride concentration at this location of 170 mg/L. Though 2019 chloride concentrations were within historic ranges, they were at the high end of the historic concentration range. Elevated sodium and chloride concentrations are most likely related to road salting along Watson Parkway. Previous 2014 elevated concentrations of magnesium, TKN, calcium and phosphorus have returned to concentrations similar to historic concentrations since 2015. Zinc concentrations, which were generally elevated at concentrations of more than 1 mg/L between 2011 and 2016 have decreased to an average of about 0.63 mg/L in 2019, which is still elevated compared to pre-2011 concentrations. COD concentrations at 14b-01 were showing a decreasing trend since high concentrations were detected in 2003-2004 but have been variable in recent years. The COD concentrations have fluctuated between less than 4 mg/L to 46 mg/L since 2012. The average 2019 indicator parameter concentrations at monitor 14b-01 were generally slightly higher than the average 2018 concentrations.

Monitor 16b-08 is located near the northwest corner of the of the Transfer Station area by the stormwater management pond. Indicator parameter concentrations are within the range of concentrations for the other background overburden monitors. The 2019 parameter concentrations at monitor 16b-08 are within their historic ranges, except for alkalinity, magnesium and COD, all which were lower than their historic minimums. The December 2019 alkalinity and magnesium and both 2019 COD concentrations were reported as 300 mg/L, 27 mg/L and 4 mg/L and less than the method detection limits, respectively, slightly lower than the previous minimum concentrations of 310 mg/L, 27 mg/L and 4.5 mg/L. No other parameters during the two 2019 sampling events are elevated or show unusual concentrations. This location appears to exhibit a seasonal increase in road salt effects (based on chloride and sodium concentrations).

8.2.3.2 Background Bedrock Water Quality

Background bedrock groundwater quality is measured at locations 5-96 (northwest) and 8-96 (west) on the bedrock high along the western portion of the WRIC site from where groundwater flows into the immediate area of the WRIC. As well, groundwater quality in the bedrock below the site was measured at location 6a-96, 14a-01, 16a-08, 18a-08/18a-14, 19a-08 and 20a-08, as well as the upgradient monitor 23a-12. Background bedrock groundwater quality is typically hard with more elevated concentrations of the major ions, most noticeably alkalinity and calcium. These types of concentrations are associated with dolostone, which is made up of calcium and magnesium carbonate. The average concentrations of these parameters observed in 2019, along with the historical ranges at these locations are provided below.

Also, provided in this table are the 2018 averages from the downgradient bedrock WRIC site monitors (10-00, 11a-00) and Solid Waste Transfer Station area bedrock monitors (13a-01, 15a-01, 17a-08, 22a-11).

	Monitor	Alkalinity (ppm)	Chloride (ppm)	Sodium (ppm)	Calcium (ppm)	Magnesium (ppm)	Potassium (ppm)	
Background	5-96	Historical Range ⁽¹⁾	278 - 380	112 - 474	71.9 - 263	83.7 - 134	24.2 - 38.4	3.9 - 6
		2019 Average	275	675	465	110	21	3.45
	8-96	Historical Range	264 - 356	37.2 - 332	17.6 - 171	87 - 123	30 - 43.4	1.73 - 3.1
		2019 Average	290	135	135	92.5	31.5	2.15
	14a-01	Historical Range	215 - 263	4.8 - 28	9.1 - 29	63.5 - 86	22.4 - 29	0.98 - 2
		2019 Average	240	23	27.5	74	25.5	1.04
	16a-08	2008-2018 Range	230 - 270	28 - 100	2.1 - 48	75 - 120	24 - 30	1.7 - 3.6
		2019 Average	225	30	2	76	26	1.75
	18a-08/ 18a-14	2008-2018 Range	240 - 260	3.2 - 19	4.2 - 9.1	75 - 84	26 - 29	1 - 1.8
		2019 Average	230	49.5	62.1	45	13.7	1.2
19a-08	2008-2018 Range	230 - 260	27 - 72	12 - 47	94 - 110	32 - 37	1.2 - 1.9	
	2019 Average	245	75	30	100	33.5	1.45	
20a-08	2008-2018 Range	236 - 262	15 - 37	3.9 - 56	72 - 88	26 - 31	1 - 1.8	
	2019 Average	250	19	4.45	85	28	1.05	
21-08	2008-2018 Range	260 - 320	4 - 54	6.9 - 34	71 - 87	23 - 32	0.79 - 1.2	
	2019 Average	275	8.55	10	75	25.5	0.87	
23a-12	2012-2018 Range	230 - 250	24 - 31	11 - 15	84 - 97	28 - 34	0.95 - 1.3	
	2019 Average	240	28	12.5	89	31	1.15	
Downgradient	6a-96	Historical Range	206 - 420	140 - 345	70 - 176	89 - 158	23 - 42	2 - 16.4
		2019 Average	275	235	160	98.5	22	4.55
	10-00	Historical Range	230 - 267	17 - 44.9	7.7 - 14	79 - 95.1	27 - 32	1 - 2
		2019 Average	240	28	9.75	88.5	30	1.05
	11a-00	Historical Range	220 - 263	4 - 24	4.3 - 25.9	62 - 83.2	23 - 28	1 - 3
		2019 Average	235	20	6.15	71	26	1.7
	13a-01	Historical Range	240 - 272	83.9 - 111	38 - 49	90 - 112	31 - 38.8	2 - 2.9
		2019 Average	245	110	48.5	104	34	2.6
	15a-01	Historical Range	230 - 271	42 - 370	7.7 - 160	88 - 140	29 - 44	1 - 2
		2019 Average	235	315	135	130	38	1.75
17a-08	2008-2018 Range	220 - 250	27 - 46	10 - 67	64 - 94	26 - 32	1.4 - 2.2	
	2019 Average	300	88.5	89	93	20	1.2	
22a-11	2011-2018 Range	212 - 260	47 - 130	15 - 78	88 - 110	20 - 36	1.3 - 2.3	
	2019 Average	245	75	24.5	97	32	1.45	

Note: 1. Historical Ranges only include data from 1997 up to 2003 due to continued increasing chloride and sodium values after 2003.
2. Road salt impact.
Historical Ranges include all data up to and including 2018 except where specified.

Generally, the average 2019 indicator parameter concentrations fall within the historical ranges at the background locations, with the following exceptions.

The 2019 average concentrations of sodium and chloride at background monitor 5-96 continue to show significant road salt impacts. The average 2019 sodium and chloride concentrations at 5-96 were 465 mg/L and 675 mg/L. Prior to 2003, concentration were less than 264 mg/L and 474 mg/L respectively. The effects are found to generally be seasonal with the dry weather (June) sampling period usually showing higher sodium and chloride

concentrations as compared to the wet weather sampling periods. As well, there have been historical road salt effects observed at location 6a-96 and 8-96. Sodium and chloride at monitor 5-96 are above the ODWS. Sodium and chloride are elevated (but within ODWS) at monitor 6a-96. The elevated sodium and chloride concentrations at monitors 5-96 and 6a-96 are due to road salt impacts. Magnesium and potassium have been showing a decreasing trend at 5-96. Pre-2006 magnesium and potassium concentrations were about 31.3 mg/L and 5.6 mg/L, decreasing to about 26.8 mg/L and 4.5 mg/L between 2006 and 2015, to 21 mg/L and 3.5 mg/L in 2019.

Though most 2019 parameter concentrations at background monitor 18a-14 were comparable to historic concentrations at this location, some of the June 2019 parameter concentrations are either higher or lower than historic maximum/minimum concentrations. The June 2019 total phosphorus, chloride, sodium and iron concentrations were notably higher than historic maximum concentrations while magnesium and nitrate concentrations were lower than their historic minimum concentrations. For example, June 2019 sodium, chloride and iron concentrations were 81 mg/L, 120 mg/L and 51 mg/L, respectively, compared to historic maximum concentrations for these parameters of 9.1 mg/L, 19 mg/L and 13 mg/L. The June magnesium and nitrate concentrations were 2.4 mg/L and less than the 0.1 mg/L detection limit compared to previous minimum concentrations of 26 mg/L and 4.4 mg/L. The cause of the June change in parameter concentrations is unknown and, concentrations returned to historic level by the December 2019 monitoring event. As this is a background location, site activities did not cause this change.

Downgradient monitor 17a-08 showed higher than historic parameter concentration in 2019. During the June 2019 monitoring event, total phosphorus (4 mg/L) and calcium (95 mg/L) showed marginally higher concentrations than their historic maximum concentrations of 0.1 mg/L and 94 mg/L. Concentrations of alkalinity (300 mg/L for both 2019 monitoring events), chloride (110 mg/L and 64 mg/L), sodium (110 mg/L and 68 mg/L), iron (120 mg/L and 16 mg/L), zinc (0.059 mg/L and 0.064 mg/L) and nitrate (1.3 mg/L and 1.01 mg/L) were higher during both 2019 monitoring events compared to their historic maximum concentrations at this location.

The alkalinity concentration at background monitor 21-08, located at the western property boundary, showed a concentration of 320 mg/L in June 2018, which is higher than the previous maximum alkalinity concentration at this location of 300 mg/L in December 2017. Alkalinity has shown a subtle increasing trend over time from about 270 mg/L pre-2013 to about 280 mg/L from 2013 to 2016, to an average of 305 mg/L in 2018. The 2019 average alkalinity concentration of 275 mg/L is similar to 2013 to 2016 concentrations.

Downgradient monitor 15a-01 continued to show higher 2018 and 2019 sodium and chloride concentrations than historic results at this location. As discussed further in Section 8.3.1, this location is now located adjacent to a drainage ditch and appears to be affected by infiltration of surface water.

Elevated iron concentrations were observed starting in 2011 in several monitors across the site (background and downgradient) and still persist at most locations in 2019 though generally decreasing. Downgradient monitor 6a-96 showed an elevated iron concentration of 0.22 mg/L in December 2019 compared to its previous maximum iron concentration of 0.15 mg/L. No other trends or unusual concentrations were noted at this location. As has been concluded previously these iron concentrations are not related to site operations.

When the water quality from the monitors located along the eastern boundary of the WRIC (10-00, 11a-00) and in the Transfer Station area (13a-01, 14a-01, 15a-01, 16a-08, 17a-08) are compared to the historical monitors to the west, there is a difference in bedrock water quality observed. With the exception of alkalinity, the concentrations of the major ions are generally lower indicating a less mineralized water. This difference in water quality is attributed to the bedrock units they are completed in. As stated earlier, there is a bedrock high to the west of the site. This high is dominated by the dolostone units of the Guelph Formation. The bedrock topography dips steeply from this high, across the WRIC site, towards a deeply incised bedrock valley low. This valley cuts into the underlying Gasport Formation (formerly the Amabel). Monitors are installed in this formation or at the contact of this formation

at the eastern boundary of the WRIC facility. Overall, water quality from this lower formation is found to be less mineralized, which is confirmed by sampling of these monitors.

Monitor 22a-11 is located downgradient in the bedrock low and constructed as a piezometer in the bedrock (total depth of 24.4 m below ground surface, 293 mASL). All indicator parameter concentrations are generally within the range of other downgradient bedrock monitors. Chloride concentrations are slightly elevated suggesting possible road salt impacts, as observed further up-gradient.

Monitor 23a-12 is located upgradient of the site and is representative of background conditions. Indicator parameter concentrations are within the range of other background groundwater monitors.

8.3 Downgradient Groundwater Quality

8.3.1 Shallow Outwash Groundwater Quality

Monitors along the eastern property boundary of the WRIC and within the paleo-valley in this same area are downgradient of site operations based on shallow groundwater flows (**Figure 3**). The table below compares downgradient water quality at monitors 6b-96, 7-96, 9-96, 11b-00, 13b-01, 15b-01, 17b-08 and 22b-11 to the Ontario Drinking Water Standards (ODWS), leachate quality (from the Closed Eastview Road Landfill) and background outwash water quality from monitors BH14b-01, 16b-08, 18b-14, 19b-08, 20b-08 and 23b-12.

Background monitor 18b-14 was installed in September 2014 to replace 18b-08. 18b-08 was sampled on three occasions. 18b-14 has been sampled on 10 occasions. During the June 2019 event, several parameters showed higher (alkalinity, sulphate, calcium, zinc, nitrate) or lower (sodium, chloride, iron) concentrations compared to previous results. Variations in parameter concentrations are expected due to the limited dataset and are a result of natural variability or may be due to mud used during the drilling process, which is slowly cleaning out.

Monitor		Critical Leachate Indicators				Other Leachate Indicators				
		Boron (mg/L)	Phenols (µg/L)	Alkalinity (mg/L)	Chloride (mg/L)	Sodium (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	
Leachate	ODWS	5.0		30 – 500	250	200				
	Historical Range (1997-2009)	6.22 – 47	0.72 – 830	2,900 – 9,050	101 – 2,660	424 – 2,300	33 – 221	144 – 661	149 – 1,410	
	Average (1997-2009)	22.8	100	6,195	1,841	1,468	96	468	794	
Downgradient	6b-96	Historical Range	0.018 - 0.078	0.72 - 11	246 - 412	68 - 815	53.1 - 467	68 - 217	16 - 47	4.1 - 18
		2019 Average	0.026	1	275	235	160	98.5	22	4.55
	9-96	Historical Range	0.01 - 0.063	0.72 - 4	84 - 348	3.7 - 83.7	1.48 - 34	26 - 100	4.8 - 34	0.3 - 17
		2019 Average	0.021	1	105.5	7.55	12	34	6.7	10.2
	7-96	Historical Range	0.03 - 0.102	0.72 - 12	224 - 390	54.3 - 397	28.7 - 212	95.1 - 226	26 - 52.7	7.6 - 27
		2019 Average	0.045	1	325	335	200	130	34	8.5
	11b-00	Historical Range	0.04 - 1.9	1 - 7	185 - 330	47 - 290	26.8 - 220	44 - 110	10 - 30	1 - 2.2
		2019 Average	0.095	1	245	85	92.5	60.5	13	1.2
	13b-01	Historical Range	0.01 - 0.1	1 - 12	230 - 506	7 - 200	2 - 110	75 - 160	24 - 45	1 - 2.5
		2019 Average	0.024	1	365	114.5	66	135	30	1.9
	15b-01	Historical Range	0.01 - 0.18	1 - 50	130 - 544	4 - 580	2 - 450	66 - 210	3 - 53	0.89 - 22
		2019 Average	0.074	55.5	285	182.5	149	93.5	9.2	16.3
17b-08	2008-2018 Range	0.015 - 0.03	1 - 1.7	290 - 357	86 - 620	79 - 330	84 - 190	19 - 48	0.91 - 3.1	
	2019 Average	0.027	1	240	35	18	85	29.5	1.65	
22b-11	Range 2011-2018	0.014 - 0.031	1 - 1	230 - 350	46 - 170	13 - 110	84 - 140	19 - 32	1.3 - 2.1	
	2019 Average	0.018	1	300	106.5	51.5	109.5	23.5	1.55	

	Monitor	Critical Leachate Indicators				Other Leachate Indicators				
		Boron (mg/L)	Phenols (µg/L)	Alkalinity (mg/L)	Chloride (mg/L)	Sodium (mg/L)	Calcium (mg/L)	Magnesium (mg/L)	Potassium (mg/L)	
Background	14b-01	Historical Range	0.01 - 0.05	1 - 13	267 - 438	22.3 - 360	0.1 - 170	0.2 - 280	0.05 - 80	0.2 - 2.9
		2019 Average	0.018	1	400	315	210	150	31.5	1.8
	16b-08	2008-2018 Range	0.01 - 0.047	1 - 5	318 - 597	10 - 260	20 - 150	89 - 170	26 - 51	1.1 - 3.1
		2019 Average	0.0155	1	305	116.5	51	115.5	32.5	2.15
	18b-08	2008-2014 Range ⁽¹⁾	0.01 - 0.10	< 1	260 - 424	8 - 19	6.2 - 270	29 - 65	12 - 26	0.73 - 5.5
	18b-14	2014 -2018 Average	0.01 - 0.03	1 - 1	180 - 230	22 - 210	19 - 180	11 - 69	3.1 - 28	1 - 2.4
		2019 Average	0.015	1	225	89.5	87.3	57	16.7	1.8
	19b-08	2008-2018 Range	0.066 - 0.27	1 - 1	289 - 700	7 - 60	110 - 480	23 - 100	10 - 32	4.5 - 12
		2019 Average	0.076	1	525	62	145	97.5	33	8.6
	20b-08	2008-2018 Range	0.01 - 0.018	1 - 8.9	235 - 330	7 - 170	3.5 - 58	78 - 120	25 - 41	1.1 - 3.3
		2019 Average	0.0125	1	320	125.5	73.5	120	35.5	1.9
	23b-12	2012-2018 Range	0.038 - 0.71	1 - 1	320 - 400	110 - 270	79 - 200	96 - 380	29 - 150	1.9 - 5.4
2019 Average		0.24	1	350	165	120	115	27	2	

Note: Historical Ranges includes all data up to and including 2018, except where specified.

ODWS = Ontario Drinking Water Standards

(1) Only two historic samples have been collected from 18b-01; March 2008, June 2011 and May 2014.

As shown on the above table, indicator parameter concentrations observed in the background and downgradient outwash monitors on the site are considerably lower than typical leachate concentrations from the closed Eastview Road Landfill. Sodium and chloride concentrations at 11b-00 had shown a subtle increasing trend over the years' at this location, peaking in 2014 at concentrations of 220 mg/L and 290 mg/L but have now generally shown a decline, since this time. 17b-08 has shown variable chloride concentrations over time but is generally showing a downward trend with an average concentration of 382 mg/L from 2008 to 2012 to an average concentration of 35 mg/L in 2019. Similarly, the 2019 sodium concentrations of 16 mg/L and 20 mg/L were much lower than the historic minimum concentration of 79 mg/L in December 2018. Other leachate indicator parameter concentrations are within background outwash ranges for the Transfer Station indicating no impacts.

At Monitor 9-96 potassium concentrations had been showing an increasing trend but have stabilized in recent years. The 9-96 potassium concentrations were generally less than 1 mg/L up to 2005. From 2006 to 2011, the potassium concentrations were stable, averaging 1.2 mg/L. Potassium concentrations at 9-96 started to increase from a 2012-2013 average of 4.5 mg/L to a 2014-2015 average of 10.4 mg/L, then to a 2016-2017 average of 7.7 mg/L and a 2018-2019 average of 10.1 mg/L. Alkalinity, magnesium and calcium concentrations have decreased and stabilized in recent years. Alkalinity concentrations from 1997 to 2008 averaged 242 mg/L and peaked in 2009 at a concentration of 348 mg/L. Since 2012, alkalinity concentrations have stabilized and are lower than pre-2009 concentrations, less than 150 mg/L. Magnesium and calcium concentrations at 9-96 showed similar concentration patterns as potassium. Magnesium and calcium both showed gradual concentration increases peaking in 2009 and then decreasing to concentrations lower than pre-2009 from 2012 to 2019 with both showing stable concentrations since 2012. This location is downgradient and adjacent to the compost facility. The compost facility was constructed and became operational in 2012, around the same time that the above concentration changes occurred. All compost operations are fully enclosed so these changes are not due to site operations.

Though nitrate concentrations at monitor 7-96 historically had regularly exceeded the ODWS prior to 2013, they were within ODWS in recent years' with 2019 concentrations of 6.32 mg/L and 6.45 mg/L. Elevated nitrate has occurred historically, including prior to the start-up of the WRIC facility and is most likely a result of past land use. There were no exceedances of ODWS for the shallow groundwater monitors in 2019 for the parameters tested, except for sodium and chloride at 6b-96, 7-96, 14b-01 and 15b-01 and iron (previously discussed).

At 13b-01, both sodium and chloride have shown increasing trends since 2004, peaking in 2008 and then slowly declining. However, since about 2017 and into 2018 and 2019, concentrations have been variable for both parameters with low June concentrations and higher December concentrations. Elevated sodium and chloride concentrations are likely due to road salt effects as this monitor is located adjacent to the access road to the

Transfer Station and Dunlop Road. Since indicator parameter concentrations at monitor 13b-01 remain within background concentrations, it has been concluded that there are no leachate impacts.

Parameter concentrations at 15b-01 have historically been variable, affected by activities in the vicinity. Monitor 15b-01 had previously been considered an upgradient background location due to its location east of the WRIC and south of the Transfer Station. However, in the mid-2000s, a large paved pad was constructed southeast of this monitor location. The pad was sloped such that surface water runoff was captured by a catch basin located near the middle of the pad and directed to the storm sewer. This pad was originally intended for storage of leaf compost but was being used to store construction and demolition material (roofing shingles, clean wood, drywall, rubble). The overall change in water quality at this location, at that time may be due to a combination of road runoff impacts from the Transfer Station access road to the northwest, a reduction of infiltration (and therefore, dilution) with the installation of the paved pad as well as the road salt from the south, as observed in the background monitors and now the more recent construction activities in the area. Construction activities in the vicinity of this location appears to have affected the groundwater quality, starting in late 2015. Changes in this area have included installation of a drainage ditch/culvert beneath internal access entrance to this area, installation of a permanent water line adjacent to the monitor location and placement of bin storage on the pad adjacent to the monitors to hold construction waste like drywall and wood. During the December 2019 monitoring event, City field staff noted an odour to the monitor water, similar to sewage. As discussed below, recent changes of water quality at this location indicates that there may be surface water entering the monitors. Several remedial measures should be considered including re-direction of the ditch in this area and augmentation of the surface seal at both monitors. AECOM will discuss options with the City.

Construction of a trench excavated very close to location 15 resulted in a spike in several parameters (potassium, sulphate, sodium, chloride, conductivity, COD, boron, nitrate) in December 2015 to June 2016 at 15b-01. The December 2018 concentrations of conductivity, potassium, BOD, COD, phenol, sodium, chloride and phosphorus showed elevated concentrations likely due to the influences of the drainage ditch immediately adjacent to this location. This pattern continued in 2019 with high concentrations of the same parameters and at similar levels in December 2019. The December 2019 alkalinity and phenols concentrations were higher than historic maximum concentrations. This monitor also shows seasonal variability with lower concentrations during the spring. The December 2019 sulphate concentration was less than the laboratory detection limit, lower than the previous minimum concentration of 13.8 mg/L.

Monitor 22b-11, completed in November 2011, is representative of downgradient overburden conditions based on its location along the western site boundary. The June 2019 results showed magnesium, sulphate, chloride and sodium concentrations lower than historic minimum concentrations. December 2019 concentrations for these parameters returned to similar levels as recent years. Elevated sodium and chloride concentrations appear to reflect minor road salt effects due to its location immediately adjacent to Dunlop Drive.

We conclude from this assessment, there have been no leachate impacts to the shallow groundwater in the vicinity of the site as a result of site operations in 2019.

8.3.2 Downgradient Bedrock Groundwater Quality

The interpreted bedrock groundwater flow directions (**Figure 2**) indicate that monitors 6a-96, 10-00, 11a-01, 13a-01, 15a-01, 17a-08 and 22a-11 are downgradient of the active site area, within or on the edge of the paleo-valley trending through the site.

The bedrock groundwater quality was compared to Ontario Drinking Water Standards (ODWS), as applicable. Sodium and chloride exceed ODWS at background bedrock monitor 5-96 due to road salt effects. Monitor 15a-01 exceeded the chloride ODWS in June 2018 and June 2019, possibly due to influences from installation of a water line in the immediate area. Monitor 6a-96 also exceeded the chloride ODWS in June 2019, likely due to road salt impacts. There are no other exceedances of ODWS in 2019 for the bedrock groundwater monitors for the parameters tested (except for iron, previously discussed).

As the shallow outwash water quality is not affected by site operations, no effects to the deeper bedrock groundwater would be expected nor observed.

8.4 Groundwater Organics Results

Groundwater monitors were analyzed for organics during the December 2019 monitoring event at monitoring locations 6, 11, 13, 14, 15, 17, 18, 19, 20, 21, 22 and 23.

Some low level detections of organics were reported across the site in 2019 included naphthalene, bis(2-ethylhexyl) Phthalate (DEHP), m p-cresol, bromodichloromethane, chloroform, dibromochloromethane and phenols. None of the VOC concentrations detected exceeded ODWS, where applicable. No other organics were detected at any of the monitors that are part of the WRIC and Transfer Station monitoring program in 2019.

Historically, there have been occasional low level detections of organics at both upgradient and downgradient monitors. Because the detection limits for organic compounds are very low, it is not unusual to have sporadic low level organic detections at sites where organic samples are frequently collected. The presence of persistent organics at one location combined with elevated indicator parameter concentrations and/or increasing trend in parameter concentrations would trigger more intense scrutiny of water quality results. This has not been the case for the organic detections at this site.

A blind duplicate of monitor 19a-08 (labelled 25) was collected with the December 2019 organic monitoring event. There were no organic detections in the blind duplicate sample. A trip and field blank should be submitted along with the organic samples for QA/QC purposes.

8.5 General Groundwater Quality Discussion

Overall, the groundwater chemistry during 2019 was similar to previous years.

In 2007, nitrate and nitrite analysis was re-instated into the routine monitoring program for both the sites as per the MECP's recommendations. Historically, nitrates were included in the monitoring program but were removed since elevated nitrate concentrations were prevalent across the site at all locations prior to development of the site. Shallow background monitors 1b-91, 6b-96 and 7-96 historically had shown elevated nitrate concentrations in the early 1990s (up to 32 mg/L at 1b-91) and late 1990s (up to 53.5 mg/L at 7-96) indicating that the elevated nitrates were present prior to the commencement of facility operations due to historical land use. Concentrations of nitrate have significantly decreased since this time and are generally found at much lower levels reflecting current surrounding land use in the area. There were no exceedances of the nitrate ODWS in 2019.

Monitors 5-96, 6b-96, 7-96 and 14b-01 exceeded ODWS for sodium and/or chloride in 2019 as a result of road salt effects. 15b-08 exceeded the sodium and chloride ODWS in June 2019 and 15a-08 exceeded the chloride ODWS in June 2019, which may be related to PDO area water line installation and subsequent regrading activities, including the completion of a drainage ditch. In 2019, elevated iron concentrations exceeding ODWS were again detected at most monitors at the site which was first observed in late 2011. These elevated iron concentrations will continue to be evaluated further in future monitoring events. There were no other exceedances of the Ontario Drinking Water Standards in 2019.

As observed in the past, sporadic low level detections of organics were observed in both upgradient and downgradient monitors across the site in 2019. Because the detection limits for organic compounds are very low, it is not unusual to have sporadic low level organic detections at sites where organic samples are frequently collected. These occasional detections do not appear to be related to site operations. The presence of persistent organics at one location combined with elevated indicator parameter concentrations and/or an increasing trend in parameter concentrations

would trigger more intense scrutiny of water quality results. In previous monitoring reports, we had recommended discontinuation of the organic sampling from the groundwater monitoring program for all historical locations. In the MECP review of the 2009 Annual Monitoring report (Groundwater Review), the reviewer did not support the discontinuation of the organic groundwater sampling program since an impact assessment with respect to the requirements of Guideline B-7 had not yet been completed. As recommended, organic sampling events should include a trip blank and a field blank collected with each organic monitoring event for QA/QC purposes.

In conclusion, there were no observable effects attributed to the WRIC operations on the groundwater quality beneath the site. No effects were observed at the site boundaries. Road salt effects continue to be observed at monitoring locations both upgradient of the site and on-site.

8.6 Guideline B-7 Assessment

MECP Guideline B-7 (formerly Policy 15-08 referred to as the Reasonable Use Policy) applies the reasonable use approach to groundwater quality management at waste management sites. Guideline B-7 describes acceptable levels of contaminants in the groundwater at site boundaries, based on the Ontario Drinking Water Standards (ODWS) and natural background conditions, with respect to the protection of drinking water. In addition, it is used to determine whether any remedial action is warranted. The Guideline B7 limits were calculated using the formula outlined in the MECP's Procedure B-7-1 (MOEE 1994a and 1994b).

The basic methodology to assess groundwater quality in relation to Guideline B7 limits (reasonable use guidelines), is to compare the shallow and bedrock downgradient groundwater quality to the calculated maximum concentrations. The leachate indicator parameters used in the assessment are either health related or aesthetic parameters specified in the ODWS. Based on the MECP reasonable use approach from Guideline B-7, the maximum concentrations (**C_m**) allowed at the site boundaries are calculated from the drinking water quality criteria (**C_r**) and background concentrations (**C_b**) based on the formula provided in Procedure B-7-1. Guideline B7 allows for some incremental impact to occur on the neighbouring property, relative to background. Input for a given chemical parameter includes the background concentration, the Ontario Drinking Water Standards (MOE, 2003), and a safety factor that was established by the MECP based on human health and aesthetic considerations.

As part of the MECP review on the 2009 Annual Monitoring report, it was recommended that Guideline B-7 be applied to this site as the geological model and groundwater flow have been confirmed, which is generally northeasterly. Monitor 22a-11 (bedrock) and 22b-11 (overburden) were installed at the downgradient northwestern property boundary adjacent to Dunlop Drive to be utilized for an impact assessment with respect to the requirements of Guideline B-7¹⁴. As recommended by the MECP reviewer¹⁵, the number of monitors considered for calculation of the median background concentrations was expanded to include the more recent monitors. The median historic concentrations from background overburden monitors 12b-00, 14b-01, 16b-08, 18b-08, 19b-08, 20b-08 and 23b-12 and from background bedrock monitors 5-96, 8-86, 14a-01, 16a-08, 18a-08, 19a-08, 20a-08 and 23a-12 were used to calculate the maximum concentration levels presented in Tables 8 and 9, respectively.

$$C_m = C_b + F \times (C_{ODWS} - C_b)$$

where, C_m is the maximum concentration,

C_b is the median background concentration,

C_{ODWS} is the maximum concentration (dependant on water use),

F is a constant – 0.5 mg/L for aesthetic parameters, 0.25 mg/L for health related parameters.

14. Memorandum from Lynnette Latulippe (MOECC) to Bill Shields (City of Guelph), Re: Annual Monitoring Report – 2009 Guelph Wet-Dry Recycling Centre and Waste Transfer Station Groundwater Review, dated February 7, 2011.

15. Memorandum from Abdul Quyum (MOECC) to Kevin Noll (MOECC), Re: Annual Monitoring Report – 2012 Guelph Wet-Dry Recycling Centre and Waste Transfer Station, Guelph, Ontario, dated April 25, 2013.

Table 8: Guideline B-7 Calculated Maximum Parameter Concentrations – Overburden

Parameter	Cb	F	CODWS	Cm
Nitrate (mg/L)	0.59	0.25	10	2.94
Boron (mg/L)	0.023	0.25	5	1.27
Sodium (mg/L)	88	0.5	200	144
Chloride (mg/L)	91.4	0.5	250	171
Sulphate (mg/L)	48	0.5	500	274
Iron (mg/L)	0.81	0.5	0.3	0.30

Note: (1) The iron Cm is calculated to be 0.56 mg/L but is limited to the ODWS of 0.30 mg/L

Note that monitors 5-96, 8-86, 14b-01 and 19b-08 show elevated sodium and chloride concentrations due to road salt impacts, however, these conditions are representative of the background conditions of these areas.

Table 9: Guideline B-7 Calculated Maximum Parameter Concentrations – Bedrock

Parameter	Cb	F	CODWS	Cm
Nitrate (mg/L)	0.28	0.25	10	2.71
Boron (mg/L)	0.02	0.25	5	1.27
Sodium (mg/L)	26.5	0.5	200	113
Chloride (mg/L)	39	0.5	250	145
Sulphate (mg/L)	47	0.5	500	274
Iron (mg/L)	0.06	0.5	0.3	0.18

Maximum allowable concentrations (C_m) are compared to the 2019 groundwater quality results from location 22-11 in **Table 10**.

Table 10: Summary of 2019 MECP Guideline B-7 (Reasonable Use) Calculations at the Northwest Boundary

Parameters in mg/L		Overburden			Bedrock		
		Cm	Monitor 22b-11		Cm	Monitor 22a-11	
			Jun 2019	Dec 2019		Jun 2019	Dec 2019
Health Related Parameters	Nitrate	2.94	0.73	1.05	2.71	0.17	< 0.1
	Boron	1.27		0.018	1.27	0.019	0.024
Aesthetic Parameters	Sodium	144	25	78	113	26	23
	Chloride	171	33	180	145	77	73
	Sulphate	274	12	45	274	85	81
	Iron	0.30	0.04	0.06	0.18	1.3	0.89

Bold, italicized concentrations in Table 10 exceed Guideline B-7 limits. The iron concentration at monitor 22a-11 exceeded Guideline B-7 limits during both 2019 monitoring events. As previously discussed, iron concentrations at some of the monitor locations have been unusually high since the December 2011 monitoring event. These elevated iron concentrations occurred in both upgradient and downgradient monitors and therefore, do not appear to be related to site operations. As shown on Table 10, the December chloride concentration exceeded Guideline B-7 limits. Elevated chloride concentrations have occasionally been detected at this monitor however, other indicator parameters do not appear to be elevated indicating that this location is not impacted by site operations.

Strictly speaking, Guideline B-7 is in place to assess groundwater impacts leaving the site for protection of downgradient users. Although, there are no downgradient well users as the surrounding area is municipally serviced, the guideline B-7 assessment is still required to address if any potential remedial efforts may be required related to the facility.

8.7 Surface Water Monitoring

8.7.1 Transfer Station Area

In 2019, monthly inorganic surface water sampling of the stormwater management pond (SWM) for the parameters shown on Table 6 occurred when water was present. The SWM pond was routinely checked during 2019. When water was present, samples were collected at the discharge at the north end of the pond (TP1 (out) on **Figure 1**) on a monthly basis. TP1 (out) was sampled from April to November.

City field staff make note of discharge conditions at the surface water stations at the time of sample collection. Below is a summary of the discharge conditions observed at TP1 (out).

Month	Discharge Events	Conditions	Sampling Date
January		Ice and Snow covered	
February		Ice and Snow covered	
March		Ice and Snow covered	
April	No Discharge	Opaque with oily sheen on pond water from April 13 transfer station fire	16-Apr-19
May	No Discharge	15 mm rain event - Clear water	10-May-19
June	Discharge	15 mm rain event - Clear water	6-Jun-19
July	No Discharge	15 mm rain event - Clear water	18-Jul-19
August	No Discharge	Yellowish	27-Aug-19
September	No Discharge	No flow - clear	24-Sep-19
October	No Discharge	Clear	29-Oct-19
November	Discharge	Clear	27-Nov-19
December		Frozen	

In the MECP review comments of the 2013 annual report, the MECP acknowledged that sampling the SWM pond when it is not flowing does not provide useful information. AECOM advised field staff to continue to monitor surface water levels monthly to note conditions but only collect samples during discharging conditions. City staff continued to collect the monthly samples at TP1 (out) during 2019 though no discharge occurred during six of the eight sampling events.

As now required under the current amended ECA, surface water samples are to be collected under rain event of greater than 15 mm three times per year, for TSS, of which two must be between May and September. Rain event sampling at TP1 (out) was conducted in May, June and July 2019. Full samples including TSS were collected during all sampling events.

The existing on-site surface water pond (“East Pond” on **Figure 1**) is also included in the monitoring program. Water quality from the East Pond is considered representative of background surface water quality as it does not receive any inputs from the facilities. It was recommended in the 2011 annual monitoring report that the monitoring frequency of the East Pond be increased to monthly to coincide with those occasions when samples are collected from the on-site SWM ponds. If no samples are collected from any of the SWM pond locations, no sample from the East Pond for that month is required. East Pond surface water samples (designated EPTS-01) were collected from April to November. The 2019 surface water results for the leachate indicator parameters are tabulated below, and the testing results are presented in Appendix C.

Surface water results were compared to Provincial Water Quality Objectives (PWQO), background surface water quality (EPTS-01) and background overburden water quality. At EPTS-01, the PWQO for zinc was exceeded during all eight monitoring events in 2019. Zinc has consistently exceeded PWQO in the past at this location. July phenols concentration also exceeded PWQO in 2019. Phenols have only exceeded PWQO on four occasions in the past since 2004. There were no other exceedances of PWQO at EPTS 01 in 2019. 2019 chloride

concentrations remained low, similar to 2018 historic low concentrations for this location. All other parameter concentrations (including indicator parameters) were within the range of background surface water concentrations at EPTS-01.

Location	Date	Critical Leachate Indicators			Other Leachate Indicators				
		Boron (ppm)	Phenols (ppm)	Chloride (ppm)	Alkalinity (ppm)	Sodium (ppm)	Calcium (ppm)	Magnesium (ppm)	Potassium (ppm)
PWQO/		0.2	0.001	-	-	-	-	-	-
Background Overburden⁽¹⁾		0.005 - 0.063	<0.001 - 0.013	2 - 360	84 - 438	0.1 - 170	0.2 - 280	0.05 - 80	0.2 - 17
Background Overburden⁽²⁾		<0.01 - 0.71	<0.001 - 0.005	1 - 270	21 - 700	6.2 - 480	23 - 380	10 - 150	0.73 - 12
TP1(out)	16-Apr-19	0.043	0.0062	96	70	64	66	4.7	3.6
	10-May-19	0.025	0.001	39	86	30	47	3.6	2.9
	6-Jun-19	0.044	0.001	22	93	17	40	3.3	3.7
	18-Jul-19	0.042	0.001	25	110	19	52	4.3	1.8
	27-Aug-19	0.051	0.001	36	180	25	66	6.9	11
	24-Sep-19	0.032	0.001	21	160	17	68	5.5	4.3
	29-Oct-19	0.025	0.001	26	140	21	65	5.8	3.6
	27-Nov-19	0.033	0.0034	250	230	200	96	14	16
Historic Range		<0.01 - 0.11	<0.001 - 0.019	4.8 - 85	4.5 - 1300	5.4 - 820	16 - 160	0.8 - 29	0.97 - 45
EPTS-01	16-Apr-19	0.01	0.001	46	210	26	71	18	1.1
	10-May-19	0.012	0.001	42	220	28	72	20	1.2
	6-Jun-19	0.014	0.001	33	230	21	67	18	1.6
	18-Jul-19	0.014	0.0052	30	230	19	68	18	1.8
	27-Aug-19	0.015	0.001	31	240	19	74	20	1.8
	24-Sep-19	0.014	0.001	33	250	20	77	21	1.7
	29-Oct-19	0.013	0.001	37	260	23	81	21	1.7
	27-Nov-19	0.014	0.001	42	270	26	83	21	1.7
Historic Range		<0.01 - 0.19	<0.001 - 0.0024	23 - 334	19 - 270	13 - 120	16 - 160	3.5 - 27	1 - 3.1

Note: (1) Range of background overburden water quality from 1997 to 2018 for monitors 2b-91, 9-96 and 14b-01.

(2) Range of background overburden water quality from 2008-2018 for monitors 12b-00, 16b-08, 18b-08, 19b-08, 20b-08 and 23b-12

For the SWM pond samples at TP1 (out), the PWQO was exceeded for total phosphorus for all eight of the 2019 events, iron for six monitoring events and zinc and phenols for two monitoring events. The PWQO for total phosphorus, iron, phenols and zinc have routinely to occasionally been exceeded at this location in the past. The elevated total phosphorus is a result of former surrounding land use and not a result of operations at the site. Elevated zinc, total phosphorus and iron concentrations appear to be related to external factors since background surface water have also exceeded PWQO for these parameters. Metals are a common contaminant from roadway runoff. Elevated phosphorus is typical in rural and urbanized areas. All 2019 indicator parameter concentrations were within overburden background ranges and within historic concentration observed at this location. Comparing the water quality at TP1 (out) to EPTS-01 per sampling event, TP1 (out) concentrations were variable; higher than background EPTS-01 concentrations for boron (all events), potassium (seven events), chloride and sodium (three events each), phenols (two events) and calcium (one event) and lower than background EPTS-01 for all events for alkalinity and magnesium. Baseline water quality information collected prior to building the WRIC had historically shown elevated total phosphorus concentrations and occasional elevated phenols, sodium, magnesium and potassium concentrations. Therefore, the elevated parameter results appear to be due to the effects of former land use and not a result of operations at the site. Elevated parameter concentrations are not attributed to the site operations as site handling and maintenance practices would deter potential surface water influences. The SWM Pond shows slightly elevated sodium and chloride concentrations suggesting road salt influences from the adjacent access road.

Discharge occurred during the June and November 2019 monitoring events. During these events, the TSS at TP1 (out) was 8 mg/L and 17 mg/L, respectively. TSS concentrations at TP1 (out) in the remaining months where samples were collected were between 2 mg/L and 14 mg/L, when there was no discharge. EPTS-01 TSS concentrations were generally lower compared to TP1 (out) ranging from less than the laboratory detection limit to 3 mg/L.

Organic samples were collected from the TP1 (out) and EPTS-01 surface water locations in April 2019. Acenaphthene (0.26 µg/L), naphthalene (0.48 µg/L), bis(2-ethylhexyl)Phthalate (2.9 µg/L) and chloroform (1 µg/L) were detected at EPTS-01 in April 2019. There are no PWQO for any of these VOCs. Low concentrations of chloroform (less than 2.3 µg/L) have previously been detected at this location during 14 sampling events since 2004. As these detections are at the background surface water station, they are not related to site operations.

Acetone (33 µg/L), benzene (0.18 µg/L), bis(2-ethylhexyl)Phthalate (2 µg/L), m-Xylene and p-Xylene (0.21 µg/L), naphthalene (0.48 µg/L), styrene (0.34 µg/L) and toluene (0.49 µg/L) were detected at TP1 (out) in April 2019. Benzene (100 µg/L), m-Xylene (2 µg/L), p-Xylene (30 µg/L), naphthalene (7 µg/L), styrene (4 µg/L) and toluene (0.8 µg/L) have interim PWQO's however, all concentrations of these parameters detected at TP(out) have been below the PWQO's. Except for one detection of bis(2-ethylhexyl)phthalate at a concentration of 2.9 µg/L in 2018 and a detection of Dimethyl Phthalate at a concentration of 2 µg/L in 2006, no other VOC's have been detected at TP(out) in the past. The low 2019 detections may have been related to the fire at the waste transfer station on April 13, 2019. Water from fire fighting efforts was directed to the SWM Pond where TP(out) is located. It is expected that these VOC concentrations have quickly dissipated such that they are below the laboratory detection limits. The 2020 VOC results will be examined for further VOC impacts at this location. There were no other organics detected at TP1 (out) in 2019.

Organics samples were also collected from TP1 (out) and EPTS-01 surface water locations in July 2019. There were no organics detected at either of these locations during the July monitoring event.

8.7.2 WRIC

Monitoring of surface water at the WRIC commenced in March 1996. As required in the former C of A/ECA, this monitoring was to be on a monthly basis for a short parameter list and on a quarterly basis for the full leachate parameter list (updated in 1999). Amended ECA No. 9496-9NFKJ9 required semi-annual (spring and fall) sampling of leachate indicator and general parameters, as well as annual inorganics sampling. There were two surface water sampling stations at the site, designated as SW 1 located at the off-site discharge point in Stormwater Detention Area 2 and SW 2 located in the Stormwater Detention Area 1 (**Figure 1**). Surface water runoff from the site is directed to a series of on-site stormwater catch basins. Excess water from Stormwater Detention Area 1 flows to Stormwater Detention Area 2 where it would ultimately discharge via a pond outlet structure in the northwest portion of the pond to the York-Watson Stormwater Detention Area.

On March 6, 2014, the City met with the MECP to discuss the Public Drop Off facility (PDO) application and observed the stormwater ponds on WRIC. It was agreed that sampling at the WRIC Detention Pond (SW 2 and SW 3) would be discontinued. Detention Pond 2 (SW 1) would only be sampled once the levels in the pond reached 0.46 m above the pond invert and that the SWM pond (TP1 (out)) would continue to be sampled monthly though TP1 could be discontinued. These changes to the surface water monitoring were confirmed by the MECP though e-mail on March 17, 2014. As a result, sampling was discontinued at SW 2 and SW 3 in March 2014.

Surface water monitoring of the staff gauge in Detention Pond 2 is still undertaken on a monthly basis at SW 1 only, and if water levels exceed the target of 0.46 m sampling is completed to assess the water quality in the pond should discharge be required. As due diligence, SW 1 was sampled on May 10 and June 6, 2019 following a rain event of 15 mm even though the water level in the detention pond was recorded below the target and was dry or frozen (December) during the remainder of the year. Detailed recordings on discharge and overall conditions (such as dry or stagnant water) are undertaken.

As discussed in Section 8.7.1, in accordance with Condition 5(3) of amended ECA No. 9496-9NFKJ9, grab samples at the TP1(out) discharge location for the site were collected three times in 2019 (May, June and July) following a 15 mm rain event and analyzed for TSS. TSS concentrations during the three rain events ranged from 3 mg/L to 8 mg/L. Discharge only occurred during the June rain event when the TSS concentration was 8 mg/L.

The results of the surface water (and groundwater) sampling is reviewed annually and reported in the annual monitoring report with recommendations provided to the City, as per Condition 5(4) of the amended ECA.

Below is a discussion of the surface water monitoring at station SW 1 during 2019. The table below briefly outlines the surface water monitoring events for the past year at SW1.

Month	Discharge Events	Conditions	Sampling Date
January	-	Below target (no water) – Not sampled	
February	-	Below target (no water) – Not sampled	
March	-	Below target (no water) – Not sampled	
April	-	Below target (no water) – Not sampled	
May	No Discharge	15 mm rain event below target at 0.35 m - sampled	10-May-19
June	No Discharge	15 mm rain event below target at 0.28 m - sampled	6-Jun-19
July	-	Below target (no water) – Not sampled	
August	-	Below target (no water) – Not sampled	
September	-	Below target (no water) – Not sampled	
October	-	Below target (no water) – Not sampled	
November	-	Below target (no water) – Not sampled	
December	-	Frozen - Not sampled	

East Pond water quality will serve as background surface water for comparison purposes. There is no baseline surface water analysis (prior to site operations), so any impacts due to runoff from the WRIC would be difficult to determine at the discharge point SW 1, due to the potential for other sources of non-facility impacts. These sources include runoff from the surrounding lands and road systems. The May and June results for the indicator parameters are presented below.

Location	Date	Critical Leachate Indicators			Other Leachate Indicators				
		Boron (ppm)	Phenols (ppm)	Chloride (ppm)	Alkalinity (ppm)	Sodium (ppm)	Calcium (ppm)	Magnesium (ppm)	Potassium (ppm)
EPTS-01	10-May-19	0.012	0.001	42	220	28	72	20	1.2
	6-Jun-19	0.014	0.001	33	230	21	67	18	1.6
SW1	10-May-19	0.011	0.001	39	130	42	29	3.8	2.9
	6-Jun-19	0.013	0.001	10	55	14	15	2.1	1.1

A comparison of the May and June 2019 samples collected at SW 1 (Stormwater Detention Area 2), to the site indicator parameters for the same date, showed slightly elevated sodium and potassium at SW1 for the May sampling event. Otherwise, indicator parameter concentrations are generally lower at SW1 compared to EPTS-01. The Provincial Water Quality Objectives (PWQO) was exceeded for total phosphorus, iron and June zinc at SW1. All three of these parameters have occasionally exceeded PWQO in the past at this location. The zinc PWQO is consistently exceeded and the total phosphorus and iron PWQO have occasionally been exceeded at the background surface water station. Occasionally elevated parameter concentrations at SW1 are a result of road salt effected runoff from the adjacent internal roadways and/or occasional stagnant water conditions in the pond. 2019 SW 1 parameter concentrations are within the range of historic concentrations at this location.

The MECP surface water specialist provided comments on the 2013 and 2014 annual reports¹⁶. One of the comments was with respect to recent exceedances of the phenol PWQO at the detention pond locations. The MECP surface water reviewer commented that since AECOM notes that any water collected in the detention ponds quickly infiltrates into the groundwater, the MECP Geoscientist should assess phenol concentrations in the subsurface. Since the number of exceedances is increasing, the source of the phenols should be evaluated, and if

16. Memorandum from Krista Chomicki (MOECC) to Kevin Noll (MOECC), Re: 2013 Guelph Waste Resource Centre – City of Guelph, dated April 8, 2014. Memorandum from Craig Fowler (MOE) to Keven Noll (MOE); Re: Guelph Waste Resource Innovation Centre – 2014 AMR, dated August 13, 2015.

there is a source, monitoring and treatment are recommended. AECOM responded¹⁷ that we would respond to comments that may be provided by the MECP Geoscientist with regard to this item though no comments were forthcoming from the MECP hydrogeologist with respect to this item¹⁸. Related to this item, in the body of the memorandum, the surface water reviewer notes that she disagrees with AECOM's interpretation that aside from some irregular occurrences of parameters above PWQOs, there does not appear to be a problem with surface water quality results resulting from the facility and uses phenols as an example where the majority of the samples in the detention ponds were above the PWQO and the number of exceedances was greater than other years. While it is true that the number of exceedances of phenols in the detention ponds was more than in previous years, at that time, they are still low. Regarding the review of the 2014 annual report, the MECP surface water reviewer concedes that there is a low probability in terms of an off-site impact given the low phenol concentrations and frequency of discharge events. In 2019, phenols were detected at EPTS-01 (once out of eight events) and TP1 (out) (four times out of eight events with two of these detections at the laboratory detection limit). It should be noted that the operational practices of the site (indoor composting and waste handling, no on-site waste processing, etc.) deter surface water influences from site operation as acknowledged by the surface water reviewer within the body of the memorandum.

8.8 Adequacy of Program and Proposed Changes

In conclusion, there were no observable effects attributed to the WRIC on the groundwater quality beneath the site. Monitors 5 96, 6b-96, 7-96 and 14b-01 exceeded ODWS for sodium and/or chloride in 2019 as a result of road salt effects. 15b-08 exceeded the sodium and chloride ODWS in June 2019 and 15a-08 exceeded the chloride ODWS in June 2019, which may be related to PDO area water line installation and subsequent regrading activities, including the completion of a drainage ditch.

There were detections of naphthalene, bis(2-ethylhexyl) Phthalate (DEHP), m p-cresol, bromodichloromethane, chloroform, dibromochloromethane and phenols at monitors 6a-96, 6b-96, 11b-00, 13a-01, 14a-01, 14b-01, 15b-01, 16b-08, 17a-08, 22b-11 and 23a-12 during 2019. However, based on the historic detections of occasional low levels of VOC throughout the site in both upgradient and downgradient monitors, the 2019 VOC detections are not considered to be a result site operations.

The MECP recommended installation of a well nest along the downgradient property boundary to be utilized for impact assessment with respect to the requirements of Guideline B-7¹⁹. Monitoring nest 22-11 with a bedrock and overburden monitor was installed in November 2011 and the Guideline B-7 analysis was completed. The iron concentration at 22a-11 exceeded Guideline B-7 limits during both sampling events. As previously discussed, iron concentrations at some of the monitor locations have been unusually high since the December 2011 monitoring event. The elevated iron concentrations occurred in both upgradient and downgradient monitors and therefore, do not appear to be related to site operations. The December 2019 chloride concentration at 22b-11 exceeded B-7 limits. The elevated chloride at 22b-11 may be a result of road salt impacts. Only 17 samples have been collected from 22-11 since it was drilled in 2011 therefore, continued sampling of this location will build a larger dataset for comparison purposes.

In previous monitoring reports, we had recommended discontinuation of the organic sampling from the groundwater monitoring program for all historical locations. In the MECP review of the 2009 Annual Monitoring report

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17. AECOM Letter to Bill Shields (City of Guelph); Re: Response to MOE Surface Water Review Comments. 2013 Annual Report – Solid Waste Transfer Station & Wet-Dry Recycling Centre, C of A/ECA (Waste Disposal Site) No. A170128, dated May 30, 2014.
 18. Memorandum from Abdul Quyum (MOECC) to Kevin Noll (MOECC), Re: Annual Monitoring Report – 2013, Guelph Wet-Dry Recycling Centre and Waste Transfer Station, Guelph Ontario, dated April 23, 2014. Memorandum from Abdul Quyum (MOECC) to Kevin Noll (MOECC), Re: 2014 Annual Monitoring Report Guelph Wet-Dry Recycling Centre and Waste Transfer Station, Guelph, Ontario, dated April 15, 2015.
 19. Memorandum from Lynnette Latulippe (MOECC) to Bill Shields (City of Guelph), Re: Annual Monitoring Report – 2009 Guelph Wet-Dry Recycling Centre and Waste Transfer Station Groundwater Review, dated February 7, 2011.

(Groundwater Review), the reviewer did not support the discontinuation of the organic groundwater sampling program since an impact assessment with respect to the requirements of Guideline B-7 had not yet been completed. This Guideline B-7 assessment was completed (discussed above) and found that there were no impacts at the western downgradient site boundary as a result of site operations therefore, we request removal of the organic sampling from the groundwater monitoring program. Further, increased sampling for organics (twice per year) in 2012, 2013 and 2014, as a result of the dirt stock pile and addition of location 23-12, was completed by the City to better assess any potential contributions from the stock pile. These data indicated that sporadic hits of organics occur across the site (upgradient and downgradient), which are not related to any on-site activity and were most likely related to surrounding land use. At the end of 2013, all contaminated soils along with the majority of the stock pile have been removed from the site. Groundwater organic sampling was completed in May in 2014. The groundwater reviewer did not comment on removal of organics from the groundwater program in his review of the 2014 annual monitoring report. We continue to recommend the discontinuation of the organic groundwater sampling program as historical data has consistently shown that low concentrations of organics not related to the site. However, until organic sampling is discontinued, future organic sampling should include a trip and field blank for QA/QC purposes.

The East Pond setting is similar to the other on-site ponds (influenced by road salting and within similar overburden soils) though it is within a different catchment area. The East Pond will continue to be used as a background surface water station for water quality from the on-site surface water features. Monthly surface water samples were collected from the East Pond in 2019, when possible. As agreed by the MECP, the Detention Pond 2 (SW 1) would only be sampled once the levels in the pond reached 0.46 m above the pond invert and the SWM pond (TP1 (out)) continued to be sampled monthly. As due diligence, SW 1 was monitored in May and June after 15 mm rain events despite pond levels below the target for these events and dry or frozen conditions for the remainder of 2019. If no samples are collected from the SWM pond location (TP1 (out)), no sample from the East Pond for that month is required.

The 2019 surface water monitoring program shows that there have been no leachate effects to the SWM pond as a result of site operations. The 2019 SWM Pond results from TP1 (out) showed variable results with some indicator parameter concentrations exceeding background surface water concentrations at EPTS-01 and some TP1(out) concentrations lower than EPTS-01. Parameter concentrations at TP1 (out) were within historic concentrations for this location and within background overburden concentrations. Elevated concentrations are not attributed to the site as site handling and maintenance practices would deter potential surface water impacts. Occasional elevated sodium and chloride concentrations suggest road salt influences from the adjacent access road. Surface water organic sampling in April 2019 showed four low VOC concentrations at the background surface water station, EPTS-01 and low concentrations of eight VOC's at TP1 (out) in 2019. There were no exceedances of VOC PWQO's, where applicable. The VOC detections at TP(out) appear to be related to the fire at the transfer station that occurred three days prior to the April sampling event. It is expected that these VOC concentrations have quickly dissipated such that they are below the laboratory detection limits. No VOCs were detected at EPTS-01 or TP1(out) during the July 2019 monitoring event. The 2020 VOC results will be examined for further VOC impacts at this location. Historically, only low levels of a few organics have occasionally been detected in the surface water samples. As previously discussed, the site design and operations minimizes the potential for leachate generation from site activities.

SW 1 (detention pond 2) was sampled in May and June, even though pond levels were below the target. Only sodium and potassium were slightly elevated at SW1 during the May 2019 event compared to the East Pond (background). However, the majority of the leachate indicator parameter concentrations were lower at SW1 compared to EPTS-01. The Provincial Water Quality Objectives (PWQO) was exceeded for total phosphorus, iron and June zinc for one or both 2019 sampling events, which has also consistently to occasionally been observed in the East Pond and is considered natural to the area. No discharge was required from the Detention Pond 2 in 2019.

9. Public Liaison Committee (PLC) Activities

The following is a summary of the PLC activities in 2019, as provided by the City.

The Public Liaison Committee (PLC) continues to support the work of the WRIC site ensuring that the Site meets application standards and is actively engaging citizens from the local community. The City ensured that the meetings were held on a quarterly basis. The PLC meeting were held on 17 January, 11 April, 27 June and 26 September in 2019.

The PLC remains an excellent forum for discussion and dissemination of information related to the WRIC site. At the end of 2019 four (4) members of the committee stepped down. Three of these were due to reaching the eight (8) year term limit for sitting on a committee. The City would like to thank those members for their efforts and dedication over the last eight (8) years.

As standing items, the City reviews operations at the Organic waste processing facility, any spills or fires that have taken place on the site and any odour complaints that have occurred between the current and previous meetings. As well as standing items, various other items were also discussed at the meetings in 2019, a summary of which is provided below:

- Discussion and information sharing regarding the disposal of tyres within the province and particularly the City of Guelph.
- Review of Annual report for the site for 2018, questions received from the PLC and answered by the City.
- Changing the way in which odour complaints were being handled by the City of Guelph
- Sorting at the Public drop off bins on site.
- Discussion around City bagged yard waste program.

Copies of the Minutes and Agenda for the four quarterly PLC meetings are found in <https://guelph.ca/city-hall/council-and-committees/advisory-committees/organics-public-liaison-.committee/>.

10. Environmental Management System – ISO 14001 Certification Progress

The following is a summary of the Environmental Management System (ISO 14001 Certification Progress, as provided by the City.

Solid Waste Resources initiated the establishment of its environmental management system (EMS) in the spring of 2019; with a cross-functional team involving representatives from top management, supervisors and technical staff. The steering committee has been meeting on a quarterly basis to review and approve items established for the EMS.

The implementation process involved establishing an EMS Manual, which includes the Environmental Policy: committing to our protection of the environment and prevention of pollution, fulfillment of our compliance obligations and continual improvement.

In the summer of 2019, we held risk assessment workshops with staff representatives from all functional areas to identify the environmental aspects and impacts of our activities; and to assess which of these are significant environmental aspects, so that we can plan actions to address them.

Top management is committed to the effectiveness of the EMS – so that we can achieve the intended outcomes of our business processes, the commitments of our environmental policy and continual improvement.

Next steps in the implementation process involve:

- Completing the roles, responsibilities and authorities descriptions for the various roles within our division;*
- Confirming what SMART environmental objectives and targets should be established to address our significant environmental aspects;*
- Completing the documents and records listing;*
- Conducting our first annual internal audit and*
- Preparing for the third-party certification audit to take place.*

11. WRIC Contingency Plans

The City has detailed contingency plans in place for the site prepared by the Environmental Services Department, Solid Waste Resources. The 2008 Emergency and Contingency Plan and the 2006 Contingency Plan documents (WRIC Contingency Programs, WRIC Business Continuity Plan, WRIC Emergency Plan, WRIC Fire Safety Plan) were reviewed by AECOM.

The pertinent items identified by the ECA are summarized below.

11.1 Spills

The WRIC has a Spills Handling and Reporting procedure in place. This procedure applies to all areas, employees and contractors at the WRIC. The procedure defines spills: minor, major, moderate and hazardous materials. The Spills procedure then outlines how to clean up a minor spill and who must be notified in the case of moderate or major spills.

In the event of a minor spill, the plan indicates that appropriate personal protective equipment should be worn and absorbents used to soak up the spill. Absorbed material should be transported to the Transfer Station for disposal.

The plan also covers procedures to follow in the event of a moderate or major spill. The City of Guelph Operations Department, the Environmental Protection Officer at the Wastewater Treatment Plant and the MOECC Spills Action Centre must be notified, also in the event of a major spill, the Fire Department, Police, Operations Department, or City of Guelph Emergency Operations Control Group may need to be notified. The plan indicates that all necessary steps should be taken to eliminate possible ignition sources and prevent the spill from leaving the area or entering a watercourse. The plan notes that an Employee Incident Report must be completed once the cleanup is underway. Finally, the plan provides sources of additional information and applicable legislation and references.

A Spill Contingency and Pollution Prevention Plan has also been developed for the site.

11.2 Fire or Similar Emergency

The WRIC has comprehensive plans in place in case of fire or similar emergency documented in the WRIC Fire Safety Plan and the WRIC Emergency Plan. The Fire Safety Plan includes site mapping, floor plans for each of the on-site buildings (including locations of fire alarms and extinguishers), procedures to be followed in the event of a fire/emergency, staff responsibilities and contacts in the event of a fire/emergency, procedures for fire drills, prevention and monitoring equipment maintenance.

The Emergency Plan includes many of the elements incorporated into the Fire Safety Plan plus emergency communications procedures, locations of emergency supplies, emergency equipment information and procedures related to specific emergency situations. The original Fire Safety Plan was reviewed and approved by the City Fire Department.

11.3 Composting Facilities

The Organic Waste Processing Facility has been operating since September 2011. There is a 2012 contingency plan that now includes the organic waste processing facility, approved in late 2011.

11.4 Power or Equipment Failure

Procedures related to power failure are discussed in the Emergency and Contingency Plan and the WRIC Emergency Plan. In the event of a minor power outage, a portable generator is available at the closed Eastview Road Landfill site. There is currently no contract for a company to supply the WRIC with a generator in the event of a major power outage. However, arrangements are in place for an outside power generation unit for the WRIC Administration Building if it is being used as an Operations Control Centre. If electricity is unavailable for more than a 24-hour period, the WRIC would be required to re-direct waste materials. Emergency procedures have also been assessed for on-site facilities should the power failure be accompanied by flood or freezing conditions.

Procedures as a result of loss of on-site facilities are addressed in the Emergency and Contingency Plan as well as the WRIC Business Continuity Plan. Recommended procedures associated with the loss of each of the facilities are documented. Ultimately, management will assess the course of action to restore the facilities and re-gain normal operations. A new generator has been installed at the Organic Waste Processing Facility.

11.5 Odour

Twice daily odour monitoring is conducted by qualified Solid Waste Resources (SWR) staff. Odour complaints from the public are investigated through the SWR Environmental Complaint Investigation Procedure in compliance with Condition 46 of the ECA. Control measures may include closing doors, cleaning up standing water and/or spills, other housekeeping measures, making changes to the processes or removal of the odour source to the landfill. If the odour persists, a portion of the operation or the entire site may be closed until the issue is resolved.

11.6 Aircraft Hazards/Bird Control

The Guelph Air Park is located within three km of the site. The most obvious aircraft hazard, as it relates to the operation of the WRIC, is the nuisance bird population. Daily monitoring of the number of birds occurs as part of the site inspections. A maximum number of birds on-site was determined in the bird hazard evaluation referred to in the ECA. Continual housekeeping measures, such as litter pick up around the site, at the yard waste pile and compost area, occur at the site to deter the attraction of birds and vermin. Should nuisance birds become an issue at the site, trained birds-of-prey or other mitigative measures will be considered. If necessary, the site operations may cease until the issue is resolved.

Dust, steam, smoke or any airborne vapour may pose an aircraft hazard due to decreased visibility. Operations are conducted in a manner to minimize emissions.

11.7 Un-Authorized Waste

Non-compliant materials are rejected at the scale house prior to entering the site. If un-authorized, hazardous or inappropriate waste is inadvertently accepted, the material will be loaded back on the vehicle (if it has not left the site) or the material will be placed in the appropriate bin for removal by MHW staff where the material is then shipped off-site by a licensed hauler to an appropriate disposal site. The waste will be transported off-site as soon as arrangements can be made with a certified disposal company. If possible, the vehicle that brought the non-compliant materials will be charged for the disposal fee.

11.8 Groundwater/Surface Water Contamination

The site and operational procedures are designed such that there will be minimal impacts on the environment. In the event of a surface water impact, the on-site SWM detention ponds have valves that can stop off-site flow. A Spills Contingency Plan (discussed in Section 10.1) is in place to handle spills. Dry and wet waste received and handled at the site is conducted in indoor covered areas with impermeable floor surfaces and materials stored outside are covered such that impacted runoff is not generated.

Nevertheless, should water quality results suggest that there are impacts to the ground or surface water, the monitor locations/surface water stations will be re-sampled within a reasonable period of time to confirm results. As well, the area immediately adjacent and upgradient of the impacted location will be inspected for possible contaminant sources. Equipment and floor drains may also be inspected to determine if repairs are required. These repairs will be completed immediately. Should the repairs be such that normal operation is not possible, this portion of the operation will be shut down until maintenance is complete. If the contamination is a result of failure in the infrastructure that cannot be repaired under normal maintenance procedures, a remedial plan will be developed to prevent further impacts.

11.9 Quality/Fungal Contamination

If issues arise regarding air quality or fungal contamination, the appropriate qualified professional will be contracted to investigate the cause and recommend remedial measures. Remedial measures may include a change/alteration of operations or suspension of operations in the affected area(s).

All staff receive and are trained on the procedures contained within the WRIC Emergency Plan and WRIC Fire Safety Plan. The WRIC Business Continuity Plan is for use only by City Management staff due to personal information within the document. Contingency Plans are available at the WRIC for review by the Ministry.

12. Current Health & Safety Program & Staff Training Program

The Corporation of the City of Guelph and the department of Solid Waste Resources are guided by their Corporate Values and are committed to maintaining the Health and Safety of every individual: employees, contactors, volunteers and visitors.

Health, safety and environmental legislative requirements for compliance, is maintained with corporate and departmental resources. The City of Guelph has set compliant standards focusing on systematic continuous improvement in their safety management system.

At Solid Waste Resources there are *two* dedicated expert positions supporting health and safety and environmental compliance: *Environmental Compliance Specialist* and *Health & Safety Specialist*

The functions of these positions include, but are not limited to, the following:

12.1 Safety Management System

Implementation of the City of Guelph's Health and Safety Policy Statement and Policies.

Analyze, design and implement Departmental Health & Safety Compliance program components with the necessary frame work to help all responsible parties attain accountability for their employees and their own responsibilities defined under the Occupational Health and Safety Act. Reduce health and safety risks to the lowest possible level through a comprehensive and continuous improvement safety management system that systematically identifies hazards and prescribes controls through risk assessment and risk mitigation.

Schedule internal/external audits.

Update divisional policies, procedures and Standard Operating Procedures.

12.2 Health, Safety & Environmental Compliance

Ensure compliance with applicable laws and legislation.

Liaise with regulatory or government officials to ensure that all related supporting documentation is accurate and regulatory response deadlines are met.

Solicit, co-ordinate, and consolidate staff, and peer input on legislative and regulation changes, and changes to certificates, permits and licenses.

Transfer applicable information and knowledge by; communicating and supporting employees, supervisors and managers to manage work; while ensuring due diligence in every aspect of their job relating to the operation.

12.3 Loss Control Activities

Continuously update Job Hazard Analysis, risk assessments work with the Divisional Manager, Departmental Managers, Supervisors and Lead hands to identify job hazards and eliminate, reduce and/or control risks on site and in the performance of the work.

Investigate and determine contributing factors for all accidents and/or incidents through root cause analysis techniques and recommend prevention or corrective strategies to eliminate their re-occurrence.

12.4 Training Activities

Research, review, develop, prepare and deliver or procure safety training (that meets the legislated safety program standards) identified through the safety training needs analysis completed for each job title and each area of Solid Waste Resources.

Ensure the site personnel and all of their employees are competent by legal definition under the Occupational Health and Safety Act and are able to comply with their individual responsibilities to ensure the safety of every individual in or about this site.

Are knowledgeable of all identified site and process hazards and the prescribed controls used to mitigate the risks and have the training, knowledge, skill and ability to work in a safe and compliant manner.

Are able to identify health and safety hazards and understand their responsibilities under the Occupational Health and safety Act for reporting hazards and prescribing and/or using controls to mitigate the hazard and protect the health and safety of everyone in or about the worksite.

12.5 Records Management

Maintain accurate up to date records to clearly demonstrate due diligence and compliance in the event that complaints, inspections or accidents are investigated by the Ministry of Labour.

12.6 Policies/ Procedures/Plans /Programs

Develop, administer, maintain and update all departmental Health & Safety, safety related documentation with regard to policies, procedures, plans, and programs.

Monitor Health & Safety policy and procedures to assist the Solid Waste Resource Management Team in ensuring staff compliance.

12.7 Auditing

Monitors compliance and verify effectiveness of Develop, administer and report on safety audits to promote legislative compliance and due diligence.

Identify the opportunities for continuous safety improvements through gap audits.

13. Summary of Site Operational Changes and Compliance

Based on review of available records by the City and by an annual inspection by AECOM, the City is in compliance to amended provisional C of A No. A170128 and amended ECA No. 9496-9NFKJ9. As reported by the City, there were no deficiencies or items of non-compliance in 2019. There were no environmental or operational problems that could negatively impact the environment, encountered during the operation of the composting site or identified during the facility inspections in 2019. The facility is operating as designed. The Water Supervisor is provided a copy of the annual report each year (ECA No. 9496-9NFKJ9, Condition 5(8) and 5(9)).

There have been no changes to the Engineer's Report²⁰ since the last annual report. The Design and Operations Report²¹ was updated in 2010 to include the Public Drop Off. The WRIC Environmental Emergency Contingency Plan was updated in 2019 with new contact information.

20. *Engineer's Report for the City of Guelph Waste Recycling Innovation Centre prepared by Golder Associates dated July 20, 2010.*

21. *The Design and Operations Report for the City of Guelph Material Recovery Facility prepared by Golder Associates, dated January 12, 2010. The Design and Operations Report for the City of Guelph Waste Transfer Station prepared by Golder Associates, dated January 12, 2010. The Design and Operations Report for the City of Guelph WRIC Public Drop Off and Municipal Hazardous and Special Waste Facilities prepared by Golder Associates, dated January 12, 2010.*

14. Conclusions

The site operations at the WRIC do not appear to have any negative impacts on the ground and surface water quality in the vicinity of the site.

The following conclusions are provided based on the findings of the 2019 program:

Composting Site

- a) The total tonnage of source separated organic waste received at the composting site in 2019 was 30,460 tonnes.
- b) A total tonnage of 6,859.5 tonnes of finished compost was produced and shipped to locations in Guelph, Huron County, Simcoe, Eramosa, Clinton and Blyth in 2019. A total of 991 tonnes of screening, residual compost waste and organic rejected material were shipped to the Transfer Station and then Waste Management Twin Creeks Landfill in Sarnia, Ontario
- c) The total tonnage of wood waste (“clean wood”) and amendment/mulch material received at the site in 2019 was about 203 tonnes and 158 tonnes, respectively. Wood waste was received mostly from the City of Guelph. Amendment material was received from the City of Guelph or in the form of wood chips from the City of Guelph Parks and Recreation Department and the Region of Waterloo.
- d) City staff received two (2) complaints in 2019 at the Waste Resources Innovation Centre. The complaints and remedial actions were reported to the Ministry, and a response letter was provided to each complainant. None of these two complaints was confirmed to have originated from the WRIC site.
- e) Compost samples indicate that all compost that has been shipped off the site has passed the conditions for a Class A compost under the CCME Guidelines and the conditions within the ECA. Temperature monitoring logs of the tunnels at the composting facility show that pasteurisation at 55 degrees C was maintained for 72 hours, as required.
- f) The compost facility operated in 2019 without any major incidents. There were no environmental or operational problems that could negatively impact the environment, encountered during the operation of the composting site or identified during the facility inspections in 2019. The facility is operating as designed.

Operations

- a) The total tonnage of waste accepted by the site in 2019 was 101,581 tonnes. By the end of 2019, 79,451 tonnes were shipped off-site with 15,501 tonnes of marketable processed material from the Material Recovery facility (MRF).
- b) Of the 53,654 tonnes of non-processed outgoing materials from the Transfer Station, 51,242 tonnes (95.5% of the outgoing materials) was sent to the Waste Management Twin Creeks Landfill in Lambton County, 1,220 tonnes (2.3%) was sent to Waste Management Inc. and 1,193 tonnes (2.2%) was sent to Try Recycling in London. About 2,412 tonnes (4%) of non-processed materials is marketable consisting of other recyclable materials such as shingles, clean wood, drywall, concrete and rubble.
- c) In 2019, 15,501 tonnes of marketable processed material was transferred off the site from the WRIC (MRF/PDO) facility. 5,319 tonnes (34%) was paper-based goods such as cardboard and newsprint, 7,624 tonnes (49%) was organics, 556 tonnes (4%) was plastics and the remaining 2,002 tonnes (13%) was other

recyclable materials such as aluminum, steel cans, glass, tires and metal. As reflected in the volumes above, the majority of the marketable materials sold were paper products.

- d) The Emergency and Contingency Plan for the site were reviewed and the items pertinent to the ECA are summarized in this document.
- e) No remedial or mitigative actions were required at the site in 2019 based on findings from the monitoring program.

Groundwater Elevations and Flows

- a) Shallow groundwater flow beneath the majority of the site is in a northeasterly direction. To the west of the site, groundwater flows out of a bedrock high into the outwash beneath the site before being directed to the northeast.
- b) The bedrock groundwater flow pattern is similar to the overlying shallow groundwater system. Groundwater flow is from west to east and east to west coming into the site area from both directions and ultimately to the north following the former paleo river valley (incised bedrock low) that trends to the north.

Groundwater

- a) Groundwater monitoring results indicate road salt effects at some up-gradient groundwater monitoring locations (5-96, 14b-01, 19b-08, 20b-08, 23b-12). These are related to off-site winter road salting of the adjacent major roadways. Road salt effects are detected in some on-site downgradient groundwater monitors (6b-96, 7-96, 11b-00, 13b-01, 15b-01, 17b-08, 19b-08). Monitors 5 96, 6b-96, 7-96 and 14b-01 exceeded ODWS for sodium and/or chloride in 2018 as a result of road salt effects. There were no apparent leachate impacts observed in the groundwater at the site boundary.
- b) Monitor 15b-08 exceeded the sodium and chloride ODWS in June 2019 and 15a-08 exceeded the chloride ODWS in June 2019, which may be related to PDO area water line installation and subsequent regrading activities, including the completion of a drainage ditch.
- c) There were no exceedances of the nitrate ODWS in 2019. Historically, elevated nitrate concentrations were prevalent across the site at all locations prior to development of the site. Nitrate concentrations have decreased, in some case significantly, over the years from the historical highs observed prior to the commencements the WRIC but are still found to be elevated.
- d) Exceedances of the iron ODWS occurred at many of the monitoring locations during the December 2011 and also continue to be noted in 2019. The highly elevated iron concentrations at 18b-14, which declined considerably in 2019 but still remain elevated, are considered to be due to the residual effects of drilling mud used during installation of these monitors. The cause of the overall increase in iron concentrations is unknown. These elevated iron concentrations will continue to be investigated further in future monitoring events. Aside from the sodium, chloride and iron exceedances discussed above, there were no other exceedances of the Ontario Drinking Water Standards in 2019 for the groundwater monitors sampled for the site monitoring programs.
- e) The 2019 organic sampling showed that there were detections of naphthalene, bis(2-ethylhexyl) Phthalate (DEHP), m p-cresol, bromodichloromethane, chloroform, dibromochloromethane and phenols at some of the on-site monitors. However, based on the historic detections of occasional low levels of VOC throughout the site in both upgradient and downgradient monitors, the 2019 VOC detections are not considered to be related to site operations. There are no sources of VOCs on the WRIC or Transfer station property as waste is handled within the covered buildings, truck boxes are covered when outside (preventing contact between the waste and precipitation) and no waste processing occurs on-site.

- f) Guideline B-7 assessment for the overburden and the bedrock was completed for monitoring nest 22-11, located along the western property boundary. The iron concentration at monitor 22a-11 exceeded Guideline B-7 limits during both 2019 monitoring event. As previously discussed, iron concentrations at some of the monitor locations have been unusually high since the December 2011 monitoring event. The elevated iron concentrations occurred in both upgradient and downgradient monitors and therefore, do not appear to be related to site operations. The December 2019 chloride concentration at 22b-11 (in the outwash) exceeded B-7 limits. The elevated chloride at 22b-11 may be a result of road salt impacts.
- g) No observable effects were detected in the shallow outwash water quality related to site operations. Similarly, no effects related to site operation were observed in the bedrock. Further, no effects related to site operations was observed at the downgradient site boundary.

Surface Water Monitoring

- a) Of the eight sets of samples collected in 2019 at EPTS-01 (the existing background on-site surface water pond, East Pond), the PWQO for zinc was exceeded during all of the 2019 monitoring events. Zinc has consistently exceeded PWQO in the past at this location. PWQO was also exceeded for phenols during one 2019 event. The phenol PWQO has only been exceeded on four past occasions. All the leachate indicator parameters concentrations were within background overburden ranges. Surface water organic sampling in April 2019 showed low concentrations of acenaphthene, naphthalene, bis(2-ethylhexyl)Phthalate and chloroform at the background surface water station, EPTS-01. Low chloroform levels have historically occasionally been detected at this location though the other three VOCs have not historically been detected at this location.
- b) Monthly monitoring of the stormwater management pond in the northwest corner of the site was conducted, with samples collected at the discharge at the north end of the pond (TP1 (out)) on eight occasions in 2019. SWM pond samples exceeded the PWQO for zinc, iron, total phosphorus and phenols during two or more 2019 sampling events. The elevated total phosphorus is a result of surrounding land use and not a result of operations at the site. Elevated zinc, total phosphorus and iron concentrations appear to be related to external factors since background surface water have also exceeded PWQO for these parameters. Metals are a common contaminant from roadway runoff. Elevated phosphorus is typical in rural and urbanized areas. Low concentrations of acetone, benzene, bis(2-ethylhexyl)Phthalate, m-Xylene and p-Xylene, naphthalene, styrene and toluene were detected at TP1 (out) in April 2019. The low 2019 detections may have been related to the fire at the waste transfer station three days prior to this monitoring event. Water from fire fighting efforts was directed to the SWM Pond where TP(out) is located. It is expected that these VOC concentrations have quickly dissipated such that they are below the laboratory detection limits. No VOCs were detected at EPTS-01 or TP1(out) during the July 2019 monitoring event.
- c) As due diligence, the SW 1 (Stormwater Detention Area 2) was only sampled in May and June 2019 though the water levels in the detention pond were below the trigger level of 0.46 m. Only sodium and potassium were slightly elevated at SW1 during the May 2019 event compared to the East Pond (background). However, the majority of the leachate indicator parameter concentrations were lower at SW1 compared to EPTS-01. The Provincial Water Quality Objectives (PWQO) was exceeded for total phosphorus, iron and June zinc for one or both 2019 sampling events, which has also consistently to occasionally been observed in the East Pond and is considered natural to the area. No discharge was required from the Detention Pond 2 in 2019.

15. Recommendations

The following recommendations are provided for consideration:

- a) The approved ground and surface water monitoring program should be continued for the site during 2020. The monitoring program for both the sites is outlined in Sections 6.1 and 6.2 of this report and summarized on Table 11.
- b) All samples should be analyzed for the parameters listed in the table below.

Monitoring Parameter List

Leachate Indicator		
Parameters	<ul style="list-style-type: none"> • Biological Oxygen Demand (BOD) • Chemical Oxygen Demand (COD) • Total Kjeldahl Nitrogen (TKN) • Ammonia as Nitrogen (NH₃-N) • Total Phosphorus (Total P) • Total Suspended Solids (TSS) for surface water and leachate. • Total Sulphate (SO₄) • Phenols 	<ul style="list-style-type: none"> • Nitrate (NO₃) and Nitrite (NO₂) • Chloride (Cl) • Sodium (Na) • Calcium (Ca) • Boron (B) • Total Iron (Fe) • Phosphorus (P) • Zinc (Zn)
General Parameters	<ul style="list-style-type: none"> • pH • Conductivity • Alkalinity 	<ul style="list-style-type: none"> • Magnesium (Mg) • Potassium (K)
Organics	<ul style="list-style-type: none"> • EPA 624,625 (ATG 16+17+18 & ATG 19+20) 	

Discontinuation of the organic groundwater sampling program is recommended as historical data, and increased data collected for the soil stock piling at the site, has consistently shown that low concentrations of organics are not related to the site. However, until the discontinuation of the organic sampling program is formalized by the MECP, QA/QC samples should be collected.

- a) Water quality changes at monitoring nest 15-01 indicate that this location has been affected by the drainage ditch and construction activities in the immediate vicinity. Measures should be implemented in 2020 to address this issue such as re-direction of the ditch in this area and augmentation of the surface seal at both monitors at this location. AECOM will discuss options with the City.
- b) The East Pond will continue to be used as a background surface water station for water quality from the on-site surface water features. To effectively compare surface water samples, monthly samples should continue to be collected on the same day. If no samples are collected from the any of the SWM pond locations, no sample from the East Pond for that month is required.

Table 11: Monitoring Program Summary

**City of Guelph WRIC
 Groundwater Monitoring Locations and Sampling Frequency**

Formation	Monitor Locations		Sampling Frequency	Water Levels *
Sandy Silt Till	7-96		Semi Annually - Inorganics (June, December) Annually - Organics (June)	Semi Annually (June, December)
Sandy Outwash	6b-96	9-96	Semi Annually - Inorganics (June, December) Annually - Organics (June)	Semi Annually (June, December)
Gravelly Outwash	11b-00	12b-00	Semi Annually - Inorganics (June, December) Annually - Organics (June)	Semi Annually (June, December)
Dolostone Bedrock	5-96	10-00	Semi Annually - Inorganics (June, December) Annually - Organics (June)	Semi Annually (June, December)
	6a-96	11a-00		
	8-96	12a-00		

Surface Water Monitoring Stations and Sampling Frequency

Monitor Locations	Sampling Frequency	SW Level Sampling
SW1 - Downstream outflow of Detention Pond 2 (East of Admin)	Monthly - Inorganics, if pond levels exceed the target level of 0.46 m.	Monthly - Discharge

* C of A requirements for Wet-Dry is semi-annual. Recommend quarterly water levels collected to compare to Waste Transfer Station locations, which have quarterly requirements.

**City of Guelph Transfer Station
 Groundwater Monitoring Locations and Sampling Frequency**

Formation	Monitor Locations		Sampling Program
Gravelly Outwash	13b-01	18b-14	Semi Annually - Inorganics (June, December) Annually - Organics (June)
	14b-01	19b-08	
	15b-01	20b-08	
	16b-08	22b-11	
	17b-08	23b-12	
Dolostone Bedrock	13a-01	19a-08	Semi Annually - Inorganics (June, December) Annually - Organics (June)
	14a-01	20a-08	
	15a-01	21a-08	
	16a-08	22a-11	
	17a-08	23a-12	
	18a-14	EPTS-01	

Groundwater Levels

Formation	Monitor Locations		Sampling Program
Gravelly	13b-01	18b-14	Quarterly (June, December)
	14b-01	19b-08	
	15b-01	20b-08	
	16b-08	22b-11	
	17b-08	23b-12	
Dolostone	13a-01	18a-14	Quarterly (June, December)
	14a-01	19a-08	
	15a-01	20a-08	
	16a-08	21a-08	
	17a-08	22a-11	
	23a-12		

Surface Water Monitoring Stations and Sampling Frequency

Monitor Locations	Sampling Program
TP1 (out)	Monthly*** - Inorganics Annually*** - Organics
East Pond (EPTS-01)	Monthly*** - Inorganics Annually*** - Organics

*** After a rain event, if no rain or stagnant conditions persist. No sampling required monitoring period

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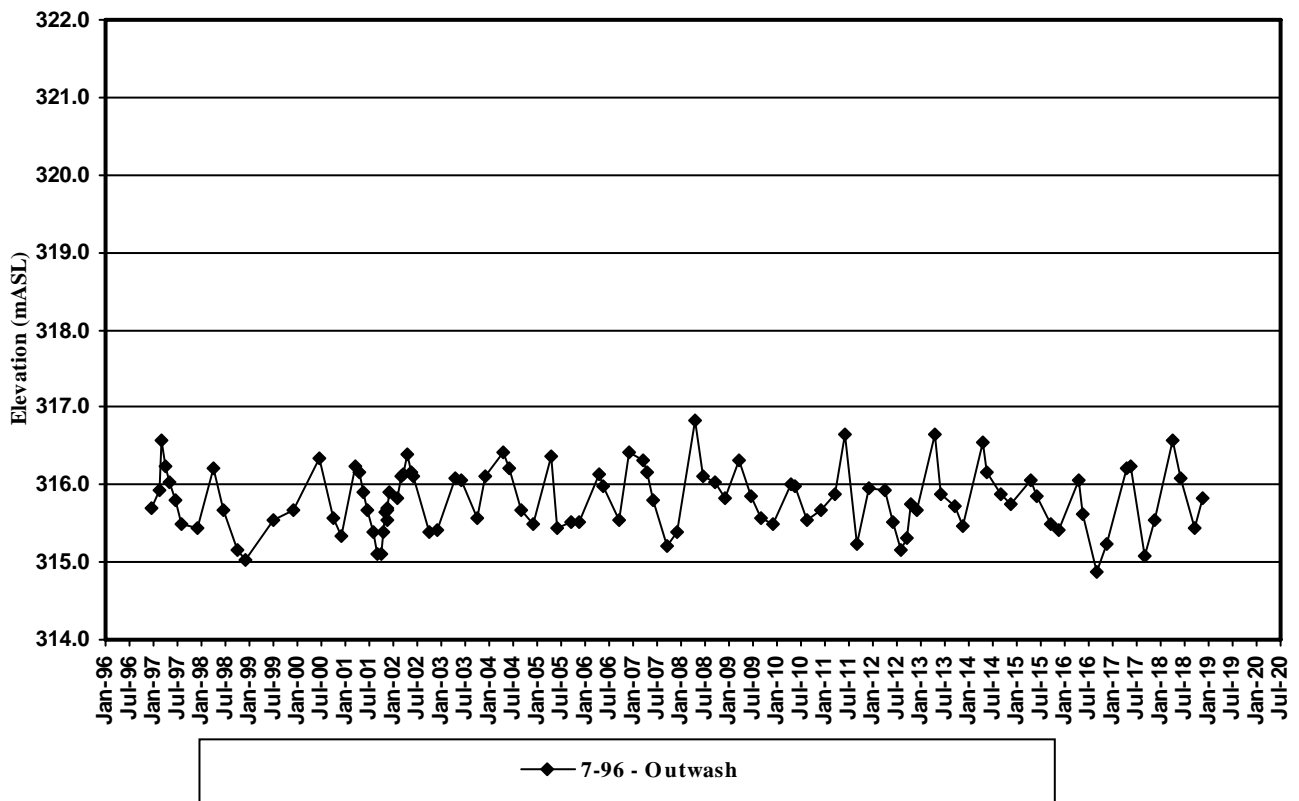
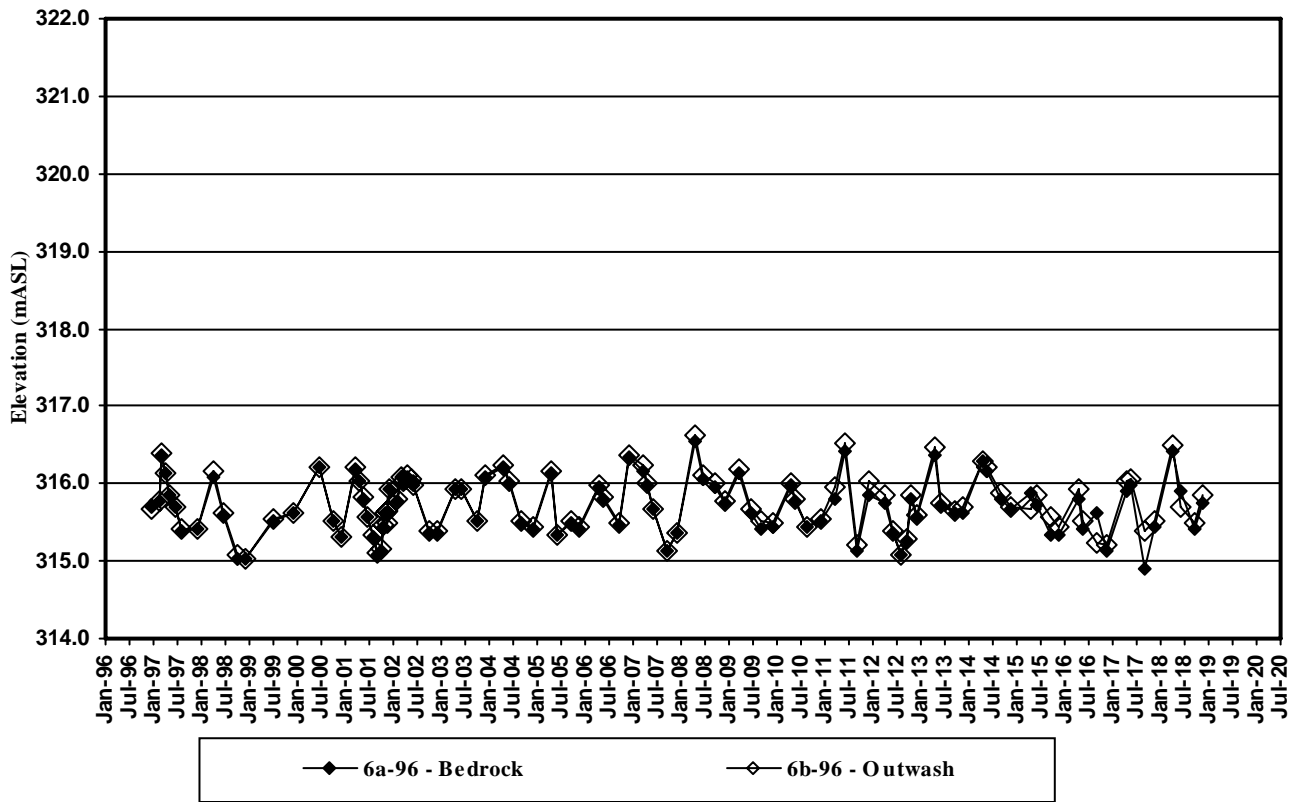
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Appendix **A**

Groundwater Elevations and Hydrographs



AECOM

Guelph WRIC & Waste Transfer Station

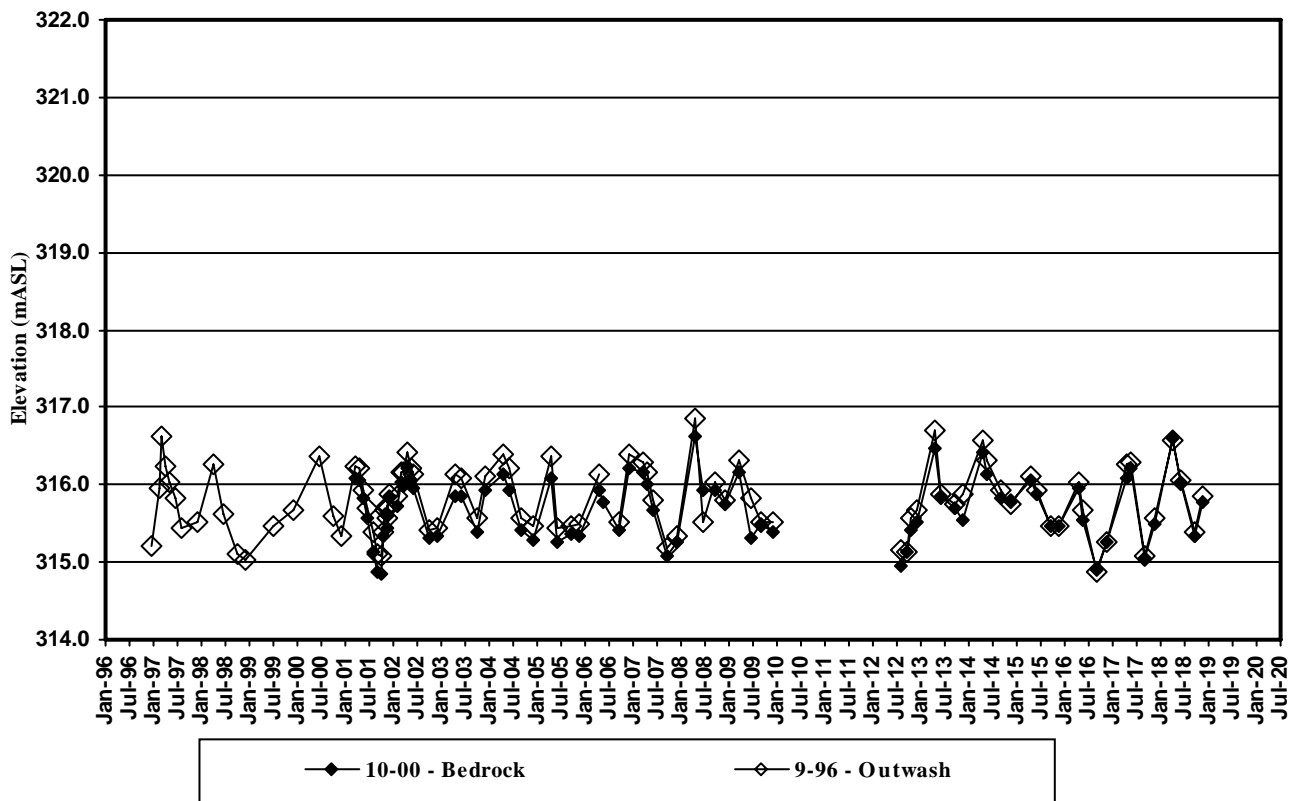
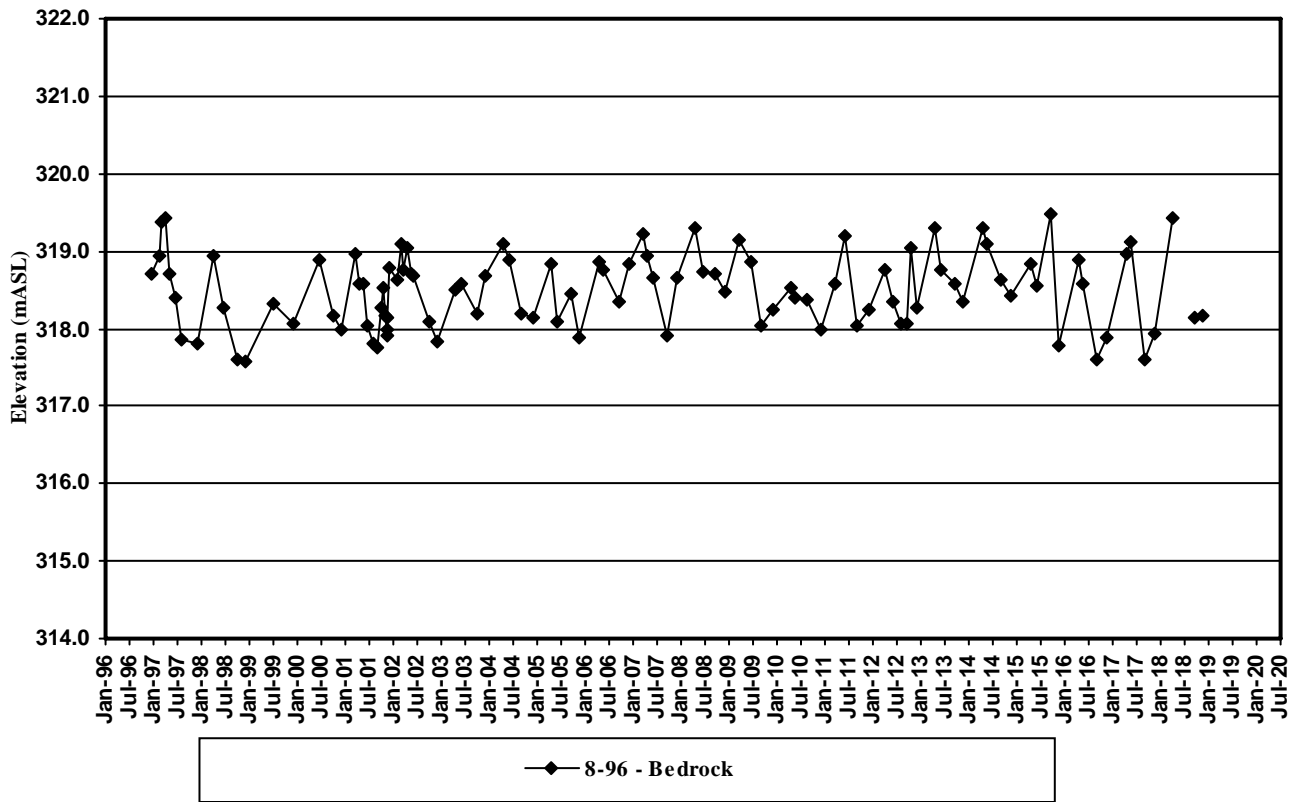
Hydrographs

FIGURE

A - 1

60598828

9 Rpt Hydrographs



Guelph WRIC & Waste Transfer Station

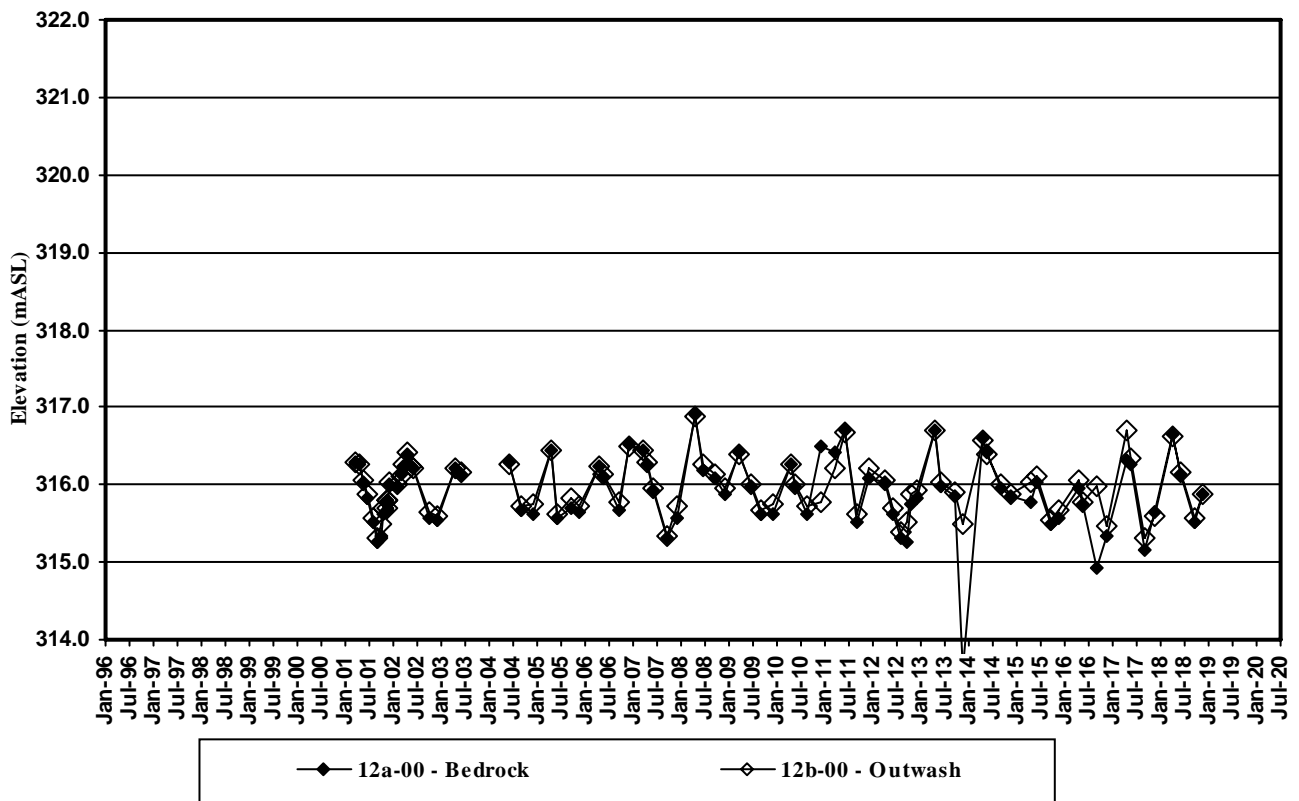
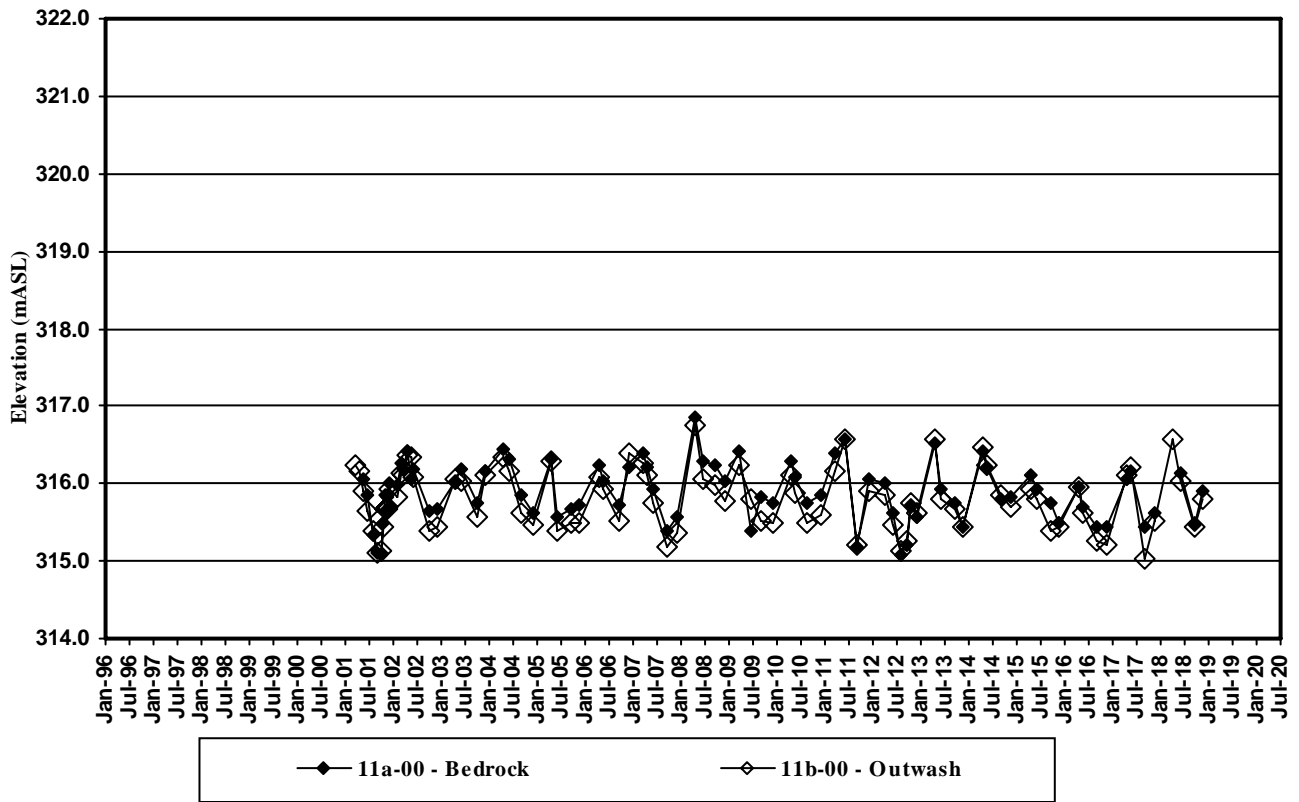
Hydrographs

FIGURE

A - 2

60598828

9 Rpt Hydrographs



Guelph WRIC & Waste Transfer Station

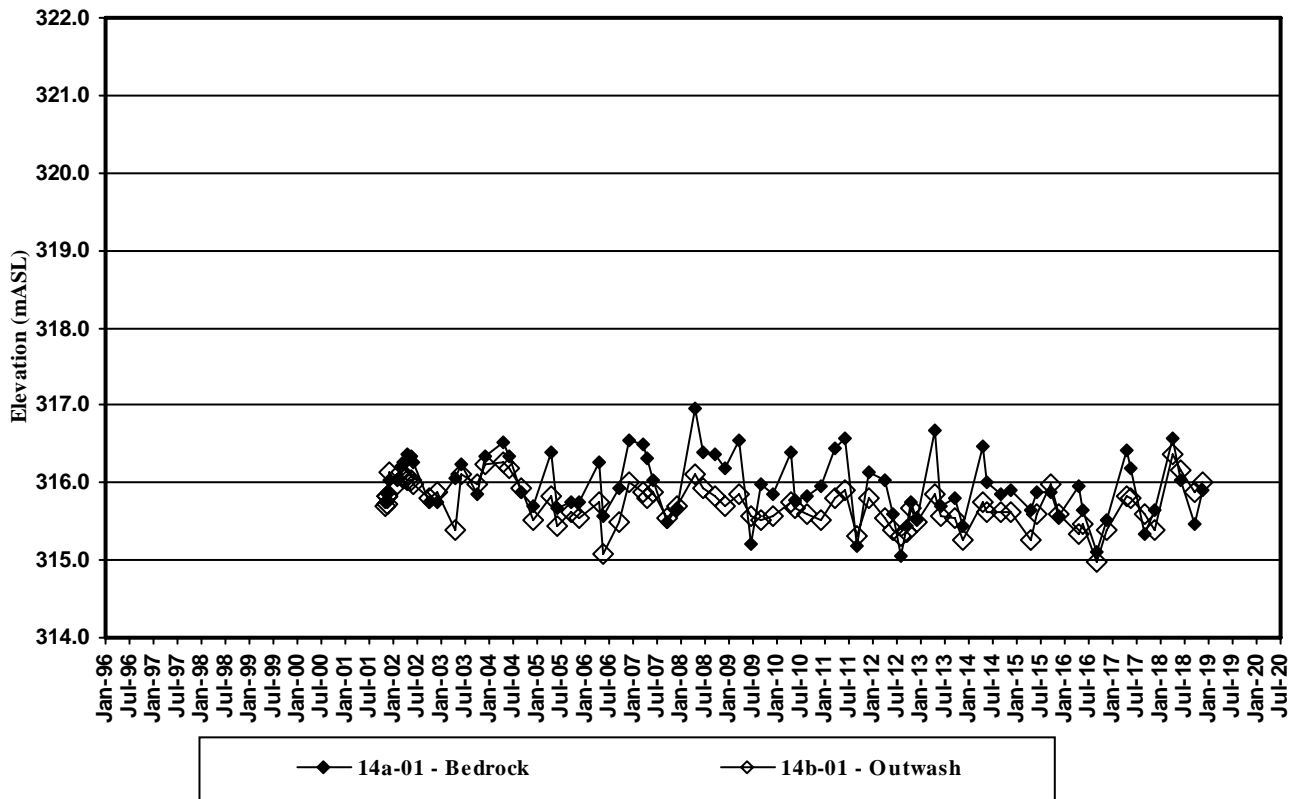
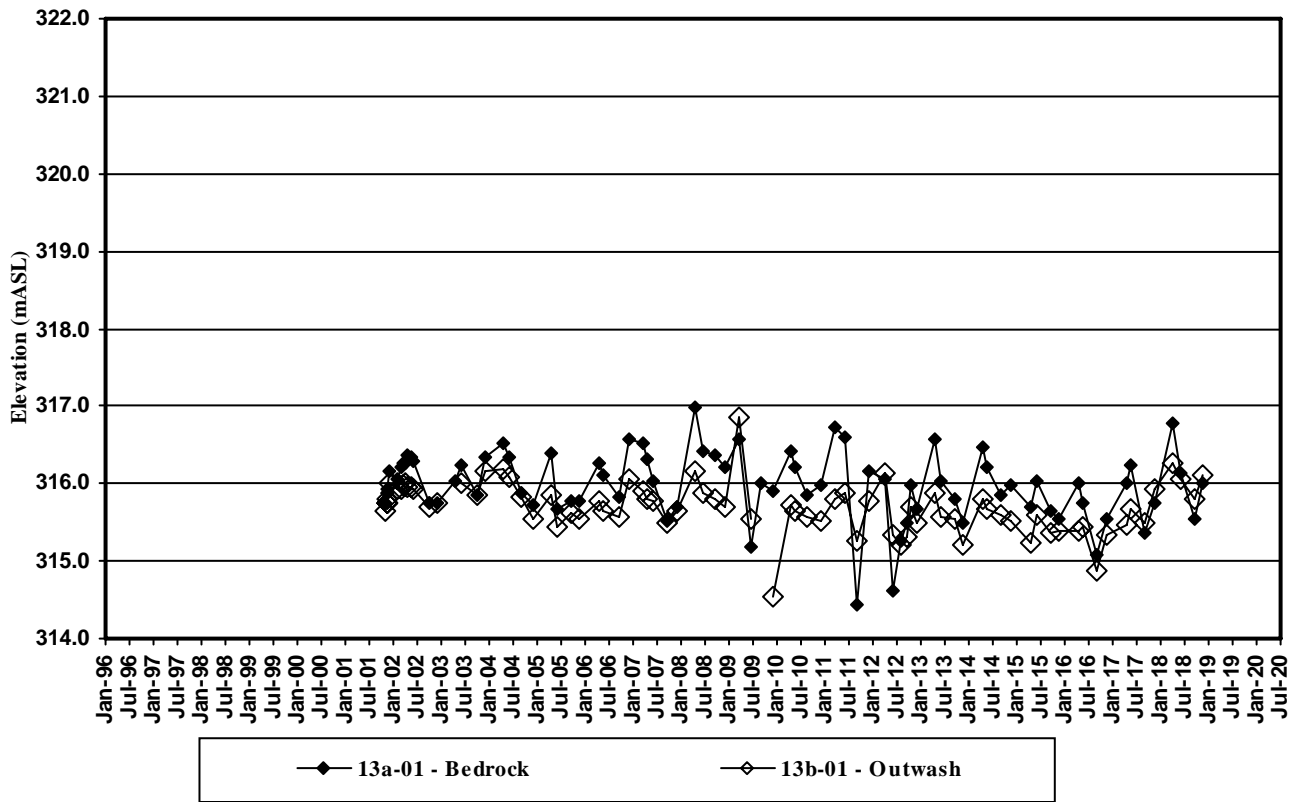
Hydrographs

FIGURE

A - 3

60598828

9 Rpt Hydrographs



AECOM

Guelph WRIC & Waste Transfer Station

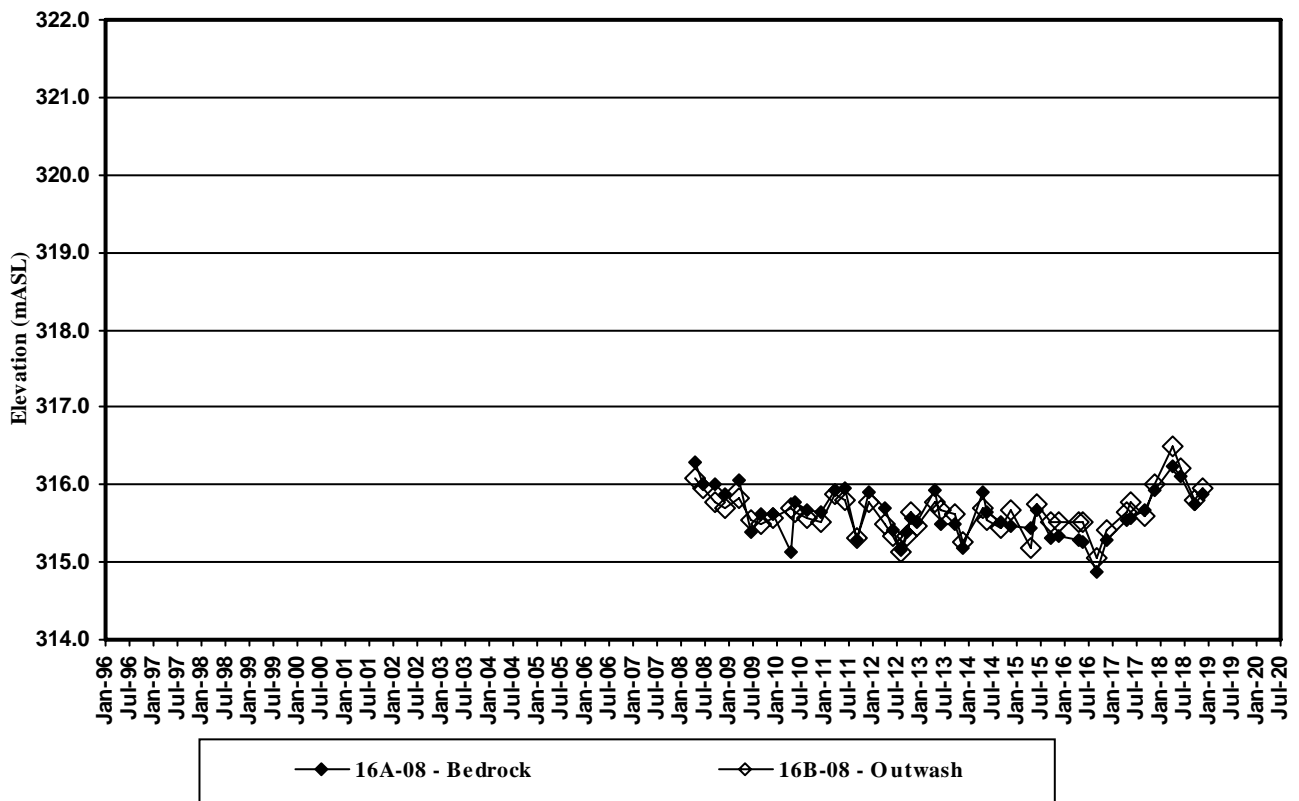
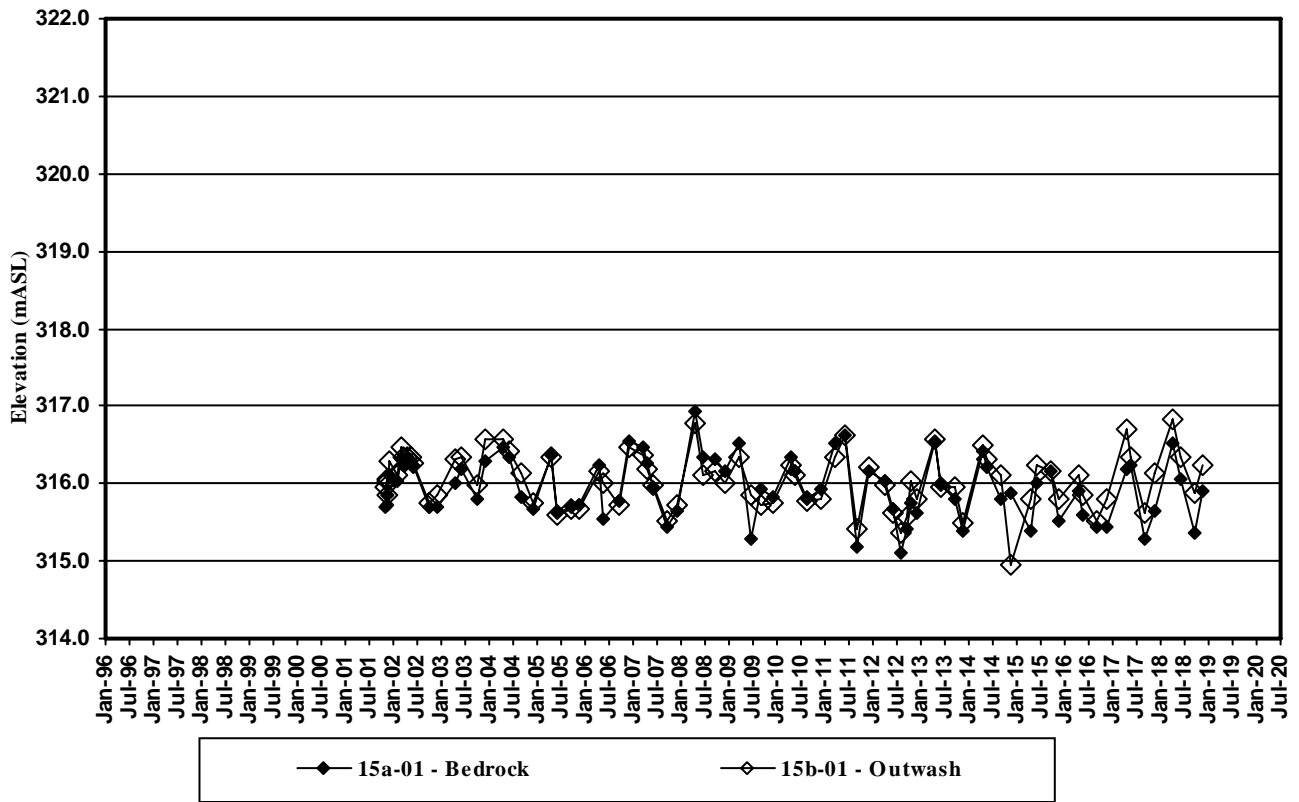
Hydrographs

FIGURE

A - 4

60598828

9 Rpt Hydrographs



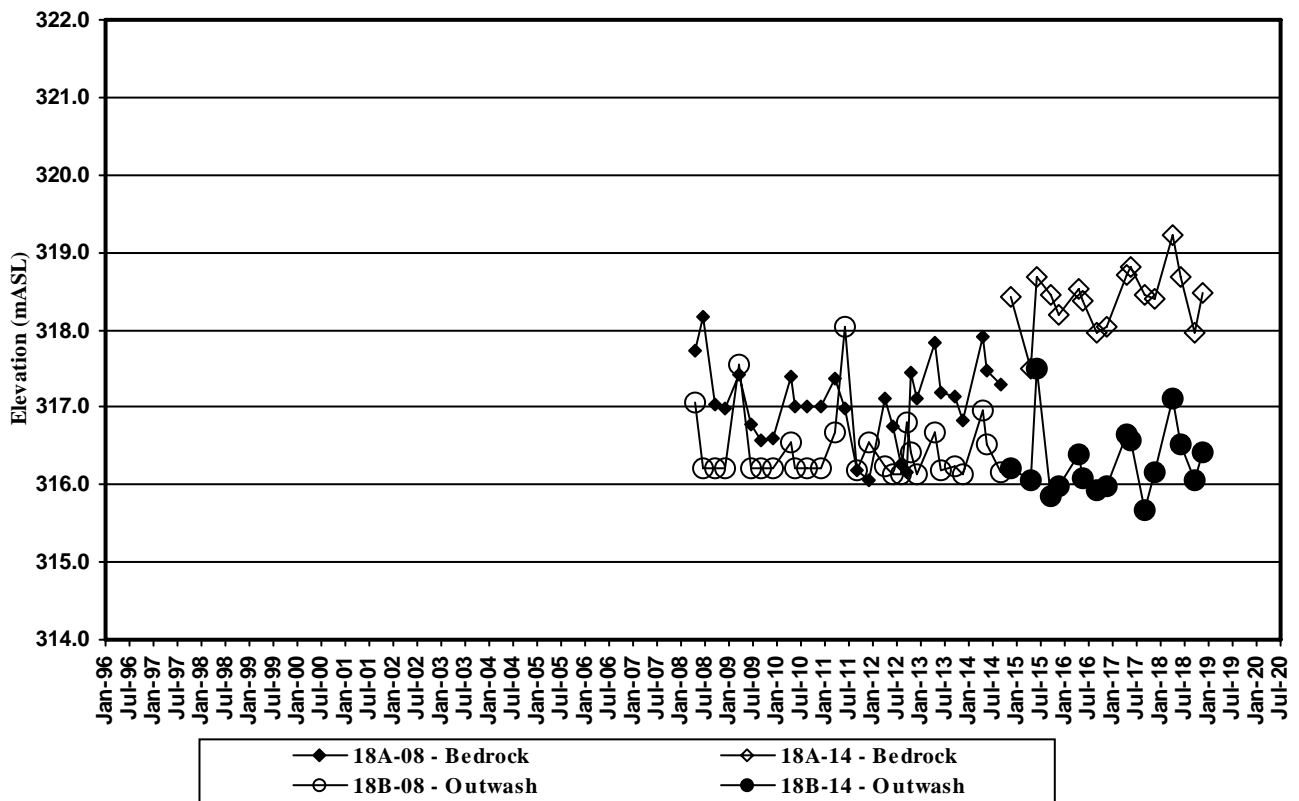
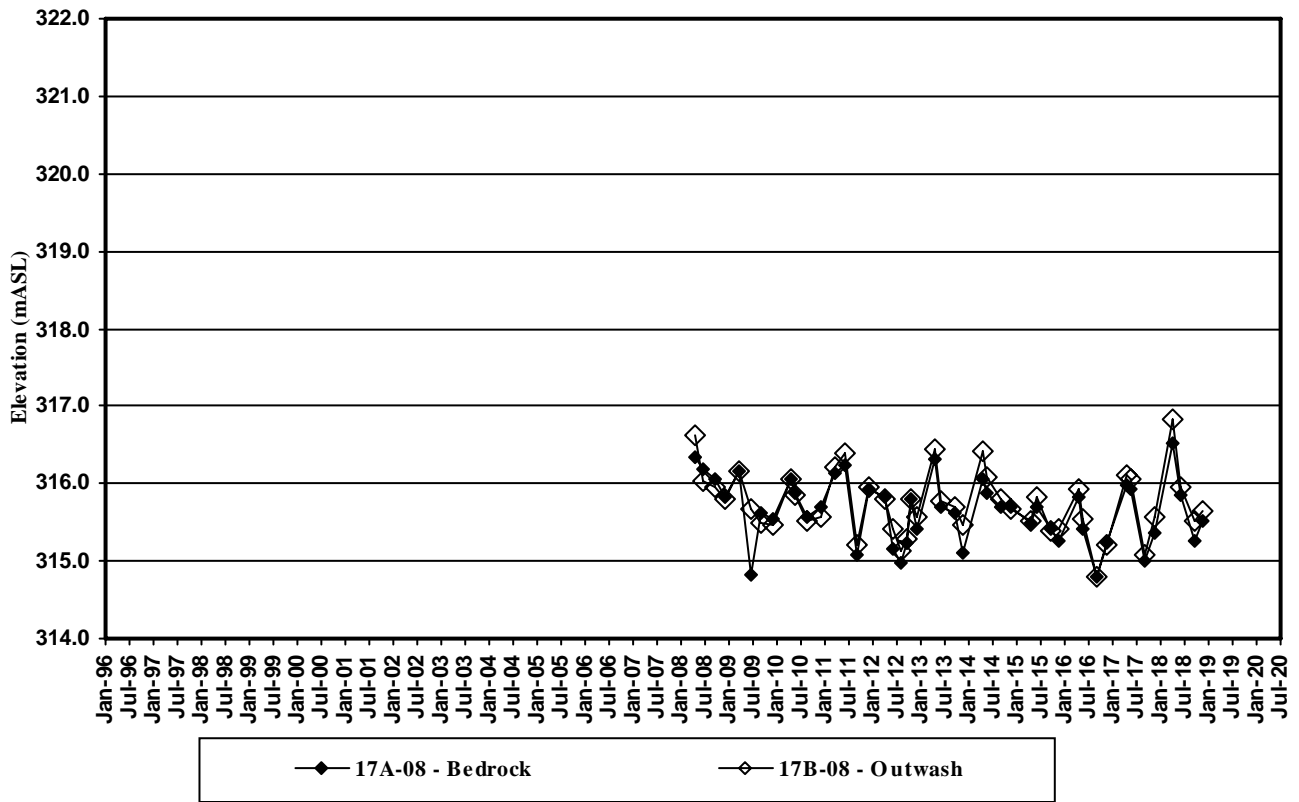
Guelph WRIC & Waste Transfer Station

Hydrographs

FIGURE

A - 5

60598828
 9 Rpt Hydrographs



Guelph WRIC & Waste Transfer Station

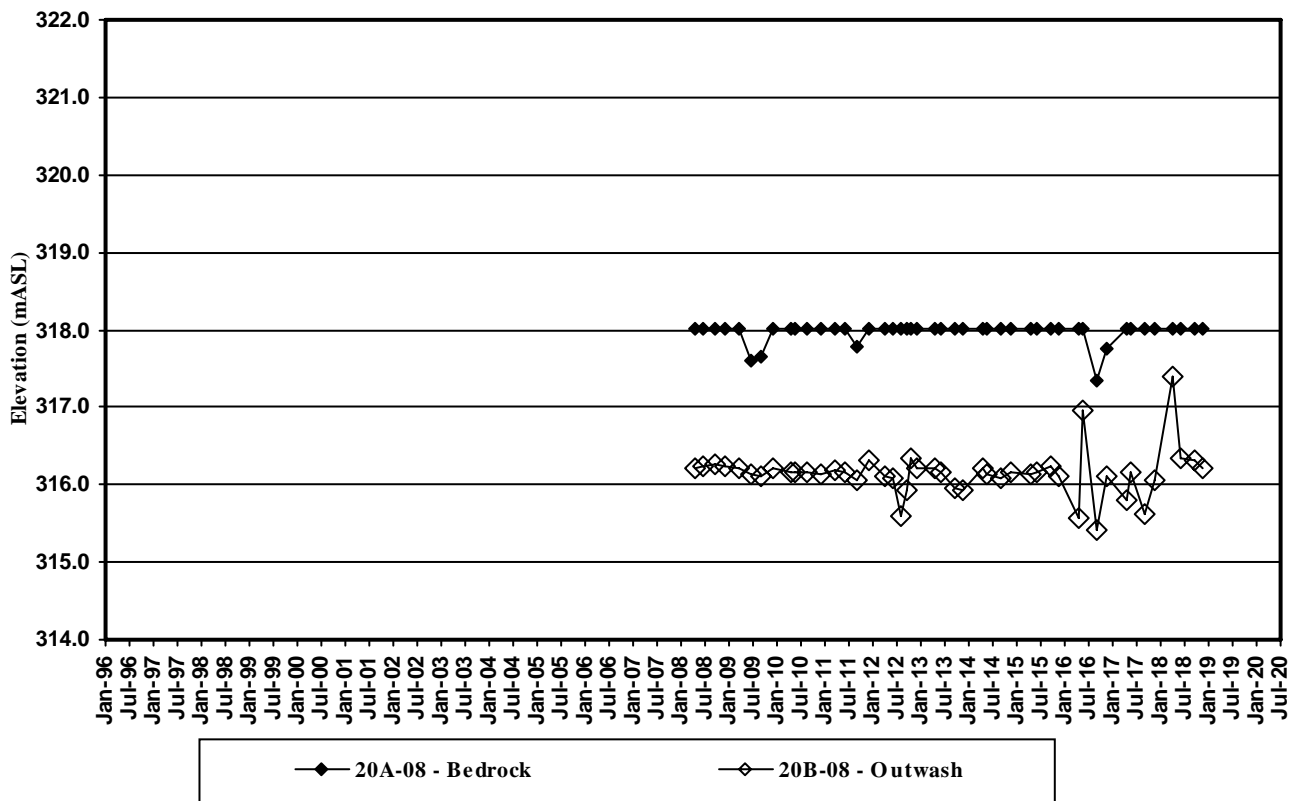
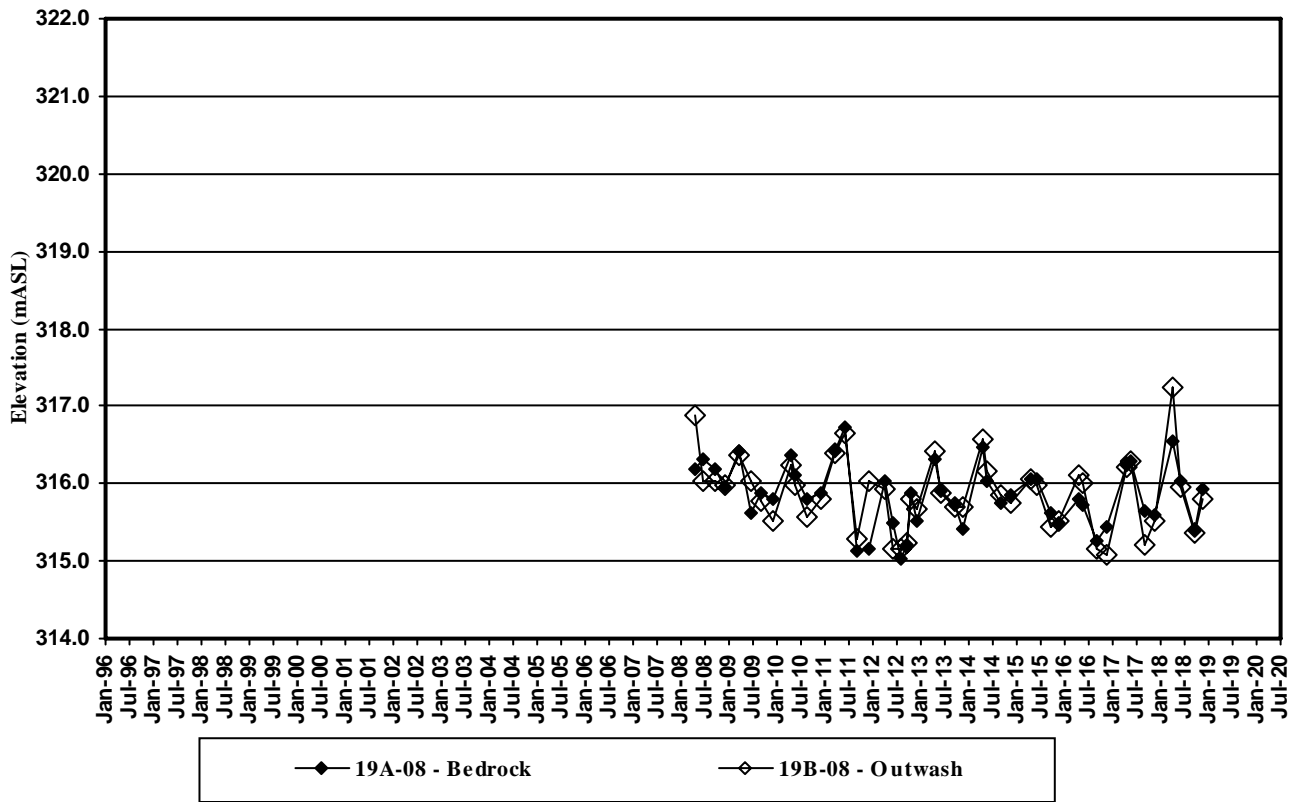
Hydrographs

FIGURE

A - 6

60598828

9 Rpt Hydrographs

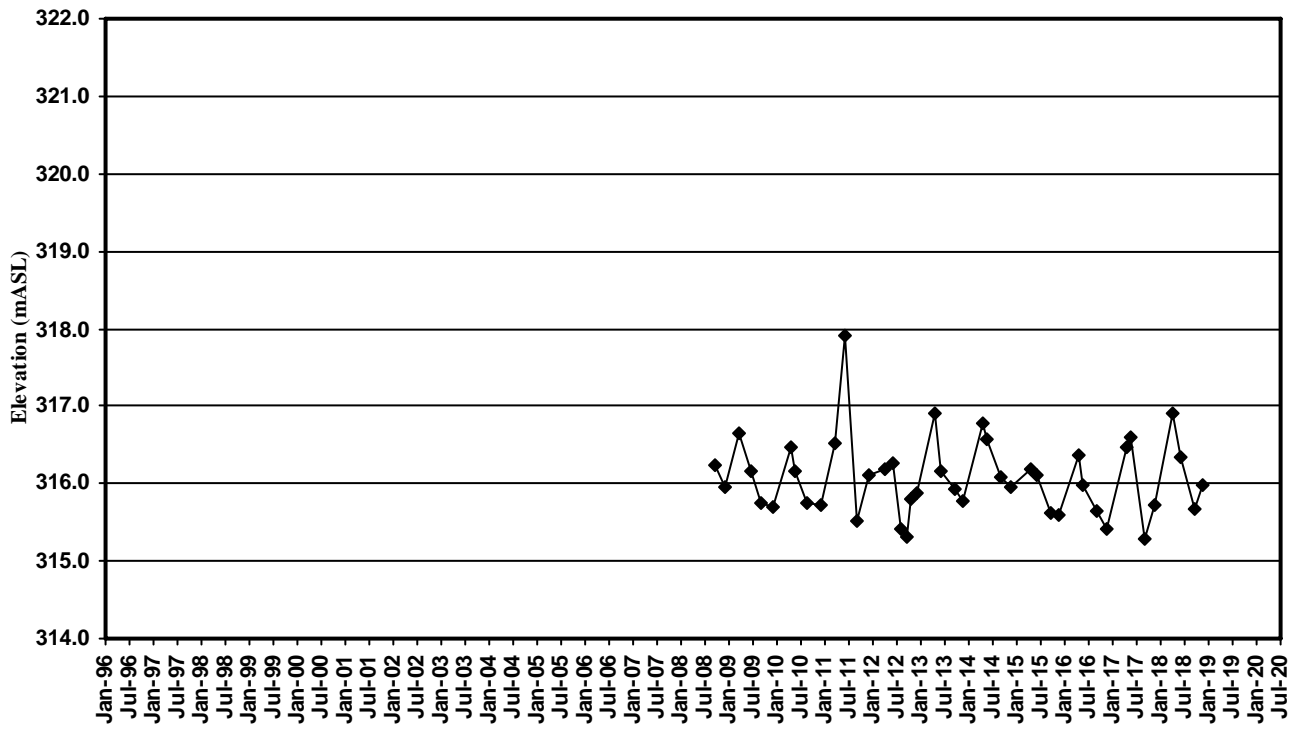


Guelph WRIC & Waste Transfer Station

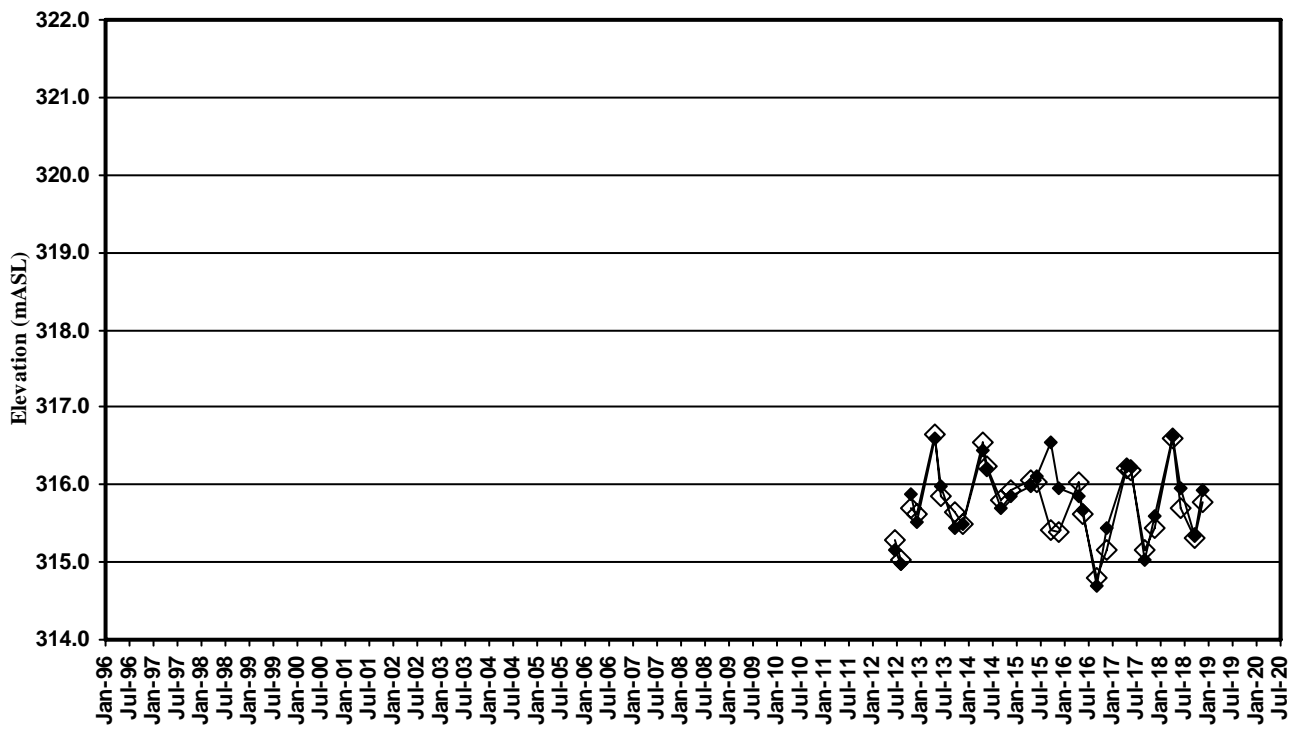
Hydrographs

FIGURE
A - 7

60598828
9 Rpt Hydrographs



◆ 21A-08 - Bedrock



◆ 23A-12 - Bedrock ◇ 23B-12 - Outwash



Guelph WRIC & Waste Transfer Station

Hydrographs

FIGURE
A - 8

60598828
9 Rpt Hydrographs

Routine Groundwater Elevations at the WRIC/Waste Transfer Station

Date	2a-91	2b-91	5-96	6a-96	6b-96	7-96	8-96	9-96	10-00	11a-00	11b-00	12a-00	12b-00	13a-01	13b-01	14a-01	14b-01
4-Apr-91	316.00	316.02															
14-Apr-91	315.88	315.89															
12-May-91	315.67	315.59															
17-May-91	315.60	315.58															
17-May-94	316.32	316.34															
5-May-95	315.96	316.00															
13-Apr-96	316.22	316.20															
13-Jun-96	316.41	316.34															
21-Aug-96	315.81	315.75															
9-Sep-96	315.59	315.55															
11-Dec-96		315.62															
20-Dec-96			319.53	315.70	315.67	315.70	318.72	315.20									
11-Feb-97	315.31		319.48	315.77	315.78	315.92	318.95	315.96									
3-Mar-97	315.26		320.34	316.37	316.38	316.57	319.37	316.62									
27-Mar-97	315.58	316.27	320.68	316.13	316.13	316.24	319.42	316.24									
6-May-97	315.38	316.08	319.39	315.86	315.86	316.02	318.72	316.04									
23-Jun-97	315.20	315.87	318.47	315.69	315.70	315.81	318.40	315.83									
8-Aug-97	314.86	315.50	317.62	315.39	315.41	315.49	317.85	315.45									
9-Dec-97	314.82	315.55	318.32	315.41	315.41	315.44	317.81	315.52									
31-Mar-98	315.62	316.28	319.90	316.08	316.15	316.22	318.94	316.26									
24-Jun-98	315.07	315.74	318.67	315.60	315.61	315.68	318.26	315.61									
29-Sep-98	314.47	Dry	317.34	315.03	315.08	315.15	317.59	315.11									
3-Dec-98	314.40	Dry	318.24	315.03	315.04	315.02	317.57	315.03									
29-Jun-99	314.91	Dry	320.03	315.51	315.55	315.54	318.33	315.46									
9-Dec-99	315.04	315.60	318.99	315.62	315.63	315.67	318.07	315.68									
21-Jun-00	315.69	316.40	320.17	316.21	316.21	316.34	318.89	316.36									
28-Sep-00	314.95	315.62	318.08	315.51	315.51	315.56	318.16	315.59									
6-Dec-00	314.52	315.43	318.29	315.32	315.32	315.34	317.98	315.35									
22-Mar-01	316.23	316.25	320.11	316.19	316.20	316.23	318.97	316.23	316.09		316.23	316.30	316.30				
26-Apr-01	316.19	316.19	318.53	316.02	316.04	316.17	318.59	316.20	316.07		316.15	316.26	316.26				
28-May-01	315.91	315.91	319.57	315.80	315.83	315.90	318.57	315.92	315.83	316.06	315.90	316.03	316.07				
27-Jun-01	315.68	315.68	318.01	315.56	315.58	315.66	318.04	315.69	315.56	315.85	315.65	315.82	315.88				
31-Jul-01	315.39	NR	317.62	315.32	315.34	315.38	317.80	315.39	315.14	315.34	315.38	315.53	315.58				
30-Aug-01	315.11	NR	317.87	315.09	315.10	315.10	317.76	315.11	314.87	315.11	315.11	315.26	315.31				
28-Sep-01	315.11	NR	319.68	315.14	315.16	315.11	318.26	315.09	314.85	315.08	315.13	315.35	315.48				
19-Oct-01	315.40	NR	320.35	315.45	315.46	315.40	318.54	315.38	315.35	315.50	315.43	315.61	315.71				
8-Nov-01	315.66	NR	319.03	315.62	315.63	315.65	318.17	315.66	315.61	315.85	315.66			315.74	315.64	315.74	315.71
16-Nov-01	315.56	315.71	318.31	315.63	315.65	315.55	317.90	315.71	315.59	315.82	315.69	315.78	315.80	315.89	315.76	315.86	315.83
21-Nov-01	315.57	315.56	318.30	315.61	315.48	315.68	317.99	315.56	315.45	315.66	315.68	315.79	315.80	315.89	315.75	315.88	315.82
27-Nov-01	315.71	315.71	318.88	315.63	315.65	315.70	318.14	315.72	315.61	315.84	315.70	315.67	315.70	315.92	315.79	315.76	315.72
4-Dec-01	315.90	315.89	320.97	315.92	315.93	315.90	318.78	315.89	315.85	316.00	315.92	316.00	316.02	316.17	316.00	316.03	316.14
28-Jan-02	315.85	315.84	318.94	315.77	315.79	315.83	318.63	315.85	315.72	315.98	315.83	315.97	316.00	316.07	315.93	316.04	315.99
28-Feb-02	316.14	316.14	320.56	316.08	316.09	316.12	319.09	316.15	316.04	316.27	316.13	316.14	316.11	316.22	315.92	316.21	316.13
28-Mar-02	316.16	316.16	319.02	316.00	316.02	316.14	318.76	316.17	315.99	316.19	316.12	316.25	316.26	316.27	315.97	316.27	316.05

Routine Groundwater Elevations at the WRIC/Waste Transfer Station

Date	2a-91	2b-91	5-96	6a-96	6b-96	7-96	8-96	9-96	10-00	11a-00	11b-00	12a-00	12b-00	13a-01	13b-01	14a-01	14b-01
10-Apr-02														316.27	316.00	316.26	316.05
29-Apr-02	316.40	316.41	320.48	316.08	316.11	316.39	319.05	316.41	316.24	316.43	316.37	316.39	316.43	316.36	315.96	316.37	316.04
28-May-02	316.18	316.18	318.46	316.03	316.05	316.16	318.70	316.20	316.05	316.07	316.33	316.25	316.25	316.35	315.96	316.35	316.03
4-Jun-02	316.11	316.12	318.57	315.98	315.99	316.10	318.69	316.13	315.95	316.19	316.09	316.20	316.21	316.28	315.93	316.26	315.99
30-Sep-02	315.41	315.40	318.85	315.36	315.38	315.40	318.10	315.41	315.30	315.64	315.40	315.56	315.64	315.75	315.70	315.74	315.81
3-Dec-02	315.44	315.43	317.96	315.37	315.39	315.41	317.84	315.44	315.34	315.67	315.43	315.54	315.59	315.76	315.75	315.76	315.87
25-Apr-03	316.10	316.11	318.90	315.92	315.94	316.09	318.49	316.13	315.85	316.04	316.07	316.20	316.21	316.03	N/A	316.05	315.39
2-Jun-03	316.06	316.05	319.15	315.92	315.94	316.05	318.57	316.08	315.86	316.18	316.03	316.14	316.15	316.23	316.01	316.24	316.11
30-Sep-03	315.57	315.57	319.18	315.52	315.53	315.56	318.20	315.56	315.38	315.74	315.57	N/A	N/A	315.85	315.85	315.84	315.97
1-Dec-03	316.12	316.11	320.70	316.09	316.11	316.11	318.67	316.11	315.93	316.15	316.12	N/A	N/A	316.34	316.16	316.33	316.25
27-Apr-04	316.38	316.38	319.88	316.20	316.23	316.42	319.10	316.39	316.14	316.45	316.34	N/A	N/A	316.52	316.19	316.51	316.27
8-Jun-04	316.16	316.20	318.53	316.00	316.02	316.20	318.88	316.20	315.93	316.32	316.15	316.28	316.27	316.33	316.08	316.34	316.18
14-Sep-04	N/A	N/A	318.50	315.49	315.51	315.66	318.19	315.57	315.42	315.85	315.63	315.67	315.72	315.88	315.82	315.89	315.94
30-Nov-04	315.46	315.47	318.97	315.42	315.44	315.50	318.14	315.47	315.29	315.61	315.46	315.63	315.74	315.72	315.54	315.70	315.52
18-Apr-05	316.33	316.35	318.85	316.14	316.16	316.36	318.83	316.37	316.08	316.32	316.29	316.44	316.44	316.40	315.85	316.38	315.82
1-Jun-05	N/A	315.28	318.11	315.34	315.35	315.44	318.08	315.43	315.26	315.57	315.39	315.56	315.63	315.67	315.44	315.66	315.44
30-Sep-05	315.48	315.47	320.58	315.48	315.51	315.52	318.45	315.46	315.36	315.66	315.50	315.69	315.83	315.77	315.63	315.74	315.62
28-Nov-05	315.44	315.48	318.45	315.42	315.44	315.52	317.88	315.49	315.34	315.72	315.49	315.65	315.73	315.77	315.54	315.74	315.54
20-Apr-06	316.12	316.12	319.06	315.96	315.98	316.14	318.87	316.13	315.93	316.23	316.08	316.23	316.24	316.27	315.77	316.26	315.75
1-Jun-06	315.98	315.96	318.51	315.81	315.82	315.99	318.76	N/A	315.77	316.02	315.93	316.11	316.13	316.11	315.64	315.58	315.09
27-Sep-06	315.53	315.52	319.32	315.47	315.49	315.55	318.35	315.53	315.41	315.72	315.51	315.68	315.78	315.83	315.58	315.94	315.48
4-Dec-06	316.39	316.38	320.16	316.35	316.37	316.43	318.84	316.40	316.20	316.20	316.38	316.52	316.49	316.58	316.06	316.55	316.01
30-Mar-07	316.28	316.28	320.23	316.17	316.25	316.32	319.22	316.30	316.15	316.40	316.26	316.44	316.44	316.52	315.90	316.49	315.87
26-Apr-07	316.14	316.15	319.03	315.98	316.01	316.17	318.95	316.16	316.00	316.22	316.10	316.27	316.28	316.32	315.80	316.31	315.80
14-Jun-07	315.77	315.79	318.11	315.66	315.67	315.81	318.66	315.81	315.68	315.93	315.75	315.92	315.95	316.03	315.78	316.02	315.88
27-Sep-07	315.18	Dry	318.11	315.12	315.14	315.21	317.90	315.18	315.08	315.39	315.18	315.30	315.33	315.51	315.49	315.49	315.55
5-Dec-07	315.36	Dry	320.31	315.36	315.37	315.40	318.65	315.35	315.26	315.58	315.37	315.57	315.72	315.69	315.65	315.68	315.70
25-Apr-08	316.84	316.84	319.02	316.54	316.63	316.82	319.31	316.86	316.62	316.86	316.76	316.91	316.87	316.98	316.16	316.96	316.12
25-Jun-08	316.05	316.04	320.44	316.05	316.10	316.10	318.74	315.53	315.94	316.28	316.07	316.19	316.27	316.41	315.89	316.38	315.92
18-Sep-08	316.03	315.98	319.68	315.95	316.01	316.03	318.72	316.03	315.94	316.24	315.98	316.09	316.13	316.37	315.81	316.36	315.82
9-Dec-08	315.83	315.78	318.91	315.75	315.77	315.82	318.47	315.80	315.76	316.04	315.78	315.89	315.96	316.22	315.70	316.19	315.70
2-Apr-09	316.29	316.29	319.06	316.14	316.18	316.31	319.14	316.31	316.16	316.43	316.24	316.41	316.40	316.56	316.86	316.55	315.84
24-Jun-09	315.83	315.83	318.36	315.63	315.66	315.85	318.85	315.83	315.31	315.38	315.79	315.98	316.01	315.18	315.54	315.22	315.56
10-Sep-09	315.53	315.52	317.84	315.42	315.52	315.56	318.05	315.53	315.50	315.82	315.51	315.62	315.67	316.00	damaged	315.98	315.51
15-Dec-09	315.45	315.48	319.73	315.44	315.49	315.50	318.25	315.51	315.40	315.76	315.48	315.63	315.75	315.91	314.55	315.86	315.57
22-Apr-10	316.17	316.16	318.71	315.98	316.01	316.00	318.54	N/A	N/A	316.30	316.11	316.27	316.26	316.41	315.73	316.38	315.76
1-Jun-10	315.91	315.91	317.59	315.78	315.80	315.97	318.40	N/A	N/A	316.08	315.88	315.97	316.01	316.21	315.65	315.77	315.67
1-Sep-10	315.49	315.50	320.13	315.44	315.44	315.54	318.37	N/A	N/A	315.74	315.50	315.61	315.73	315.86	315.56	315.83	315.60
16-Dec-10	315.62	315.61	318.17	315.53	315.55	315.66	318.00	N/A	N/A	315.85	315.59	316.50	315.77	315.98	315.53	315.95	315.53
5-Apr-11	316.11	315.95	318.48	315.79	315.96	315.89	318.58	N/A	N/A	316.38	316.16	316.42	316.21	316.72	315.80	316.45	315.81
14-Jun-11	316.57	316.58	318.54	316.42	316.51	316.65	319.19	N/A	N/A	316.58	316.58	316.69	316.67	316.61	315.89	316.56	315.91
16-Sep-11	315.20		317.67	315.14	315.22	315.24	318.03	N/A	N/A	315.18	315.20	315.51	315.61	314.45	315.26	315.18	315.31
13-Dec-11	315.93	315.93	319.36	315.84	316.02	315.95	318.24	N/A	N/A	316.07	315.90	316.09	316.22	316.17	315.77	316.14	315.80
12-Apr-12	315.90	315.90	318.07	315.76	315.84	315.92	318.75	N/A	N/A	316.00	315.86	316.04	316.06	316.06	316.13	316.04	315.54

Routine Groundwater Elevations at the WRIC/Waste Transfer Station

Date	2a-91	2b-91	5-96	6a-96	6b-96	7-96	8-96	9-96	10-00	11a-00	11b-00	12a-00	12b-00	13a-01	13b-01	14a-01	14b-01
18-Jun-12	315.77	315.49	318.03	315.36	315.38	315.52	318.34	N/A	N/A	315.61	315.47	315.63	315.70	314.61	315.35	315.60	315.40
5-Jul-12																	
7-Aug-12	315.33	dry	318.50	315.08	315.09	315.15	318.07	315.17	314.94	315.07	315.13	315.30	315.39	315.26	315.22	315.06	315.31
27-Sep-12	315.08	Dry	318.54	315.25	315.29	315.30	318.07	315.13	315.13	315.20	315.27	315.25	315.52	315.48	315.32	315.44	315.36
2-Nov-12	315.53	315.53	320.85	315.80	315.85	315.76	319.04	315.57	315.41	315.72	315.75	315.76	315.87	315.98	315.69	315.75	315.68
17-Dec-12	315.60	315.61	319.63	315.56	315.60	315.68	318.28	315.68	315.51	315.57	315.61	315.82	315.92	315.67	315.50	315.52	315.49
26-Apr-13	316.63	316.63	319.76	316.36	316.46	316.64	319.29	316.69	316.47	316.51	316.57	316.69	316.70	316.56	315.88	316.67	315.85
17-Jun-13	315.87	315.84	318.42	315.73	315.74	315.87	318.75	315.89	315.85	315.94	315.81	315.99	316.02	316.04	315.56	315.71	315.56
25-Sep-13	315.71	315.72	318.86	315.63	315.64	315.72	318.59	315.74	315.69	315.75	315.67	315.85	315.91	315.81	315.54	315.80	315.55
1-Dec-13	315.67	315.56	317.71	315.63	315.70	315.46	318.34	315.87	315.55	315.43	315.43	313.62	315.49	315.48	315.22	315.44	315.27
24-Apr-14	315.71	315.67	318.95	316.29	316.30	316.54	319.31	316.57	316.42	316.42	316.46	316.61	316.58	316.47	315.79	316.47	315.75
1-Jun-14	316.16	316.15	318.66	316.16	316.20	316.17	319.09	316.31	316.14	316.21	316.25	316.42	316.40	316.20	315.66	316.00	315.61
16-Sep-14	315.79	315.62	319.14	315.80	315.87	315.88	318.64	315.92	315.82	315.81	315.84	315.96	316.00	315.84	315.59	315.84	315.61
1-Dec-14			318.90	315.67	315.71	315.75	318.42	315.76	315.78	315.82	315.69	315.85	315.87	315.98	315.52	315.91	315.63
29-Apr-15	removed	removed	318.53	315.89	315.67	316.07	318.84	316.11	316.05	316.11	315.93	315.78	316.03	315.71	315.24	315.64	315.27
16-Jun-15	removed	removed	318.32	315.73	315.84	315.84	318.56	315.92	315.88	315.93	315.79	316.03	316.11	316.03	315.60	315.87	315.59
24-Sep-15	removed	removed	317.71	315.33	315.57	315.49	319.47	315.46	315.46	315.74	315.39	315.48	315.55	315.65	315.36	315.88	315.98
1-Dec-15	Removed	removed	317.82	315.35	315.44	315.42	317.79	315.46	315.46	315.49	315.43	315.57	315.66	315.55	315.39	315.57	315.59
29-Apr-16	removed	removed	318.89	315.80	315.92	316.05	318.88	316.03	315.96	315.96	315.96	315.96	316.07	316.00	315.38	315.95	315.34
1-Jun-16	removed	removed	317.54	315.41	315.53	315.61	318.57	315.68	315.55	315.70	315.61	315.75	315.78	315.76	315.43	315.65	315.47
20-Sep-16	removed	removed	317.27	315.61	315.24	314.87	317.60	314.87	314.89	315.45	315.25	314.92	315.98	315.07	314.88	315.10	314.98
1-Dec-16	removed	removed	318.41	315.14	315.20	315.23	317.88	315.25	315.27	315.43	315.21	315.34	315.46	315.54	315.34	315.52	315.40
27-Apr-17	removed	removed	318.88	315.90	316.02	316.21	318.96	316.26	316.09	316.07	316.10	316.32	316.70	316.01	315.47	316.42	315.83
5-Jun-17	removed	removed	318.38	315.98	316.06	316.25	319.12	316.29	316.20	316.17	316.20	316.27	316.35	316.25	315.66	316.18	315.81
19-Sep-17	removed	removed	317.11	314.90	315.40	315.08	317.61	315.07	315.05	315.44	315.03	315.15	315.31	315.36	315.50	315.34	315.59
5-Dec-17	removed	removed	317.77	315.45	315.53	315.54	317.93	315.56	315.50	315.62	315.53	315.64	315.59	315.75	315.93	315.65	315.38
24-Apr-18			320.54	316.43	316.50	316.58	319.44	316.57	316.60	N/A	316.57	316.66	316.62	316.77	316.26	316.57	316.36
13-Jun-18			317.72	315.91	315.71	316.08	Bird Nest	316.07	316.02	316.13	316.04	316.14	316.17	316.14	316.06	316.02	316.16
27-Sep-18			319.68	315.41	315.48	315.45	318.15	315.39	315.34	315.47	315.45	315.52	315.56	315.54	315.79	315.46	315.88
10-Dec-18			318.06	315.75	315.84	315.82	318.16	315.84	315.78	315.91	315.81	315.87	315.89	316.01	316.12	315.91	316.00
16-Apr-19			317.72	316.49	316.56	316.66	319.71	316.90	316.64	318.40	316.63	316.64	316.63	316.67	316.28	316.59	316.37
1-Jun-19				316.29	316.20	317.97	317.19	317.21	316.25	315.35	316.55	316.02	316.49	315.20	316.60	315.41	315.93
9-Sep-19			317.90	315.39	314.97	315.55	318.36	315.55	316.35	315.72	315.88	315.63	315.67	315.85	315.66	315.78	315.78
1-Dec-19			318.26	315.77	315.86	315.91	318.48	315.90	315.82	316.00	315.86	319.65	319.65	316.15	315.98	316.04	316.09

Routine Groundwater Elevations at the WRIC/Waste Transfer Station

Date	15a-01	15b-01	16a-08	16b-08	17a-08	17b-08	18a-08 /18a-14	18b-08 /18b-14	19a-08	19b-08	20a-08	20b-08	21a-08	22a-11	22b-11	23a-12	23b-12
4-Apr-91																	
14-Apr-91																	
12-May-91																	
17-May-91																	
17-May-94																	
5-May-95																	
13-Apr-96																	
13-Jun-96																	
21-Aug-96																	
9-Sep-96																	
11-Dec-96																	
20-Dec-96																	
11-Feb-97																	
3-Mar-97																	
27-Mar-97																	
6-May-97																	
23-Jun-97																	
8-Aug-97																	
9-Dec-97																	
31-Mar-98																	
24-Jun-98																	
29-Sep-98																	
3-Dec-98																	
29-Jun-99																	
9-Dec-99																	
21-Jun-00																	
28-Sep-00																	
6-Dec-00																	
22-Mar-01																	
26-Apr-01																	
28-May-01																	
27-Jun-01																	
31-Jul-01																	
30-Aug-01																	
28-Sep-01																	
19-Oct-01																	
8-Nov-01	315.70	315.95															
16-Nov-01	315.84	316.06															
21-Nov-01	315.84	316.02															
27-Nov-01	315.72	315.86															
4-Dec-01	316.11	316.30															
28-Jan-02	316.02	316.10															
28-Feb-02	316.32	316.47															
28-Mar-02	316.23	316.34															

Notes Location 18 was decommissioned and off set in September 2014 to facilitate construction of the PDO Area.

Routine Groundwater Elevations at the WRIC/Waste Transfer Station

Date	15a-01	15b-01	16a-08	16b-08	17a-08	17b-08	18a-08 /18a-14	18b-08 /18b-14	19a-08	19b-08	20a-08	20b-08	21a-08	22a-11	22b-11	23a-12	23b-12
10-Apr-02	316.24	316.31															
29-Apr-02	316.33	316.35															
28-May-02	316.30	316.34															
4-Jun-02	316.24	316.27															
30-Sep-02	315.69	315.75															
3-Dec-02	315.71	315.86															
25-Apr-03	316.01	316.31															
2-Jun-03	316.19	316.35															
30-Sep-03	315.80	315.99															
1-Dec-03	316.29	316.56															
27-Apr-04	316.48	316.56															
8-Jun-04	316.33	316.43															
14-Sep-04	315.83	316.13															
30-Nov-04	315.67	315.74															
18-Apr-05	316.36	316.34															
1-Jun-05	315.62	315.59															
30-Sep-05	315.70	315.66															
28-Nov-05	315.72	315.66															
20-Apr-06	316.23	316.17															
1-Jun-06	315.54	316.00															
27-Sep-06	315.77	315.72															
4-Dec-06	316.54	316.48															
30-Mar-07	316.48	316.37															
26-Apr-07	316.27	316.19															
14-Jun-07	315.96	315.99															
27-Sep-07	315.45	315.52															
5-Dec-07	315.65	315.72															
25-Apr-08	316.92	316.77	316.30	316.09	316.33	316.62	317.72	317.07	316.19	316.89	318.01	316.22					
25-Jun-08	316.35	316.12	316.00	315.95	316.18	316.02	318.17	316.21	316.31	316.03	318.01	316.23					
18-Sep-08	316.31	316.16	316.01	315.78	316.05	315.95	317.03	316.22	316.18	316.02	318.01	316.27	316.23				
9-Dec-08	316.16	316.00	315.88	315.69	315.83	315.79	316.98	316.21	315.95	315.98	318.01	316.25	315.96				
2-Apr-09	316.51	316.34	316.05	315.82	316.15	316.17	317.42	317.56	316.43	316.36	318.01	316.20	316.64				
24-Jun-09	315.28	315.86	315.40	315.55	314.82	315.67	316.79	316.21	315.62	316.03	317.59	316.14	316.17				
10-Sep-09	315.92	315.73	315.63	315.50	315.62	315.49	316.57	316.21	315.88	315.78	317.64	316.10	315.75				
15-Dec-09	315.83	315.76	315.61	315.56	315.54	315.46	316.59	316.20	315.80	315.53	318.01	316.22	315.70				
22-Apr-10	316.35	316.23	315.13	315.71	316.05	316.07	317.40	316.54	316.36	316.24	318.01	316.16	316.48				
1-Jun-10	316.15	316.10	315.77	315.65	315.88	315.84	317.00	316.22	316.11	315.98	318.01	316.15	316.15				
1-Sep-10	315.80	315.77	315.66	315.56	315.57	315.51	317.00	316.20	315.79	315.56	318.01	316.17	315.75				
16-Dec-10	315.92	315.81	315.64	315.51	315.69	315.58	317.02	316.22	315.87	315.81	318.01	316.14	315.73				
5-Apr-11	316.53	316.34	315.93	315.88	316.14	316.20	317.37	316.67	316.42	316.40	318.01	316.18	316.52				
14-Jun-11	316.63	316.63	315.96	315.81	316.25	316.40	316.99	318.05	316.73	316.66	318.01	316.16	317.91				
16-Sep-11	315.19	315.42	315.29	315.32	315.09	315.22	316.19	316.19	315.13	315.28	317.77	316.07	315.52				
13-Dec-11	316.17	316.22	315.90	315.77	315.93	315.96	316.06	316.55	315.15	316.03	318.01	316.31	316.12	316.64	315.95		
12-Apr-12	316.02	315.98	315.70	315.50	315.83	315.81	317.12	316.25	316.02	315.94	318.01	316.12	316.19	315.77	315.73		

Notes Location 18 was decommissioned and off set in September 2014 to facilitate construction of the PDO Area.

Routine Groundwater Elevations at the WRIC/Waste Transfer Station

Date	15a-01	15b-01	16a-08	16b-08	17a-08	17b-08	18a-08 /18a-14	18b-08 /18b-14	19a-08	19b-08	20a-08	20b-08	21a-08	22a-11	22b-11	23a-12	23b-12
18-Jun-12	315.68	315.63	315.41	315.35	315.15	315.42	316.75	#####	315.50	<315.16	318.01	316.08	316.27	315.29	315.39		
5-Jul-12																315.15	315.29
7-Aug-12	315.10	315.37	315.16	315.12	314.99	315.13	316.27	#####	315.02	<315.16	318.01	315.60	315.41	314.99	315.16	314.97	315.04
27-Sep-12	315.42	315.56	315.39	315.34	315.23	315.29	316.15	316.81	315.20	315.24	318.01	315.94	315.31	315.31	315.28	NA	NA
2-Nov-12	315.75	316.03	315.58	315.65	315.81	315.81	317.44	316.41	315.88	315.80	318.01	316.35	315.81	315.81	315.81	315.89	315.70
17-Dec-12	315.61	315.81	315.51	315.47	315.41	315.58	317.10	316.14	315.52	315.68	318.01	316.22	315.88	315.62	315.49	315.53	315.63
26-Apr-13	316.54	316.58	315.94	315.78	316.32	316.44	317.84	316.68	316.32	316.41	318.01	316.22	316.90	316.34	316.28	316.60	316.65
17-Jun-13	315.99	315.95	315.49	315.66	315.69	315.77	317.18	316.19	315.91	315.88	318.01	316.17	316.17	315.81	315.76	315.99	315.85
25-Sep-13	315.79	315.95	315.49	315.63	315.61	315.69	317.15	316.24	315.73	315.70	318.01	315.96	315.94	315.68	315.65	315.45	315.65
1-Dec-13	315.38	315.50	315.18	315.26	315.11	315.47	316.83	#####	315.41	315.69	318.01	315.94	315.77	315.41	315.30	315.49	315.50
24-Apr-14	316.43	316.50	315.90	315.71	316.05	316.42	317.90	316.97	316.47	316.57	318.01	316.20	316.78	316.27	316.19	316.45	316.54
1-Jun-14	316.22	316.31	315.65	315.54	315.89	316.08	317.47	316.53	316.04	316.15	318.01	316.13	316.56	316.11	315.97	316.20	316.25
16-Sep-14	315.80	316.12	315.52	315.44	315.71	315.81	317.28	316.16	315.74	315.85	318.01	316.09	316.08	315.81	315.72	315.69	315.79
1-Dec-14	315.88	314.95	315.46	315.67	315.70	315.68	318.42	316.22	315.86	315.74	318.01	316.16	315.96	315.65	315.66	315.85	315.94
29-Apr-15	315.38	315.79	315.43	315.18	315.48	315.51	317.51	316.05	316.05	316.06	318.01	316.13	316.19	315.71	315.89	315.97	316.05
16-Jun-15	316.00	316.23	315.68	315.76	315.71	315.83	318.69	317.50	316.07	315.99	318.01	316.16	316.12	315.81	315.83	316.10	316.02
24-Sep-15	316.17	316.16	315.31	315.51	315.42	315.40	318.46	315.85	315.61	315.45	318.01	316.23	315.61	315.54	315.57	316.55	315.41
1-Dec-15	315.52	315.80	315.35	315.52	315.27	315.42	318.20	315.98	315.50	315.51	318.01	316.10	315.60	315.37	315.32	315.96	315.38
29-Apr-16	315.91	316.11	315.28	315.51	315.83	315.92	318.52	316.39	315.80	316.10	318.01	315.57	316.36	315.81	315.78	315.85	316.03
1-Jun-16	315.59	315.84	315.27	315.52	315.41	315.55	318.38	316.08	315.72	316.01	318.01	316.95	315.99	315.51	315.41	315.67	315.62
20-Sep-16	315.44	315.53	314.88	315.06	314.80	314.81	317.97	315.93	315.25	315.15	317.35	315.42	315.65	314.85	314.85	314.69	314.79
1-Dec-16	315.43	315.81	315.29	315.41	315.24	315.21	318.03	315.99	315.44	315.09	317.75	316.11	315.42	315.22	315.24	315.44	315.16
27-Apr-17	316.19	316.71	315.55	315.64	315.97	316.10	318.72	316.65	316.23	316.22	318.01	315.81	316.48	315.85	315.96	316.25	316.21
5-Jun-17	316.24	316.34	315.56	315.78	315.93	316.05	318.82	316.56	316.28	316.28	318.01	316.16	316.60	315.92	315.97	316.24	316.18
19-Sep-17	315.29	315.62	315.67	315.59	315.01	315.07	318.44	315.68	315.65	315.22	318.01	315.62	315.28	315.12	315.15	315.04	315.17
5-Dec-17	315.65	316.13	315.93	316.00	315.37	315.58	318.39	316.17	315.59	315.52	318.01	316.06	315.72	315.53	315.60	315.59	315.45
24-Apr-18	316.53	316.84	316.24	316.49	316.53	316.83	319.21	317.11	316.55	317.24	318.01	317.40	316.90	316.56	317.53	316.62	316.61
13-Jun-18	316.05	316.35	316.12	316.22	315.84	315.95	318.69	316.53	316.04	315.95	318.01	316.34	316.34	315.91	316.00	315.96	315.69
27-Sep-18	315.37	315.89	315.76	315.81	315.26	315.52	317.96	316.05	315.38	315.36	318.01	316.31	315.68	315.39	315.51	315.33	315.31
10-Dec-18	315.91	316.25	315.88	315.96	315.52	315.65	318.48	316.42	315.94	315.81	318.01	316.21	315.97	315.77	315.81	315.92	315.78
16-Apr-19	316.59	316.91	316.35	316.65	316.69	316.96	319.45	317.19	316.43	317.29	318.01	317.22	316.92	316.51	317.03	316.49	316.62
1-Jun-19	319.50	316.33	314.97	316.19	315.74	316.24	319.23	318.41	320.10	316.38	309.22	318.07	319.89	313.03	316.16	323.63	316.55
9-Sep-19	315.76	316.03	315.76	315.72	315.55	315.45	317.73	316.32	315.79	315.63	318.01	316.12	315.76	315.57	315.52	315.74	315.45
1-Dec-19	316.04	316.36	315.97	315.96	315.86	315.68	317.99	316.43	315.97	315.86	318.01	316.20	316.08	315.85	315.80	315.98	315.80

Notes Location 18 was decommissioned and off set in September 2014 to facilitate construction of the PDO Area.

Appendix **B**

Groundwater Chemistry and Time- Concentration Plots – Routine and Organics

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 1a-91 Lower Till

11/7/1991	EPL	7.2	609	297	32	8.1						25.6		10.5	2.9	96.7	<0.005	0.03	<0.09	<0.005	<0.03	17.7
3/4/1992	EPL	7.09	647	300	31.8	7.9						26.2		9.23	3.14	94.7	0.026	0.03	1.13	0.017	<0.03	17.9
3/7/1992	EPL	7.63	721	234	35.5	8.1						27.3		14.1	2.72	89.1	<0.005	<0.01	<0.06	<0.005	<0.03	27.5
5/17/1994	EPL	7.76	703	242	31.6	5.5				< 0.05		28.7		12.6	2.41	97.6	0.101	0.02	<0.06	0.024	<0.03	22.6
5/5/1995	MDS	7.6	689	250	32.5	5.2				< 0.05		31.7		17.3	2.67	102	0.012	0.02	<0.06	<0.005	<0.03	21.3

Monitor: 1b-91 Outwash

11/7/1991	EPL	7.3	753	280	40	15						37.4		23.9	3.5	111	0.074	0.05	<0.09	<0.005	<0.03	33.1
3/4/1992	EPL	7.31	733	227	34.9	13.6						34.1		10.5	2.95	97.2	0.265	0.05	0.7	0.022	<0.03	32.3
3/7/1992	EPL	7.64	740	224	34.1	14.6						33.6		20.7	3.01	97.8	0.022	0.04	<0.06	0.01	<0.03	27.2
3/17/1994	EPL	7.74	521	225	23	11.4				< 0.05		15.6		5.45	2.01	67.7	0.064	0.03	<0.06	0.009	<0.03	8.76
5/5/1995	MDS	7.85	398	138	16.4	7.4				< 0.05		19.7		26.9	10.9	46.1	0.033	0.03	<0.06	<0.005	<0.03	5.01

Monitor: 2a-91 Lower Till

11/7/1991	EPL	7.78	434	215	28	2.8						17.1		24.5	32	35	0.11	0.06	<0.09	<0.005	<0.03	0.98
3/4/1992	EPL	7.61	494	229	28.7	3.6						20		21.3	34.7	36.9	0.313	0.07	1.14	0.009	0.37	1.67
3/7/1992	EPL	7.88	479	209	28.3	1.4						16.2		15.2	30.6	36.6	0.018	0.06	<0.06	<0.005	0.16	1.99
5/17/1994	EPL	7.99	462	236	24.3	0.9				< 0.05		10.5		10.5	39.6	30.4	0.204	0.07	<0.06	<0.005	<0.03	0.08
5/5/1995	MDS	8.02	437	210	20.9	1				< 0.05		11.7		8.92	45.5	28	0.054	0.07	<0.06	<0.005	<0.03	0.47
4/13/1996	ENT	8.31	424	220	29	1.82			0.45			19.8	< 0.5	8.1	30	49.3	0.23	0.093		0.01	<0.06	<0.05
6/13/1996	ENT	8.27	331	234	26.5	2.61			0.159			18.9	< 0.5	7.5	32	43.3	<0.01	0.11		<0.01	<0.06	0.4
8/21/1996	ENT	7.7	454	237	26.9	2.1			0.22			19.9	1	7.5	33.3	43.9	<0.01	0.11		<0.01	<0.06	1.27
9/18/1996	ENT	8.11	363	226	31.4	1.9			0.03			18	< 0.5	6.4	31.4	41.1	<0.01	0.146		<0.01	<0.06	1.08
2/11/1997	WBL	7.9			23.8	1.7	< 0.34	8	0.17	0.021	< 0.011	48.4	< 0.72	119	27.1	45.6	0.796	0.057	0.048	0.028		
3/26/1997	WBL	8.18	514	235	27.7	2.29	< 0.34	17	0.16	0.089	< 0.011	25.2	< 0.72	5.8	26.2	51	0.672	0.07	<0.028	0.021		
6/25/1997	WBL	8.24	471	226	21.8	1.43	1.89	< 7	0.33	0.26	< 0.011	18.8	< 0.72	5.33	24	36.5	0.069	0.066	<0.028	0.016		
10/1/1997	WBL	8.1	441	227	22.6	1.63	0.66	14	0.33	0.176	< 0.011	16.3	< 0.72	5.13	26.9	38.6	0.477	0.055	<0.028	0.017		
12/11/1997	WBL	8.12	450	225	22.2	1.92	< 0.34	33	0.34	0.108	< 0.011	16.7	< 0.72	4.97	29.5	38.6	1.28	0.055	<0.028	0.042		0.22
3/31/1998	WBL	8.05	455	227	21.3	1.77	1.03			0.212		16.3	< 0.72	6.47	24.2	44.8	1.14	0.055	<0.011	0.022		0.58
6/24/1998	WBL	8.06	463	230	21.2	1.39	0.9			0.177		17	< 0.72	4.92	26.7	42	0.176	0.103	<0.006	0.01		0.8
10/2/1998	CAN	8	500	240	25	< 1	2	< 5	0.17	< 0.1	0.08	19	< 1	4.8	31	41	0.6	0.05		0.02		0.71
12/3/1998	CAN	7.9	490	240	23	< 1	< 2	< 5	0.2	< 0.1	0.12	17	< 2	4.9	30	36	<0.05	0.05		<0.01		0.4
6/29/1999	Barr	8.45	440	220	24.2	2	1.5	9	0.33	0.24	0.025	15.8		5.9	28.7	38	0.39	0.05	<0.1	0.017		
12/9/1999	Barr	8.04	454	221	23.2	1.4	0.7	14	0.46	0.23	0.009	15	< 1	< 5	32.3	34.5	0.02	0.07	<0.1	<0.005		
6/21/2000	Philip	7.88	441	231	21.6	1.2	1	< 5	0.46	0.31	0.005	15.3	< 1	5.1	25.6	35.8	<0.03	0.042	<0.05	<0.005		
12/7/2000	Philip	8.15	388	236	22.6	1.1	1.1	10	0.47	0.25	0.011	17.8	< 1	5.2	27.8	35.7	0.21	0.094		0.11		
6/27/2001	Philip	7.9	456	236	23	1	1.9	< 5	0.34	0.22	0.018	22.4	< 1	4.8	29.4	38.2	0.06	0.13	<0.1	0.135		
12/3/2001	Philip	8.19	457	241	20.3	1.6	1	< 5	0.23	0.07	0.028	18.1	< 1	4.2	30.4	33.3	0.03	0.07	<0.1	0.038		
6/4/2002	Philip	8.44	443	266	23.4	1	0.6	8	0.66	0.13	0.016	15.2	< 1	3.6	25.7	39.6	<0.01	0.06	<0.1	0.007		
12/3/2002	Philip	8.27	466	230	24.4	2	< 0.5	17	0.94	0.07	0.01	14.7	< 1	3.3	27.1	42.3	0.01	0.05	<0.1	<0.005		
6/2/2003	Philip	8.14	460	220	23.7	1	< 0.5	9	0.67	0.17	< 0.001	15.7	20	4.6	25.8	40.4	<0.01	0.06		<0.005		
12/1/2003	Philip	8.21	415	225	24.5	1.1	1	6	0.25	< 0.03	0.015	20.1	< 1	4.4	24.6	40.8	0.03	0.06	<0.1	<0.005		

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Conductivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 2a-91 Lower Till

6/9/2004	Philip	8.11	459	234	22	< 1	0.7	6	0.36	0.07	0.01	20.9	1	5.2	36.8	36.6	<0.01	0.06		0.03	<0.2	0.7
11/30/2004	Philip	8.04	452	241	23.5	1	< 0.5	5	0.23	0.03	0.005	15.5	< 1	4.3	27.5	38.4	<0.01	0.05		<0.005		
8/3/2005	N/A																					
11/28/2005	Maxx	8.24	433	233	25		< 2	14	0.8	0.14	< 0.02	15	< 1	4	32	4	<0.05	0.061	<0.05	0.005		
6/1/2006	MAX	8.2	510	254	27	1.4	< 2	6	0.8	0.24	< 0.02	15	< 1	7	28	48	<0.02	0.061	<0.05	<0.005		
12/4/2006	MAX	8.2	511	256	26	1.3	< 2	< 4	0.5	0.23	< 0.02	18	< 1	6	30	43	<0.02	0.061	<0.05	<0.005		
3/30/2007	MAX	8.3	477	241	22	1.2	< 2	4	0.4	0.21	< 0.02	16	< 1	6	32	39	<0.02	0.063	<0.05	<0.005		
6/14/2007	MAX	8.3	501	249	28	1.4	2	5	0.3	0.16	0.04	19	< 1	6	37	42	<0.02	0.071	<0.05	<0.005		
12/5/2007	MAX	8.3	448	229	23	1.3	< 2	8	0.2	0.12	< 0.02	13	< 1	4	24	40	<0.02	0.05	<0.1	<0.005	<0.01	0.1
6/25/2008	MAX	8.4	446	226	23	1.4		13	0.5	0.25	< 0.02	13	< 1	5	33	38	<0.02	0.059	<0.1	<0.005	<0.01	0.1
12/9/2008	MAX	8.1	460	236	21	1.1	< 2	4	0.3	0.09	0.03	16	< 1	3	29	39	<0.02	0.064	<0.1	<0.005	<0.01	<0.1
6/25/2009	MAX	8.1	486	244	27	1.4	< 2	6	0.5	0.25	< 0.02	16	< 1	4	31	44	<0.02	0.067	<0.1	<0.005	<0.01	0.8
12/16/2009	MAX	8.2	439	227	24	1.3	< 2	4	0.4	0.2	< 0.02	10	< 1	3	22	42	<0.02	0.055	<0.1	<0.005	<0.01	<0.1
6/29/2010	MAX	8.1	456	226	23	1.2	< 2	11	0.6	0.29	< 0.02	12	< 1	4	25	40	<0.02	0.064	<0.1	<0.005	<0.01	0.4
12/22/2010	MAX	8.07	452	238	26	1.2	< 2	< 4	0.2	< 0.05	< 0.02	7	< 1	4	22	45	<0.02	0.05	<0.1	0.013	<0.01	0.1
6/16/2011	MAX	8.11	493	246	26	1.4	< 2	13	0.5	0.3	< 0.02	15	< 1	3	27	47	0.02	0.057	<0.1	<0.005	0.03	0.9
12/15/2011	MAX	8.11	552	271	28	1.4	< 2	< 4	0.9	0.09	0.17	22	< 1	4	29	52	2	0.062	<0.1	0.06	0.06	0.4
6/18/2012	MAX	8.13	520	260	27	1.3	< 2	10	0.26	< 0.05	0.05	22	< 1	3	25	49	2.3	0.053	<0.1	0.011	<0.01	0.18
12/17/2012	MAX	7.98	640	330	35	1.5	< 2	< 4	0.45	0.066	0.086	31	< 1	4	32	62	2.8	0.054	<0.1	0.011	<0.01	0.52
6/18/2013	MAX	8.18	620	300	31	1.5	< 2	4.9	0.25	0.052	0.12	29	< 1	3	33	61	2.3	0.061	<0.1	0.007	<0.01	0.14
12/5/2013	MAX	7.97	700	340	38	1.6	< 2	18	3	0.1	0.86	34	< 1	5	32	73	<0.02	0.059	<0.1	<0.005	<0.01	0.74
5/26/2014	MAX	7.91	710	350	38	1.5	< 2	19	<2	< 0.05	0.94	36	< 1	5	30	72	27	0.053	<0.1	0.014	<0.01	0.9
12/2/2014	Remo																					

Monitor: 2b-91 Outwash

3/7/1992	EPL	8	499	154	26.3	0.4						28.1		18.1	3.56	63.8	<0.005	<0.01	<0.06	<0.005	<0.03	13.3
5/17/1994	EPL	7.9	587	208	31.4	2				< 0.05		34		8.69	9.44	63.9	0.054	0.01	<0.06	<0.005	<0.03	<0.03
5/5/1995	MDS	7.95	530	179	28.3	0.6				< 0.05		25.5		8.59	3.69	68.9	0.019	<0.01	<0.06	<0.005		17.2
4/13/1996	ENT	7.91	425	169	26.8	0.908				0.01		30.3	< 0.5	11.6	4.1	67.9	<0.01	0.42		<0.01	<0.06	<0.05
6/13/1996	ENT	8.34	337	177	25.1	0.8				0.016		28.2	0.1	7.5	3.9	60.3	<0.01	0.052		<0.01	<0.06	11
8/21/1996	ENT	8.16	373	167	22.8	1.14				0.06		26.2	1	6.7	3.63	59.6	<0.01	0.05		<0.01	<0.06	11.2
9/18/1996	ENT	7.93	377	216	22.9	0.9				< 0.01		26	< 0.5	6.5	2.9	60.2	<0.01	0.067		<0.01	<0.06	11.5
12/11/1996	ENT	8.19	459	208	21.1	1.1				0.04		26.7	< 0.5	7.2	4.6	51	<0.01	0.017		0.01	<0.06	11.4
3/27/1997	WBL	8.14	543	180	26.8	0.69	< 0.34	18	0.24	< 0.01	0.014	25.8	< 0.72	10.5	2.4	71.9	0.088	0.028	<0.028	0.013		
3/31/1998	WBL	7.92	556	183	25.8	0.78	1.03			< 0.019		23.2	1.34	16.2	3.88	74.8	0.111	<0.016	0.024	0.012		15.7
6/24/1998	Dry																					
10/2/1998	Dry																					
12/3/1998	Dry																					
12/9/1999	Barr	7.77	463	166	23.9	< 1	0.9	14	0.4	0.43	0.005	27	< 1	17	3.6	53.2	<0.01	<0.01	<0.1	0.016		
6/21/2000	Philip	7.89	401	184	24.5	0.7	< 0.5	< 5	0.23	< 0.03	< 0.002	25.5	< 1	8.1	4	58.2	<0.03	<0.005	<0.05	<0.005		
12/7/2000	INS																					

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 2b-91 Outwash

6/27/2001	INV																						
12/3/2001	INV																						
6/4/2002	Philip	8.22	362	176	21.8	< 1	1.1	15	1.01	< 0.03	0.006	19.1	< 1	5.5	1.8	52.2	<0.01	0.01	<0.1	0.015			
12/3/2002	INS																						
6/2/2003	Philip	8	444	182	23.1	< 1	1.4	14	0.74	< 0.03	< 0.001	15	6	4.8	2.2	54.4	<0.01	<0.01		0.019			
12/1/2003	Philip	8.16	501	190	25	< 1	< 0.5	10	0.51	< 0.03	0.004	23	< 1	8.4	2.9	61.4	<0.01	0.01	<0.1	0.008			
6/8/2004	Philip	7.83	550	256	31.2	< 1	< 0.5	7	0.49	< 0.03	0.002	21.3	< 1	8.4	2.1	90	0.04	0.01		0.179	<0.2	9.2	
11/30/2004	INS																						
8/3/2005	INS																						
11/28/2005	INS																						
6/1/2006	INS																						
12/4/2006	INS																						
3/30/2007	MAX	8.1	764	362	39	0.84	< 2	5	0.3	0.06	< 0.02	15	< 1	10	2.5	78	<0.02	0.022	<0.05	<0.005			
6/14/2007	INS																						
12/5/2007	INS																						
6/25/2008	MAX	8.3	494	228	26	0.79	< 4	0.3	0.05	< 0.02	< 0.02	10	< 1	4	2.6	64	<0.02	0.02	<0.1	0.016	<0.01	0.7	
12/9/2008	INS																						
6/25/2009	MAX	8	514	270	27	0.78	< 2	< 4	0.3	< 0.05	< 0.02	9	< 1	3	5.2	71	<0.02	0.02	<0.1	0.023	<0.01	0.7	
12/16/2009	INS																						
6/29/2010	MAX	8	558	286	26	0.75	< 2	7	0.2	< 0.05	< 0.02	9	< 1	3	5.2	75	<0.02	0.018	<0.1	0.022	<0.01	1.2	
12/22/2010	INS																						
6/16/2011	MAX	7.99	530	278	27	0.7	< 2	12	0.2	< 0.05	< 0.02	8	< 1	3	3.4	78	<0.02	0.016	<0.1	0.02	<0.01	0.4	
12/15/2011	MAX	8.05	537	283	27	0.95	< 2	9	0.5	< 0.05	0.24	8	< 1	4	4.9	80	4.3	0.02	<0.1	0.04	<0.01	0.6	
6/18/2012	INSV																						
12/17/2012	MAX	7.76	540	290	28	0.99	< 2	10	<0.1	< 0.05	0.19	6	< 1	3	3.8	87	6.7	0.011	<0.1	0.031	<0.01	0.46	
6/19/2013	MAX	7.97	460	230	20	0.65	< 2	22	0.6	< 0.05	0.28	7	< 1	2	2.4	61	12	0.017	<0.1	0.019	<0.01	0.41	
12/5/2013	MAX	7.92	500	270	26	0.94	< 2	31	2.9	< 0.05	0.34	5	< 1	2	2.4	81	<0.02	0.021	<0.1	0.026	<0.01	0.38	
5/26/2014	MAX	7.9	450	240	22	0.67	< 2	8.3	0.21	< 0.05	0.14	6	< 1	2	2.5	68	5.9	0.017	<0.1	0.03	<0.01	0.4	
12/2/2014	Remo																						

Monitor: 3-91 Bedrock

11/7/1991	EPL	7.2	711	278	42	1						31.7		22.6	3.2	104	0.12	0.02	<0.09	0.3	<0.03	27
3/4/1992	EPL	7.49	740	308	39.9	2						33.4		15.7	3.37	96.9	0.44	0.02	0.68	0.22	<0.03	22.4
5/17/1994	EPL	7.92	802	327	40.2	2.7				< 0.05		34.2		32.1	13.2	98.5	0.013	0.02	<0.06	0.299	<0.03	10.1
5/5/1995	MDS	7.47	687	300	37.2	< 0.4				< 0.05		32.5		20.8	7.75	96.5	0.018	0.01	<0.06	0.425	<0.03	9.27
8/21/1996	ENT	7.75	950	363	45.2	13.4				1.09		39	1.5	8	44.1	116	<0.01	0.12		0.46	<0.06	14.5
9/18/1996	ENT	7.53	720	323	39.9	7.1				0.45		30.8	< 0.5	40.1	18.1	105	0.03	0.112		0.28	<0.06	9.31
12/11/1996	ENT	8.09	918	363	32.9	1.86				0.08		35.9	< 0.5	49	17.4	85.6	<0.01	0.06		0.74	<0.06	18.3

Monitor: 3-97 Outwash

12/11/1997	WBL				464	29.4		79	2.08	0.037	2.07		< 0.72		98.5	905	54.9	0.05	3.3	6.86		
3/31/1998	WBL	7.72	1270	343	30.5	6.52	1.15			< 0.019		58.6	< 0.72	165	99.3	126	0.12	0.041	0.065	0.055		3.7

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 3-97 Outwash

6/24/1998	WBL	7.56	939	364	27	4.98	1.17			< 0.019		27.8	< 0.72	71.6	44.9	112	0.475	0.072	<0.006	0.134		2.42
10/2/1998	Dry																					
12/3/1998	Dry																					

Monitor: 5-91 Bedrock/Outwash

11/7/1991	EPL	7.54	589	290	35	1.8						54.2		15.8	12	88	<0.005	0.02	<0.09	0.048	<0.03	1.8
3/7/1992	EPL	7.51	658	282	34.7	1.1						41.4		12.3	14.8	85.3	<0.005	0.01	<0.06	0.29	0.12	6.35
5/17/1994	EPL	7.64	547	282	31.9	1				< 0.05		15.6		8.68	4.67	68.5	0.084	0.01	<0.06	0.92	<0.03	0.86
5/5/1995	MDS	7.37	1210	234	60.2	< 0.4				< 0.05		53		210	51.1	136	<0.005	0.02	<0.06	0.229	<0.03	12

Monitor: 5-96 Bedrock

2/11/1997	WBL	7.32			34.8	4.83	< 0.34	< 7	0.24	0.021	0.012	32.7	< 0.72	6.53	54.6	125	0.013	0.041	<0.028	1.07		
3/27/1997	WBL	7.45	1390	312	35	5.16	< 0.34		0.19	0.051	< 0.011	39.5	< 0.72	219	88.8	130	0.013	0.034	<0.028	1.92		
6/25/1997	WBL	7.58	1460	326	33.5	5.1	< 0.34	< 7	0.35	0.044	< 0.011	41.6	< 0.72	251	100	104	0.017	0.029	<0.028	1.62		
10/1/1997	WBL	7.26	1290	345	37.1	5.57	< 0.34	13	0.29	< 0.01	< 0.011	43.4	< 0.72	190	102	116	0.017	0.032	<0.028	1.78		
12/11/1997	WBL	7.34	1240	358	35.9	5.85	< 0.34	25	0.24	0.018	< 0.011	43.3	< 0.72	173	96.3	115	0.016	0.023	<0.028	1.7		2.26
3/31/1998	WBL	7.18	1180	352	30.6	5.14	< 0.34			0.058		41.5	< 0.72	142	75.3	128	0.017	0.028	<0.011	1.52		1.95
6/24/1998	WBL	7.38	1240	346	31.4	5.27	1.32			0.062		38.6	< 0.72	172	84.2	107	0.028	0.053	<0.006	2.1		1.75
10/2/1998	CAN	7.3	1300	370	32	5.3	3	6	0.25	< 0.1	0.03	42	< 1	160	91	100	<0.05	<0.05		1.9		0.53
12/3/1998	CAN	7.3	1200	380	30	5.6	< 2	< 5	0.13	< 0.1	0.11	39	< 2	130	88	94	<0.05	<0.05		1.5		0.54
6/29/1999	Barr	8.01	1216	333	34.4	6	1.3	10	0.23	0.06	0.004	41.7		236	105	105	<0.01	<0.01	<0.1	2.12		
12/9/1999	Barr	7.32	1136	355	30.2	4.8	0.6	14	0.42	0.32	0.058	33	< 1	124	100	90.5	<0.01	0.02	<0.1	1.61		
6/21/2000	Philip	7.27	1056	330	29.2	5	0.6	10	0.46	< 0.03	< 0.002	35.8	< 1	165	95.3	100	<0.03	0.009	<0.05	1.42		
12/7/2000	Philip	7.52	910	360	27.2	4.5	0.7	11	0.45	0.04	< 0.002	31.5	< 1	112	71.9	83.9	<0.03	0.022		1.66		
6/27/2001	Philip	7.55	1376	321	33.2	5	0.8	< 5	0.22	< 0.03	0.01	38	< 1	275	137	111	<0.01	0.06	<0.1	1.81		
12/3/2001	Philip	7.68	1054	343	27.4	3.9	1	6	0.32	< 0.03	0.003	33	< 1	136	93.2	89.9	<0.01	0.05	<0.1	1.88		
6/4/2002	Philip	8.38	1360	290	31.1	5	0.9	9	0.39	< 0.03	0.005	32.6	< 1	290	139	106	<0.01	0.02	<0.1	1.92		
12/3/2002	Philip	7.9	1116	316	25.9	5	< 0.5	10	0.37	< 0.03	0.013	30.4	< 1	177	118	86.1	<0.01	0.02	<0.1	1.56		
6/2/2003	Philip	7.52	2132	278	38.4	6	< 0.5	10	0.39	0.03	< 0.001	43.2	6	474	263	134	<0.01	0.02		2.35		
12/1/2003	Philip	7.89	1345	299	24.2	4.3	0.9	10	0.36	< 0.03	< 0.002	35.8	< 1	284	178	83.7	<0.01	0.02	<0.1	1.65		
6/8/2004	Philip	7.46	2148	275	33.2	4.6	< 0.5	13	0.48	< 0.03	0.006	47.8	< 1	631	295	130	0.06	0.02		2.43	<0.2	1
11/30/2004	Philip	7.69	1707	321	20.8	4	< 0.5	19	0.64	0.04	0.003	41.3	< 1	425	272	79	<0.01	0.02		1.44		
8/3/2005	Maxx	7.97	3500	283	40	7.7	< 2	27	1.2	< 0.05	< 0.02	47	< 1	952	710	160	<0.5	<0.1	<0.5	2.9		
11/28/2005	Maxx	8.1	2780	333	25		< 2	17	0.5	< 0.05	< 0.02	49	< 1	661	53	97	<0.05	0.023	<0.05	1.6		
6/1/2006	MAX	8	3480	302	31	5.9	< 2	15	0.6	0.07	< 0.02	41	< 1	908	590	120	<0.02	0.021	<0.05	2.1		
12/4/2006	MAX	7.9	2190	341	19	4.6	< 2	6	0.3	0.09	< 0.02	41	< 1	470	390	73	<0.02	0.02	<0.05	1.4		
3/30/2007	MAX	8	2610	297	22	4.6	< 2	11	0.4	0.12	< 0.02	38	< 1	630	410	97	<0.02	0.018	<0.05	1.5		
6/14/2007	MAX	8.1	2900	284	29	5.3	< 2	12	0.3	0.1	< 0.02	40	< 1	700	490	110	<0.02	0.018	<0.05	2.2		
12/5/2007	MAX	8.1	2460	307	23	5.4	< 2	24	0.2	0.06	< 0.02	39	< 1	580	420	94	<0.02	0.017	<0.1	1.7	0.01	0.2
6/25/2008	MAX	8.1	3810	270	30	5.5		29	0.4	< 0.05	< 0.02	44	< 1	970	610	140	<0.02	<0.01	<0.1	2.2	<0.01	0.5
12/9/2008	MAX	8	2530	319	16	4.2	< 2	12	0.3	< 0.05	< 0.02	39	< 1	570	390	76	<0.02	0.03	<0.1	1.5	<0.01	0.3
6/25/2009	MAX	7.8	3030	288	27	5	< 2	12	0.3	< 0.05	< 0.02	42	< 1	740	490	110	<0.02	0.019	<0.1	2.3	0.01	0.4

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 5-96 Bedrock

12/16/2009	MAX	7.7	2190	307	19	4.5	14	22	2	1.4	0.09	33	12	480	390	76	0.05	0.02	0.12	0.14	<0.01	0.2
6/24/2010	MAX	7.9	2560	263	24	4.4	< 2	4	0.5	< 0.05	< 0.02	32	< 1	610	390	100	<0.02	0.019	<0.1	1.4	<0.01	0.7
12/17/2010	MAX	7.9	1940	296	18	4	< 2	10	0.2	< 0.05	< 0.02	28	< 1	390	330	79	<0.02	0.027	<0.1	0.97	<0.01	0.4
6/15/2011	MAX	7.82	2580	277	26	4.2	< 2	16	0.2	< 0.05	< 0.02	31	< 1	630	390	120	<0.02	0.02	<0.1	2	<0.01	0.5
12/13/2011	MAX	7.96	1980	304	19	4	< 2	14	0.4	0.07	0.07	28	3	400	330	80	0.21	0.013	<0.1	1.1	<0.01	0.2
6/18/2012	MAX	7.85	3100	250	27	4.2	< 2	12	0.36	< 0.05	< 0.02	31	1.3	780	420	130	0.07	0.025	<0.1	1.7	<0.01	0.19
12/10/2012	MAX	7.71	1900	290	19	3.8	< 2	7.6	0.67	< 0.05	< 0.02	28	< 1	380	320	83	0.03	0.015	<0.1	1.6	<0.01	0.46
6/20/2013	MAX	8.24	3900	250	26	4.1	< 2	6.1	0.26	< 0.05	< 0.04	38	< 1	1100	380	120	0.26	0.013	<0.1	2.1	<0.01	0.26
12/3/2013	MAX	7.8	2400	300	19	4.1	< 2	6.4	0.31	< 0.05	< 0.02	30	< 1	590	440	88	<0.02	0.019	<0.1	1.5	<0.01	0.57
5/23/2014	MAX	7.8	2600	280	21	3.8	< 2	6.6	0.26	< 0.05	< 0.04	34	< 1	650	440	110	<0.02	0.013	<0.1	1.8	<0.01	0.64
12/3/2014	MAX	7.98	2800	290	23	4.3	< 2	8.4	0.14	< 0.05	< 0.02	35	< 1	680	460	100	<0.02	0.02	<0.1	1.8	<0.01	0.75
6/22/2015	MAX	7.68	2900	290	23	4.2	< 2	22	0.18	< 0.05	0.02	36	< 1	730	460	110	0.03	0.017	<0.1	1.7	<0.01	0.53
12/7/2015	MAX	7.84	2500	280	22	4	< 2	< 4	0.16	< 0.05	< 0.02	31	< 1	560	410	96	0.04	0.011	<0.1	1.8	<0.01	0.73
6/24/2016	MAX	7.96	3900	260	21	3.7	< 2	7.8	0.13	< 0.05	< 0.02	39	< 1	1100	390	96	0.17	0.019	<0.1	1.4	<0.01	0.21
12/5/2016	MAX	7.85	2900	310	17	3.6	< 2	10	0.13	< 0.05	< 0.02	39	< 1	670	490	86	0.06	0.018	<0.1	1.1	0.015	0.2
6/6/2017	MAX	8.07	3000	280	22	3.8	< 2	12	0.24	< 0.05	< 0.02	37	< 1	740	470	110	0.09	0.015	<0.1	1.7	<0.01	0.49
12/12/2017	MAX	7.96	2600	300	18	3.5	< 2	7.3	<0.1	< 0.05	< 0.02	33	< 1	550	390	86	0.07	0.029	<0.1	1.5	<0.01	0.38
6/20/2018	MAX	7.83	2600	280	21	3.6	< 2	7.3	<0.1	< 0.05	< 0.02	35	< 1	580	410	100	0.08	0.016	<0.1	1.6	<0.01	0.25
12/12/2018	MAX	7.91	2500	290	18	3.3	< 2	9.3	<0.1	< 0.05	< 0.02	36	< 1	560	400	85	0.05	0.016	<0.1	1.5	<0.01	0.31
6/26/2019	MAX	7.93	2700	270	21	3.3	< 2	5.9	0.13	0.056	< 0.02	37	< 1	740	470	110	0.04	0.016	<0.1	1.6	<0.01	0.33
12/4/2019	MAX	7.94	2700	280	21	3.6	< 2	< 4	<0.1	< 0.05	< 0.02	38	< 1	610	460	110	<0.02	0.015	<0.1	1.7	<0.01	0.33

Monitor: 6a-96 Bedrock

2/11/1997	WBL	7.55			26.4	3.58	0.87	17	0.25	< 0.01	< 0.011	32.4	< 0.72	16.3	68.8	111	0.036	0.038	<0.028	0.037		
3/26/1997	WBL	7.76	1430	237	35.4	4.36	< 0.34		<0.07	< 0.01	< 0.011	32.7	< 0.72	312	83.9	130	0.033	0.022	<0.028	0.051		
6/25/1997	WBL	7.76	1640	238	30	4.74	0.36	< 7	<0.07	< 0.01	< 0.011	33.4	< 0.72	312	136	104	0.026	0.028	<0.028	0.049		
10/1/1997	WBL	7.26	1690	420	37.1	16.4	1.44	10	0.23	< 0.01	< 0.011	43.1	< 0.72	216	134	158	0.021	0.056	0.035	0.154		
12/11/1997	WBL	7.63	1700	261	33	5.53	< 0.34	15	0.22	< 0.01	< 0.011	38.3	< 0.72	333	176	116	0.016	0.021	<0.028	0.03		14.8
3/31/1998	WBL	7.56	1290	246	29.1	4.87	< 0.34		< 0.019			32.9	< 0.72	199	70	133	0.02	0.021	<0.011	0.029		16.7
6/24/1998	WBL	7.61	1480	239	31.5	4.76	0.66		< 0.019			31	< 0.72	270	122	121	0.041	0.024	<0.006	0.049		13
10/2/1998	CAN	7.6	1500	260	33	4.8	2	8	0.24	< 0.1	0.02	33	< 1	250	130	110	<0.05	<0.05		0.04		16
12/3/1998	CAN	7.5	1600	250	33	5	< 2	< 5	0.11	< 0.1	0.12	30	< 2	280	120	110	<0.05	<0.05		0.07		12
6/29/1999	Barr	8.19	1210	252	33.5	5	0.9	10	0.24	0.03	0.003	32.3		261	111	112	<0.01	<0.01	<0.1	0.043		
12/9/1999	Barr	7.61	1344	260	31.1	4.3	0.7	11	0.14	0.02	0.006	30	< 1	208	129	101	<0.01	0.02	<0.1	0.07		
6/21/2000	Philip	7.52	1157	292	32	4	1.2	8	0.36	< 0.03	< 0.002	33.7	< 1	202	99.8	114	<0.03	<0.005	<0.05	0.039		
12/7/2000	Philip	7.74	1116	288	28.3	3.5	0.5	9	0.35	< 0.03	< 0.002	32.4	< 1	194	97.3	94.6	<0.03	0.014		0.034		
6/27/2001	Philip	7.73	1165	290	31.1	3	1.7	5	0.13	< 0.03	0.004	40	< 1	192	96	110	<0.01	0.06	<0.1	0.25		
12/3/2001	Philip	7.91	1232	286	30.7	2.7	< 0.5	< 5	0.12	< 0.03	0.005	36.4	< 1	206	104	106	<0.01	0.05	<0.1	0.099		
6/4/2002	Philip	8.14	1051	278	30	3	0.7	6	0.44	< 0.03	0.005	33.8	< 1	158	78.9	107	<0.01	0.02	<0.1	0.033		
12/3/2002	Philip	7.85	1143	271	29.3	4	< 0.5	8	0.41	< 0.03	0.012	33.9	< 1	179	99.2	106	<0.01	0.01	<0.1	0.039		
6/2/2003	Philip	7.58	1191	277	32.1	3	< 0.5	7	0.4	< 0.03	< 0.001	46.8	6	171	83.1	116	<0.01	0.01		0.035		

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 6a-96 Bedrock

12/1/2003	Philip	8.09	1098	277	31.1	2	0.8	10	0.29	< 0.03	0.004	39	< 1	167	79.4	111	<0.01	0.02	<0.1	0.035		
6/9/2004	Philip	7.77	1029	248	28.3	2.9	< 0.5	< 5	0.18	< 0.03	0.004	34.8	< 1	164	74.5	125	0.08	0.01		0.404	<0.2	16.1
11/30/2004	Philip	7.78	1463	253	37	3	< 0.5	8	0.24	0.05	0.004	38.3	< 1	345	115	137	<0.01	0.02		0.034		
8/3/2005	Maxx	8.02	1350	235	38	2.8	< 2	5	0.3	< 0.05	< 0.02	34	< 1	233	130	130	<0.05	0.012	0.07	0.029		
11/28/2005	Maxx	8.08	1510	252	40		< 2	8	0.9	< 0.05	< 0.02	42	< 1	256	140	140	<0.05	0.016	<0.05	0.036		
6/1/2006	MAX	8.1	1510	264	35	2.7	< 2	7	0.3	< 0.05	0.04	39	1	228	130	120	<0.02	0.018	<0.05	0.036		
12/4/2006	MAX	7.9	1620	273	42	3.2	< 2	6	<0.1	0.09	0.02	56	< 1	210	140	150	<0.02	0.019	<0.05	0.042		
3/30/2007	MAX	8.1	1530	270	34	3.1	< 2	5	0.3	0.15	< 0.02	55	< 1	180	110	130	<0.02	0.021	<0.05	<0.005		
6/14/2007	MAX	8.2	1330	206	38	3.4	< 2	5	<0.1	0.1	< 0.02	56	< 1	190	130	130	<0.02	0.025	<0.05	0.035		
12/5/2007	MAX	8	1610	267	38	3.3	< 2	17	0.3	< 0.05	< 0.02	46	< 1	230	140	140	<0.02	0.015	<0.1	0.037	<0.2	34
6/25/2008	MAX	8.2	1660	257	32	3.1		< 4	0.4	0.09	< 0.02	42	< 1	280	160	120	0.04	0.021	<0.1	0.036	<0.1	26
12/9/2008	MAX	8	1740	268	38	3.6	< 2	9	<0.1	0.09	< 0.02	54	< 1	260	150	140	<0.02	0.02	<0.1	0.042	<0.01	37
6/25/2009	MAX	7.9	1700	273	39	4.4	< 2	5	0.1	< 0.05	< 0.02	50	< 1	240	160	150	<0.02	0.03	<0.1	0.039	<0.01	46
12/15/2009	MAX	7.8	1520	280	33	3.9	< 2	4	0.2	< 0.05	0.04	41	< 1	220	140	120	<0.02	0.03	<0.1	0.039	<0.01	22
6/23/2010	MAX	8	1340	277	28	3.4	< 2	< 4	0.4	< 0.05	< 0.02	37	< 1	200	130	110	<0.02	0.027	<0.1	0.029	<0.01	12
12/20/2010	MAX	7.86	1340	279	28	2.9	< 2	5	0.2	< 0.05	< 0.02	33	< 1	210	130	110	0.06	0.021	<0.1	0.035	<0.01	6.8
6/14/2011	MAX	7.94	1300	276	28	3	< 2	8	0.3	< 0.05	< 0.02	35	< 1	190	140	100	<0.02	0.028	<0.1	0.031	<0.01	8.4
12/13/2011	MAX	8.01	1220	269	26	3	< 2	5	0.2	< 0.05	0.04	34	< 1	160	120	98	<0.02	0.016	<0.1	0.038	<0.01	7.5
6/18/2012	MAX	7.91	1100	280	23	2.8	< 2	9.2	0.39	< 0.05	< 0.02	35	1.1	140	100	89	<0.02	0.021	<0.1	0.027	<0.01	5.9
12/10/2012	MAX	7.91	1200	290	26	2.9	< 2	< 4	0.45	< 0.05	< 0.02	34	< 1	160	120	100	<0.02	0.019	<0.1	0.03	<0.01	4.9
6/17/2013	MAX	8	1100	280	23	2.5	< 2	4	0.21	< 0.05	< 1	34	< 1	150	100	89	<0.02	0.024	<0.1	0.025	<0.01	4.8
12/2/2013	MAX	7.84	1200	290	27	3.2	< 2	7.1	0.35	< 0.05	< 0.02	39	< 1	160	110	100	<0.02	0.024	<0.1	0.029	<0.01	5.2
5/21/2014	MAX	7.88	1200	290	26	3.6	< 2	< 4	0.18	< 0.05	< 0.04	38	< 1	160	110	110	<0.02	0.024	<0.1	0.031	<0.01	5.31
12/2/2014	MAX	7.93	1300	280	25	3.7	< 2	< 4	0.33	< 0.05	< 0.02	34	< 1	180	120	100	0.03	0.029	<0.1	0.029	<0.01	4.55
6/16/2015	MAX	7.79	1400	290	28	2.9	< 2	4.5	0.55	< 0.05	0.02	35	< 1	230	140	110	0.05	0.029	<0.1	0.035	<0.01	3.7
12/2/2015	MAX	7.86	1400	270	24	2.6	< 2	6.9	0.38	0.1	0.021	37	< 1	220	140	98	0.15	0.026	<0.1	0.03	<0.01	2.8
6/23/2016	MAX	8.06	1300	260	24	2.5	< 2	5.3	0.16	< 0.05	< 0.02	38	< 1	200	120	98	<0.02	0.024	<0.1	0.03	<0.01	2.53
12/2/2016	MAX	7.92	1300	270	26	2.7	2	< 4	<0.1	< 0.05	< 0.02	42	< 1	210	130	100	<0.02	0.02	<0.1	0.03	<0.01	2.65
6/6/2017	MAX	8.13	1200	270	25	2.5	< 2	5.6	0.23	< 0.05	< 0.02	45	< 1	190	110	100	0.06	0.021	<0.1	0.028	<0.01	2.71
12/5/2017	MAX	7.9	1400	270	26	2.5	< 2	< 4	0.26	0.11	< 0.02	46	< 1	220	120	100	0.14	0.019	<0.1	0.02	0.011	2.48
6/20/2018	MAX	7.95	1300	260	26	2.3	< 2	< 4	0.15	< 0.05	< 0.02	50	< 1	190	110	110	0.02	0.021	<0.1	0.027	<0.01	1.76
12/12/2018	MAX	7.91	1300	260	27	2.1	< 2	< 4	<0.1	< 0.05	0.024	56	< 1	200	110	110	0.09	0.019	<0.1	0.021	<0.01	1.41
6/14/2019	MAX	7.92	1300	250	27	2.1	< 2	5.8	<0.1	< 0.05	< 0.02	61	< 1	250	120	110	0.04	0.021	<0.1	0.02	<0.01	1.48
12/2/2019	MAX	7.87	1300	250	29	2.1	< 2	< 4	0.15	< 0.05	0.034	55	< 1	210	110	110	0.22	0.019	<0.1	0.029	<0.01	1.67

Monitor: 6b-96 Outwash

2/11/1997	WBL	7.39			42.2	15.3	0.42	22	0.18	0.055	< 0.011	44.3	< 0.72	621	322	167	0.038	0.045	<0.028	0.073		
3/26/1997	WBL	7.73	3260	260	35.2	16.3	< 0.34		0.09	< 0.01	< 0.011	44.1	< 0.72	815	467	146	0.073	0.062	<0.028	0.1		
6/25/1997	WBL	7.58	2210	323	34.8	15	0.51	< 7	<0.07	< 0.01	< 0.011	45	< 0.72	440	198	125	0.033	0.047	<0.028	0.139		
10/1/1997	WBL	7.65	1740	246	36.2	5.36	4.19	56	<0.07	< 0.01	< 0.011	35.8	< 0.72	341	164	128	0.019	0.02	0.035	0.041		
12/11/1997	WBL	7.33	1200	333	30.6	13.1	0.75	17	0.17	< 0.01	< 0.011	39.7	< 0.72	128	80.5	120	0.145	0.046	<0.028	0.09		14

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 6b-96 Outwash

3/31/1998	WBL	7.43	2770	270	28.8	12.6	< 0.34			< 0.019		50.9	< 0.72	649	289	168	0.113	0.029	<0.011	0.083			17.3
6/24/1998	WBL	7.34	1860	308	35.5	15.4	0.48			0.047		43	< 0.72	279	159	163	0.017	0.078	<0.006	0.151			43.5
10/2/1998	CAN	7.3	1500	410	45	15	< 2	< 5	0.34	< 0.1	< 0.02	40	< 1	150	92	160	<0.05	0.05		0.14			37
12/3/1998	CAN	7.3	1300	390	35	12	< 2	< 5	<0.1	< 0.1	0.11	35	< 2	120	75	120	<0.05	<0.05		0.1			15
6/29/1999	Barr	8.01	1550	327	34.3	11	1.9	11	0.29	< 0.02	0.003	44.4		338	189	125	0.01	0.03	<0.1	0.098			
12/9/1999	Barr	7.32	1378	332	32.1	10.5	0.6	17	0.54	0.05	0.002	38	< 1	155	122	121	<0.01	0.04	<0.1	0.108			
6/21/2000	Philip	7.36	1639	306	31	18	< 0.5	13	3.16	2.84	< 0.002	48.8	< 1	313	182	130	<0.03	0.03	<0.05	0.099			
12/7/2000	Philip	7.48	1137	352	32.9	10.2	2.5	11	0.44	0.09	< 0.002	43.7	< 1	163	78.3	113	<0.03	0.04		0.104			
6/27/2001	Philip	7.59	1580	339	30.2	10	1.9	< 5	0.28	< 0.03	0.005	43	< 1	265	188	114	<0.01	0.07	<0.1	0.258			
12/3/2001	Philip	7.79	1531	379	28.6	8.9	< 0.5	11	0.42	< 0.03	0.008	56.7	< 1	252	161	116	<0.01	0.06	<0.1	0.141			
6/4/2002	Philip	8.2	1769	317	32.7	10	0.6	12	0.59	< 0.03	0.015	46.1	< 1	390	223	129	0.01	0.04	<0.1	0.177			
12/3/2002	Philip	7.85	974	310	25.8	9	< 0.5	14	0.77	< 0.03	0.009	34.7	< 1	97	77.2	95	<0.01	0.03	<0.1	0.063			
6/2/2003	Philip	7.69	1538	270	25.8	7	0.7	10	0.37	0.1	< 0.001	41.9	11	350	225	101	<0.01	0.03		0.068			
12/1/2003	Philip	7.96	1407	309	22.5	6.9	0.8	5	0.42	< 0.03	0.004	38.6	< 1	278	179	107	0.03	0.03	<0.1	0.242			
6/9/2004	Philip	7.54	1871	314	40.4	10.2	< 0.5	8	0.3	< 0.03	0.003	65.2	< 1	412	214	217	0.21	0.04		1.31	<0.2		40.3
11/30/2004	Philip	7.76	791	290	20.5	6	< 0.5	13	0.6	< 0.03	0.004	23.4	< 1	90.3	53.1	85.9	<0.01	0.02		0.054			
8/3/2005	Maxx	7.86	1920	347	39	13	< 2	13	0.7	< 0.05	< 0.02	49	< 1	297	210	160	<0.05	0.045	<0.05	0.11			
11/28/2005	Maxx	8.19	1190	348	26		< 2	11	0.2	< 0.05	< 0.02	35	< 1	120	110	110	<0.05	0.039	<0.05	0.067			
6/1/2006	MAX	8	2060	342	35	11	< 2	8	0.5	< 0.05	0.08	44	< 1	340	250	140	<0.02	0.045	<0.05	0.088			
12/4/2006	MAX	8.1	1420	412	24	8.6	< 2	7	0.6	0.09	< 0.02	44	< 1	170	180	99	<0.02	0.04	<0.05	0.066			
3/30/2007	MAX	7.9	2440	356	31	9.2	8	12	0.8	0.11	< 0.02	54	< 1	460	280	120	<0.02	0.034	<0.05	<0.005			
6/14/2007	MAX	8	1820	344	36	11	< 2	9	0.3	0.09	< 0.02	55	< 1	240	230	140	<0.02	0.05	<0.05	0.09			
12/5/2007	MAX	8.1	1450	282	29	11	< 2	17	0.4	< 0.05	< 0.02	44	< 1	240	130	120	<0.02	0.041	<0.1	0.068	<0.01		8.3
6/25/2008	MAX	8.1	2480	308	47	14		15	0.6	0.13	< 0.02	63	< 1	420	280	190	<0.02	0.047	<0.1	0.12	<0.1		76
12/9/2008	MAX	8	1840	309	33	12	< 2	11	0.4	0.12	0.05	51	< 1	280	190	130	<0.02	0.034	<0.1	0.085	0.01		33
6/25/2009	MAX	7.9	2030	320	30	11	< 2	6	0.3	< 0.05	< 0.02	46	< 1	370	280	120	<0.02	0.049	<0.1	0.08	<0.01		23
12/15/2009	MAX	7.8	1380	307	30	11	< 2	< 4	0.6	0.19	0.03	45	< 1	170	130	120	<0.02	0.04	<0.1	0.068	<0.01		22
6/23/2010	MAX	8	1300	302	22	8.1	< 2	< 4	0.5	< 0.05	< 0.02	36	< 1	190	140	90	<0.02	0.035	<0.1	0.064	<0.01		12
12/20/2010	MAX	7.82	1080	283	22	8.3	< 2	6	0.3	< 0.05	< 0.02	33	< 1	130	94	96	<0.02	0.027	<0.1	0.059	<0.01		11
6/14/2011	MAX	7.91	1650	313	22	7.7	< 2	16	0.4	< 0.05	< 0.02	36	< 1	270	240	93	<0.02	0.036	0.11	0.057	<0.01		6.1
12/13/2011	MAX	8.01	1380	326	24	9.1	< 2	13	0.8	< 0.05	0.12	38	< 1	180	160	95	2	0.024	<0.1	0.067	<0.01		5.3
6/18/2012	MAX	7.9	1500	350	22	7.6	< 2	10	0.38	< 0.05	0.027	39	< 1	230	190	95	0.12	0.029	<0.1	0.063	<0.01		5.6
12/10/2012	MAX	7.84	1200	310	21	7.6	< 2	16	1.1	< 0.05	0.12	22	1.2	160	130	94	2.4	0.023	<0.1	0.06	<0.01		2.9
6/17/2013	MAX	7.88	1900	330	26	8.7	< 2	4.6	0.81	0.4	0.044	73	< 1	330	230	110	0.1	0.036	<0.1	0.078	0.018		6.8
12/2/2013	MAX	7.79	1400	310	23	7.4	2	22	0.86	0.15	0.026	44	< 1	220	170	110	<0.02	0.03	<0.1	0.073	0.048		5.3
5/21/2014	MAX	7.88	2100	330	23	6.2	< 2	9.7	0.38	< 0.05	0.052	41	< 1	410	310	110	<0.02	0.027	<0.1	0.081	<0.01		7.18
12/2/2014	MAX	7.78	1900	330	28	8.4	2	14	1.4	0.063	0.059	40	< 1	350	210	130	0.21	0.042	<0.1	0.086	0.013		5.69
6/16/2015	MAX	7.75	1600	320	23	7	< 2	5.4	0.67	< 0.05	0.025	39	< 1	280	210	110	0.26	0.039	<0.1	0.076	<0.01		4.28
12/2/2015	MAX	7.81	1200	290	22	7.3	< 2	8.5	0.33	< 0.05	0.048	36	< 1	140	100	93	0.18	0.035	<0.1	0.065	<0.01		3.48
6/23/2016	MAX	7.99	2000	320	29	7.4	< 2	7.4	0.6	< 0.05	< 0.02	38	< 1	380	220	130	0.22	0.037	<0.1	0.088	<0.01		4.66
12/2/2016	MAX	7.93	1000	300	20	6.6	< 2	< 4	0.15	< 0.05	< 0.02	31	< 1	120	79	84	0.12	0.034	<0.1	0.058	<0.01		2.89

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 6b-96 Outwash

6/6/2017	MAX	8.1	1900	310	23	6.1	< 2	9.4	0.41	< 0.05	0.021	39	< 1	360	240	100	0.36	0.036	<0.1	0.062	<0.01	4.28
12/5/2017	MAX	7.94	770	280	16	4.9	< 2	4.1	0.12	< 0.061	< 0.02	20	< 1	68	59	68	0.27	0.024	<0.1	0.037	<0.01	1.31
6/20/2018	MAX	7.92	1100	280	20	4.6	< 2	< 4	0.13	< 0.05	0.029	59	< 1	140	110	92	0.33	0.03	<0.1	0.05	<0.01	1.99
12/12/2018	MAX	7.95	920	270	16	4.1	< 2	5	0.1	< 0.05	0.024	31	< 1	110	89	73	0.19	0.018	<0.1	0.039	<0.01	1.65
6/14/2019	MAX	7.92	1700	290	25	5.2	< 2	4.8	0.33	< 0.05	< 0.02	39	< 1	340	220	120	0.03	0.032	<0.1	0.057	<0.01	2.59
12/2/2019	MAX	7.88	920	260	19	3.9	< 2	< 4	0.16	0.078	< 0.02	31	< 1	130	100	77	0.29	0.019	<0.1	0.048	<0.01	1.59

Monitor: 7-96 Outwash

2/11/1997	WBL	7.7			26.2	12.6	< 0.34	24	<0.07	< 0.01	< 0.011	35.2	2.48	132	63.5	90.1	0.053	0.048	<0.028	0.05		
3/26/1997	WBL	7.7	1180	256	32.5	14	< 0.34		<0.07	< 0.01	< 0.011	35.5	< 0.72	131	80.6	104	0.071	0.074	<0.028	0.084		
6/25/1997	WBL	7.8	992	250	29.6	9.65	0.69	< 7	0.08	< 0.01	< 0.011	35.2	< 0.72	66.4	33.7	95.1	0.03	0.039	<0.028	0.11		
10/1/1997	WBL	7.57	902	251	33.2	10.2	1.44	< 7	0.1	< 0.01	< 0.011	35.7	< 0.72	54.3	28.7	110	0.039	0.056	<0.028	0.082		24.6
12/11/1997	WBL	7.52	906	248	31.8	10.1	< 0.34	< 7	0.25	< 0.01	< 0.011	36.3	< 0.72	62.1	30	105	0.168	0.055	<0.028	0.084		23
3/31/1998	WBL	7.55	1120	224	32.4	9.06	< 0.34			< 0.019		43	< 0.72	92.4	36.8	127	0.092	0.038	<0.011	0.088		43.1
6/24/1998	WBL	7.77	1200	226	34.9	9.49	0.78			< 0.019		41.3	< 0.72	89.8	38.8	141	0.058	0.056	<0.006	0.115		53.5
10/2/1998	CAN	7.4	1100	280	38	11	3	10	0.27	< 0.1	< 0.02	46	< 1	74	35	130	<0.05	<0.05		0.12		41
12/3/1998	CAN	7.5	1200	310	39	11	< 2	< 5	0.36	< 0.1	0.1	41	< 2	72	32	130	<0.05	<0.05		0.13		37
6/29/1999	Barr	8.15	1325	248	41	12	2.2	10	0.21	< 0.02	0.003	58.4		282	110	132	<0.01	0.03	<0.1	0.122		
12/9/1999	Barr	7.39	1478	293	45.4	14.1	0.8	13	0.2	< 0.02	< 0.002	41	< 1	231	91.1	135	<0.01	0.05	0.1	0.153		
6/21/2000	Philip	7.44	1775	255	48.8	13.9	0.6	12	0.54	< 0.03	< 0.002	80.9	< 1	397	172	157	<0.03	0.035	<0.05	0.144		
12/7/2000	Philip	7.5	1430	321	41	13.2	16	12	0.3	0.05	< 0.002	75.8	< 1	227	118	135	<0.03	0.102		0.297		
6/27/2001	Philip	7.72	1768	293	44.4	13	1.7	6	0.34	< 0.03	0.006	105	< 1	307	176	144	<0.01	0.09	<0.1	0.246		
12/3/2001	Philip	7.73	1259	365	36.2	11.8	< 0.5	7	0.41	< 0.03	0.004	48.7	< 1	162	87.8	124	<0.01	0.05	<0.1	0.151		
6/4/2002	Philip	8.04	1863	328	46.1	20	< 0.5	11	0.77	0.42	0.006	110	< 1	378	201	146	<0.01	0.07	<0.1	0.182		
12/3/2002	Philip	7.92	1681	350	44.9	27	< 0.5	16	1.03	1.11	0.012	70.9	< 1	244	145	152	<0.01	0.07	<0.1	0.173		
6/2/2003	Philip	7.52	2122	298	52.7	23	< 0.5	11	0.99	0.41	0.002	131	12	380	212	167	<0.01	0.06		0.199		
12/1/2003	Philip	8	1206	303	36.9	16.3	1.3	12	0.41	< 0.03	0.003	61.1	< 1	178	86.6	118	<0.01	0.05	<0.1	0.147		
6/8/2004	Philip	7.48	1995	336	51.6	22	0.8	13	0.57	< 0.03	0.002	129	< 1	370	196	226	0.19	0.07		0.859	<0.2	55.4
11/30/2004	Philip	7.71	1705	368	40.5	20	< 0.5	15	0.75	0.12	0.003	107	< 1	296	158	150	<0.01	0.07		0.202		
8/3/2005	Maxx	7.95	1800	325	51	19	< 2	22	1.5	0.12	< 0.02	86	< 1	190	140	180	<0.05	0.086	0.067	0.23		
11/28/2005	Maxx	8.07	2140	378	52		< 2	10	1	< 0.05	< 0.02	112	< 1	258	180	200	<0.05	0.093	<0.05	0.27		
6/1/2006	MAX	8	1910	306	44	16	< 2	12	0.7	< 0.05	0.04	113	< 1	186	120	170	<0.02	0.099	<0.05	0.24		
12/4/2006	MAX	7.9	1610	315	40	17	< 2	7	0.7	0.09	< 0.02	83	1	150	100	170	<0.02	0.092	<0.05	0.22		
3/30/2007	MAX	8.1	1650	276	45	16	< 2	12	<0.1	0.08	< 0.02	65	< 1	160	100	180	<0.02	0.06	<0.05	0.23		
6/14/2007	MAX	8	1370	278	39	15	< 2	8	0.1	0.09	< 0.02	70	< 1	140	110	140	<0.02	0.058	<0.05	0.18		
12/5/2007	MAX	8	1310	289	36	15	< 2	20	0.5	0.06	< 0.02	57	< 1	100	72	150	<0.02	0.048	<0.1	0.2	<0.2	44
6/25/2008	MAX	8.1	1810	284	37	14		9	0.6	0.06	< 0.02	83	< 1	240	150	140	<0.02	0.065	<0.1	0.21	<0.1	54
12/9/2008	MAX	7.9	1470	289	35	14	< 2	8	0.6	< 0.05	< 0.02	58	< 1	170	110	130	<0.02	0.062	<0.1	0.19	0.02	41
6/25/2009	MAX	7.8	1400	318	33	11	< 2	< 4	0.6	< 0.05	< 0.02	56	< 1	190	130	120	<0.02	0.042	<0.1	0.17	<0.01	21
12/15/2009	MAX	7.8	1130	298	28	12	< 2	5	0.4	< 0.05	0.03	40	< 1	120	89	100	<0.02	0.052	<0.1	0.15	<0.01	15
6/24/2010	MAX	8	1380	331	36	12	< 2	4	0.5	< 0.05	< 0.02	51	< 1	180	100	130	<0.02	0.039	<0.1	0.19	<0.01	21

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 7-96 Outwash

12/17/2010	MAX	7.73	1030	278	29	11	< 2	12	0.3	< 0.05	< 0.02	41	< 1	84	73	110	<0.02	0.05	<0.1	0.17	<0.01	23
6/14/2011	MAX	7.85	1740	316	36	11	< 2	16	0.6	< 0.05	< 0.02	60	< 1	270	190	130	<0.02	0.039	<0.1	0.16	<0.01	18
12/14/2011	MAX	8.02	1190	333	30	11	< 2	5	0.4	< 0.05	0.05	46	< 1	110	93	110	0.81	0.036	<0.1	0.22	<0.01	16
6/18/2012	MAX	7.88	1200	310	28	9.5	< 2	15	0.66	< 0.05	0.034	44	1	120	91	100	1.7	0.034	<0.1	0.17	<0.01	12
12/10/2012	MAX	7.88	1100	330	28	11	< 2	7.7	0.54	< 0.05	< 0.02	46	< 1	110	86	110	0.08	0.04	<0.1	0.2	<0.01	8.6
6/19/2013	MAX	8.12	1100	300	26	8.5	< 2	4.8	0.28	< 0.05	< 0.02	41	< 1	130	80	100	0.74	0.037	<0.1	0.19	<0.01	6.8
12/3/2013	MAX	7.73	1000	320	27	11	< 2	11	0.52	0.064	< 0.02	34	< 1	110	73	100	<0.02	0.047	<0.1	0.11	<0.01	5.3
5/26/2014	MAX	7.74	1400	300	30	9.7	< 2	18	0.48	< 0.05	< 0.04	42	< 1	190	120	110	<0.02	0.037	<0.1	0.17	<0.01	5.87
12/3/2014	MAX	7.88	1100	290	28	10	< 2	< 4	0.4	< 0.05	< 0.02	37	< 1	140	81	110	<0.02	0.047	<0.1	0.2	<0.01	4.93
6/22/2015	MAX	7.76	1000	290	26	7.8	< 2	21	0.65	< 0.05	< 0.02	36	< 1	130	70	97	0.22	0.035	<0.1	0.16	<0.01	4.54
12/7/2015	MAX	7.73	1100	300	29	9	< 2	< 4	0.4	< 0.05	0.024	35	< 1	140	78	110	0.22	0.031	<0.1	0.17	<0.01	3.88
6/22/2016	MAX	7.98	1200	290	27	7.9	< 2	4.1	0.17	< 0.05	< 0.02	37	< 1	170	120	100	0.09	0.034	<0.1	0.14	<0.01	4.42
11/30/2016	MAX	7.77	1200	300	26	8.2	< 2	< 4	<0.2	< 0.05	< 0.02	34	< 1	150	87	110	0.2	0.042	<0.1	0.2	<0.01	4.89
6/6/2017	MAX	8.04	1400	290	29	8.3	< 2	9.5	0.42	< 0.05	< 0.02	41	< 1	220	130	110	0.11	0.036	<0.1	0.15	<0.01	5.42
12/6/2017	MAX	7.77	1300	390	29	8	< 2	< 4	<0.2	< 0.05	< 0.02	41	< 1	130	100	120	0.07	0.047	<0.1	0.18	<0.01	4.38
6/13/2018	MAX	7.98	1600	330	31	8.2	< 2	18	<0.2	< 0.05	< 0.02	44	< 1	270	170	110	0.19	0.045	<0.1	0.17	<0.01	4.96
12/11/2018	MAX	7.79	1200	340	27	7.6	< 2	< 4	0.28	0.11	0.023	43	< 1	130	98	100	0.22	0.037	<0.1	0.16	<0.01	3.11
6/14/2019	MAX	7.91	1900	300	34	8.4	< 2	4.8	<0.2	< 0.05	0.02	51	< 1	370	210	130	0.04	0.039	<0.1	0.21	<0.01	6.32
12/2/2019	MAX	7.73	1800	350	34	8.6	< 2	< 4	<0.1	< 0.05	< 0.02	50	< 1	300	190	130	0.05	0.05	<0.1	0.2	<0.01	6.45

Monitor: 8-96 Bedrock

2/11/1997	WBL	7.78			39.9	2.08	< 0.34	28	0.21	< 0.01	0.034	73.5	< 0.72	33	19.3	94.9	0.054	0.051	<0.028	0.024		
3/27/1997	WBL	7.77	864	302	36.9	1.73	< 0.34	46	0.3	< 0.01	< 0.011	53.9	< 0.72	49.8	18.8	107	0.011	0.032	<0.028	0.673		
6/25/1997	WBL	7.84	882	308	33.6	1.77	< 0.34	< 7	<0.07	0.018	< 0.011	60.8	< 0.72	40.9	17.6	92	0.017	0.052	<0.028	0.543		
10/1/1997	WBL	7.45	838	321	37.1	1.9	0.51	51	0.2	< 0.01	< 0.011	66.2	< 0.72	37.2	19.3	111	0.021	0.021	<0.028	0.502		
12/11/1997	WBL	7.61	880	297	37.7	1.99	< 0.34	< 7	0.34	< 0.01	< 0.011	75.2	< 0.72	55.4	21	105	0.063	0.025	<0.028	0.69		5.16
3/31/1998	WBL	7.41	997	288	33.4	2.05	1.72			< 0.019		65.6	< 0.72	102	32.9	116	0.013	0.022	<0.011	0.535		3.94
6/24/1998	WBL	7.5	890	309	32.1	1.78	0.75			< 0.019		59.6	< 0.72	58.4	30.1	107	0.057	<0.016	<0.006	0.632		5.23
10/2/1998	CAN	7.4	890	320	38	2.2	< 2	< 5	0.3	< 0.1	< 0.02	73	< 1	57	31	110	<0.05	<0.05		0.84		4.8
12/3/1998	CAN	7.4	910	310	36	2.2	< 2	< 5	0.48	< 0.1	0.12	72	< 2	60	28	99	<0.05	<0.05		0.83		2.6
6/29/1999	Barr	8.23	976	282	40.1	3	1.7	12	0.19	< 0.02	0.003	68.2		146	67.7	109	<0.01	<0.01	<0.1	0.751		
12/9/1999	Barr	7.46	1358	287	43.4	2.8	0.9	9	0.49	0.03	0.004	64	< 1	207	103	114	<0.01	0.01	<0.1	0.896		
6/21/2000	Philip	7.43	1212	264	38.9	2.4	< 0.5	6	0.25	< 0.03	< 0.002	64.4	< 1	233	107	111	<0.03	<0.005	<0.05	0.89		
12/7/2000	Philip	7.6	942	320	34.6	2	1.3	13	0.25	0.04	< 0.002	63.7	< 1	125	59.2	94.6	<0.03	0.059		1.01		
6/27/2001	Philip	7.76	1019	317	36.3	2	1.6	< 5	0.27	0.03	0.037	63	< 1	139	76.1	105	0.02	0.05	<0.1	1.11		
12/3/2001	Philip	7.66	1329	356	36	2.3	1.1	< 5	0.2	< 0.03	0.005	50	< 1	225	93.9	103	<0.01	0.05	<0.1	1.02		
6/4/2002	Philip	8.43	1024	302	35.1	3	< 0.5	12	0.75	< 0.03	0.008	56.5	< 1	138	74.1	102	<0.01	0.01	<0.1	0.867		
12/3/2002	Philip	7.97	1002	309	35.8	3	< 0.5	6	0.31	< 0.03	0.004	59.4	< 1	118	65.5	101	<0.01	0.01	<0.1	0.871		
6/2/2003	Philip	7.47	1622	276	39.9	3	< 0.5	7	0.41	< 0.03	< 0.001	55.1	9	332	171	116	<0.01	0.01		1.08		
12/1/2003	Philip	7.85	1262	285	35.6	3.1	1	9	0.4	< 0.03	0.003	53.8	< 1	254	124	104	<0.01	0.02	<0.1	1.05		
6/8/2004	Philip	7.6	1036	292	35.3	1.8	< 0.5	6	0.2	< 0.03	0.003	58.4	< 1	159	80.6	123	0.11	0.01		1.43	<0.2	3.9

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 8-96 Bedrock

11/30/2004	Philip	7.8	981	309	33.4	3	< 0.5	17	0.7	< 0.03	0.006	58.4	< 1	121	66.2	96.3	<0.01	<0.01	0.069	0.919		
8/3/2005	Maxx	8.15	888	298	36	2.5	< 2	22	1.2	< 0.05	< 0.02	47	< 1	98	71	92	<0.05	0.019		0.7		
11/28/2005	Maxx	8.05	997	320	37		< 2	6	0.6	< 0.05	< 0.02	54	< 1	99	66	110	<0.05	0.015	<0.05	1		
6/1/2006	MAX	8.1	1040	314	32	2.3	< 2	11	0.5	< 0.05	< 0.02	50	< 1	129	67	87	<0.02	0.013	<0.05	0.94		
12/4/2006	MAX	8.1	976	327	35	2.8	< 2	< 4	0.4	< 0.05	< 0.02	50	< 1	99	62	99	<0.02	0.014	<0.05	1.1		
3/30/2007	MAX	8.2	1030	308	36	2.6	< 2	5	0.4	0.08	< 0.02	55	< 1	120	71	100	<0.02	0.02	<0.05	1.1		
6/14/2007	MAX	8.1	1010	303	40	2.7	< 2	5	0.5	0.11	< 0.02	54	< 1	110	79	100	<0.02	0.015	<0.05	1.1		
12/5/2007	MAX	8	1130	306	37	2.8	< 2	12	0.2	< 0.05	< 0.02	62	< 1	150	68	110	<0.02	0.011	<0.1	1.2	<0.01	1.9
6/25/2008	MAX	8.1	1050	291	37	2.8		15	0.5	0.12	< 0.02	52	< 1	130	81	100	<0.02	<0.01	<0.1	1.2	<0.01	1.2
12/9/2008	MAX	8	997	310	33	2.5	< 2	4	0.3	< 0.05	< 0.02	56	< 1	110	59	91	<0.02	0.012	<0.1	1.1	<0.01	1
6/25/2009	MAX	7.8	943	298	32	2.3	< 2	4	0.3	< 0.05	< 0.02	54	< 1	97	61	90	<0.02	0.013	<0.1	1	<0.01	1.1
12/16/2009	MAX	7.7	1010	312	35	2.5	< 2	8	0.3	< 0.05	0.02	46	< 1	110	62	97	<0.02	0.015	<0.1	1.1	<0.01	1.1
6/24/2010	MAX	8	960	292	33	2.3	< 2	< 4	0.4	< 0.05	< 0.02	50	< 1	110	63	93	<0.02	0.013	<0.1	0.97	<0.01	1.1
12/22/2010	MAX	7.73	953	304	35	2.6	< 2	< 4	0.3	< 0.05	< 0.02	43	< 1	95	64	97	<0.02	0.014	<0.1	1.1	<0.01	0.8
6/15/2011	MAX	7.9	1030	282	33	2.5	< 2	14	0.3	< 0.05	< 0.02	56	< 1	140	79	91	<0.02	0.015	<0.1	1.1	<0.01	0.6
12/14/2011	MAX	7.99	1000	296	32	2.7	< 2	< 4	0.3	< 0.05	0.02	38	< 1	110	73	91	<0.02	<0.01	<0.1	1.4	<0.01	0.5
6/18/2012	MAX	7.9	960	290	31	2.2	< 2	10	0.43	< 0.05	< 0.02	44	< 1	100	62	89	0.21	<0.01	<0.1	0.76	<0.01	0.33
12/10/2012	MAX	7.77	920	300	32	2.4	< 2	7	0.57	< 0.05	< 0.02	47	< 1	88	59	92	0.08	<0.01	<0.1	0.99	<0.01	0.44
6/20/2013	MAX	8.37	960	290	33	2.4	< 2	5.8	0.34	< 0.05	< 0.02	44	< 1	100	66	97	0.14	0.016	<0.1	0.92	<0.01	0.28
12/3/2013	MAX	7.74	910	300	32	2.5	< 2	6.1	0.24	< 0.05	< 0.02	38	< 1	93	60	87	<0.02	0.016	<0.1	1.1	<0.01	0.31
5/26/2014	MAX	7.83	900	290	32	2.2	< 2	< 4	0.16	< 0.05	< 0.04	39	< 1	92	57	90	<0.02	0.013	<0.1	0.97	<0.01	0.37
12/3/2014	MAX	7.99	900	290	30	2.4	< 2	< 4	0.19	0.051	< 0.02	39	< 1	93	59	87	<0.02	0.021	<0.1	0.94	<0.01	0.4
6/22/2015	MAX	7.76	1100	300	33	2.3	< 2	9	0.16	< 0.05	< 0.02	39	< 1	140	76	93	0.06	0.015	<0.1	0.97	<0.01	0.35
12/7/2015	MAX	7.87	1100	280	34	2.4	< 2	< 4	0.14	< 0.05	< 0.02	37	< 1	140	81	95	0.03	<0.01	<0.1	1	<0.01	0.39
6/24/2016	MAX	7.86	1000	290	32	2.2	< 2	8.5	0.16	< 0.05	< 0.02	39	< 1	130	75	93	0.05	0.012	<0.1	0.9	<0.01	0.3
12/5/2016	MAX	7.87	1000	300	31	2.4	< 2	7.6	0.12	< 0.05	< 0.02	37	< 1	120	70	89	0.1	0.016	<0.1	0.96	<0.01	0.31
6/7/2017	MAX	8.06	1100	300	33	2.4	< 2	11	0.19	< 0.05	< 0.02	37	< 1	140	79	96	0.18	0.014	<0.1	0.92	<0.01	0.37
12/12/2017	MAX	8.01	1100	310	32	2.4	< 2	< 4	<0.1	< 0.05	< 0.02	37	< 1	130	75	88	0.08	0.023	<0.1	0.98	<0.01	0.38
6/13/2018	Bird																					
9/27/2018	MAX	7.95	1100	310	31	2.4	< 2	8.6	0.1	0.066	< 0.02	39	< 1	130	75	92	0.05	0.015	<0.1	0.9	<0.01	0.31
12/12/2018	MAX	7.9	1000	300	30	2.4	< 2	< 4	<0.1	< 0.05	0.047	39	< 1	120	71	87	0.03	0.015	<0.1	0.97	<0.01	0.33
6/26/2019	MAX	8.04	1000	290	33	2.1	< 2	< 4	0.15	< 0.05	< 0.02	35	< 1	150	77	94	0.03	0.013	<0.1	0.85	<0.01	0.33
12/4/2019	MAX	7.85	990	290	30	2.2	< 2	< 4	<0.1	< 0.05	< 0.02	36	< 1	120	75	91	0.03	0.014	<0.1	0.89	<0.01	0.31

Monitor: 9-96 Outwash

2/11/1997	WBL	7.81			16.4	0.99	0.69	7	0.19	< 0.01	< 0.011	17.6	2.23	7.17	4.37	61.6	0.124	0.021	<0.028	0.008		
3/26/1997	WBL	8.04	474	186	18.7	0.86	< 0.34	14	0.24	< 0.01	< 0.011	23.4	< 0.72	6.34	7.96	68.6	0.074	0.036	<0.028	0.027		
6/25/1997	WBL	8.01	582	205	20.7	0.95	< 0.34	< 7	<0.07	< 0.01	< 0.011	26.7	< 0.72	6.93	7.38	71	0.031	0.031	<0.028	0.018		
10/1/1997	WBL	7.92	490	179	21.7	0.84	1.2	13	0.1	< 0.01	< 0.011	22.4	< 0.72	9.82	1.68	74.5	0.026	0.018	0.029	0.008		11.4
12/11/1997	WBL	7.85	488	171	21.8	0.67	< 0.34	< 7	0.22	< 0.01	< 0.011	20.4	< 0.72	13.6	1.48	70.3	0.031	<0.016	0.04	0.005		8.67
3/31/1998	WBL	8.38	557	195	25.9	0.7	< 0.34				0.019	26.7	< 0.72	13.1	2.2	71.7	0.011	0.03	<0.011	0.005		13

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 9-96 Outwash

6/24/1998	WBL	7.79	536	193	21.6	0.78	1.38			< 0.019		26	< 0.72	12.5	2.83	76.2	0.027	0.047	<0.006	0.007		11.6
10/2/1998	CAN	7.7	610	210	29	< 1	< 2	< 5	0.4	< 0.1	< 0.02	29	< 1	19	2	85	<0.05	<0.05		<0.01		14
12/3/1998	CAN	7.6	590	230	24	< 1	< 2	< 5	0.31	< 0.1	0.17	23	< 2	11	2.5	79	<0.05	<0.05		0.01		9.9
6/29/1999	Barr	8.31	528	220	19.6	1	1.2	10	0.21	< 0.02	0.004	24.6		23.3	8.2	79.7	<0.01	0.01	<0.1	<0.005		
12/9/1999	Barr	7.65	649	251	20.2	< 1	< 0.5	6	0.16	0.06	0.004	17	< 1	31	14.6	93.2	0.01	0.03	<0.1	0.024		
6/21/2000	Philip	7.71	414	234	14.7	0.8	< 0.5	5	0.28	< 0.03	< 0.002	12.2	< 1	12	8.9	77.4	<0.03	0.013	<0.05	<0.005		
12/7/2000	Philip	7.91	408	249	15	0.3	1.1	5	0.13	0.04	< 0.002	13.7	< 1	13.5	8.7	69.3	<0.03	0.063		0.169		
6/27/2001	Philip	7.9	570	248	18.3	< 1	1.7	< 5	0.14	< 0.03	0.004	25	< 1	20	14.2	86	<0.01	0.06	<0.1	0.208		
12/3/2001	Philip	7.93	482	223	15.3	1.3	0.9	< 5	0.39	< 0.03	0.008	10.8	< 1	15.7	20.2	72	0.03	0.03	<0.1	0.182		
6/4/2002	Philip	8.08	517	236	16.1	1	< 0.5	5	0.43	< 0.03	0.005	17.1	< 1	21.7	16.7	79.2	0.01	0.05	<0.1	<0.005		
12/3/2002	Philip	8.08	595	232	20.8	1	< 0.5	5	0.3	< 0.03	0.012	15.8	< 1	33.5	10.9	84.5	<0.01	0.03	<0.1	0.011		
6/2/2003	Philip	7.76	666	229	20.6	< 1	< 0.5	7	0.45	0.03	< 0.001	11	4	64.1	20.7	90.2	<0.01	0.04		0.011		
12/1/2003	Philip	8.03	701	236	21.6	< 1	< 0.5	12	0.5	< 0.03	< 0.002	13.4	< 1	83.7	29.2	87	<0.01	0.03	<0.1	0.018		
6/8/2004	Philip	7.81	591	235	20.1	< 1	0.6	6	0.28	< 0.03	0.002	28.8	< 1	39.7	18.4	89.5	<0.01	0.05		0.072	<0.2	6.4
11/30/2004	Philip	7.78	671	274	19.9	1	< 0.5	9	0.34	< 0.03	0.003	27.8	< 1	41.2	28.6	87.9	<0.01	0.02		<0.005		
8/3/2005	Maxx	8.08	584	259	22	1	< 2	13	0.8	< 0.05	< 0.02	24	< 1	9	11	87	<0.05	0.03	0.073	<0.005		
11/28/2005	Maxx	8.17	714	295	18		< 2	10	0.6	< 0.05	< 0.02	21	< 1	38	34	100	<0.05	0.043	<0.05	0.006		
6/1/2006	N/A																					
12/4/2006	MAX	8.1	686	291	22	1.2	< 2	< 4	0.3	0.07	< 0.02	20	< 1	34	27	86	<0.02	0.036	<0.05	0.005		
3/30/2007	MAX	8.2	691	296	22	1.1	< 2	< 4	0.4	0.06	< 0.02	27	< 1	23	15	81	<0.02	0.039	<0.05	<0.005		
6/14/2007	MAX	8.1	703	322	30	1.3	< 2	4	0.4	0.09	< 0.02	22	< 1	17	18	100	<0.02	0.045	<0.05	<0.005		
12/5/2007	MAX	8.1	653	305	26	1	< 2	12	0.3	< 0.05	< 0.02	27	< 1	6	6.7	97	<0.02	0.03	<0.1	<0.005	<0.01	5.3
6/25/2008	MAX	8.3	738	246	31	1.5		6	0.6	< 0.05	< 0.02	26	< 1	23	14	95	<0.02	0.035	<0.1	0.011	<0.01	6.6
12/9/2008	MAX	8	700	317	30	1.1	< 2	8	0.5	< 0.05	< 0.02	27	< 1	18	9.7	93	<0.02	0.032	<0.1	0.008	<0.01	5.6
6/25/2009	MAX	7.9	690	317	29	1.3	< 2	4	0.4	< 0.05	< 0.02	22	< 1	15	13	99	<0.02	0.037	<0.1	0.005	<0.01	5
12/16/2009	MAX	8	691	348	34	1.2	< 2	8	0.3	< 0.05	< 0.02	23	< 1	5	9.6	100	<0.02	0.037	<0.1	0.006	<0.01	3.9
6/24/2010	N/A																					
12/22/2010	N/A																					
6/15/2011	N/A																					
12/14/2011	N/A																					
6/18/2012	NA																					
7/19/2012	MAX	7.96	290	85	7.5	2.2	< 2	8.6	1.5	0.1	< 0.02	14	< 1	14	19	30	0.39	0.017	<0.1	<0.005	<0.01	6.2
12/10/2012	MAX	7.48	290	100	6.9	3.9	< 2	< 4	1	< 0.05	< 0.02	19	< 1	13	17	29	0.34	0.012	<0.1	<0.005	<0.01	6.3
6/18/2013	MAX	7.89	390	130	11	4.1	< 2	8.1	0.16	< 0.05	< 0.02	19	< 1	18	21	41	0.22	0.019	<0.1	<0.005	<0.01	8.3
12/2/2013	MAX	8.02	450	140	13	6.8	< 2	13	0.3	< 0.05	< 0.02	33	< 1	16	21	44	<0.02	0.02	<0.1	0.034	<0.01	9.2
5/21/2014	MAX	8.12	490	150	14	8	< 2	< 4	0.35	< 0.05	< 0.02	31	< 1	26	28	50	<0.02	0.021	<0.1	<0.005	<0.01	8.08
12/2/2014	MAX	8.02	430	150	12	10	< 2	< 4	0.26	< 0.05	< 0.02	31	< 1	9	20	43	0.05	0.039	<0.1	<0.005	<0.01	5.28
6/16/2015	MAX	8.28	270	84	4.8	17	< 2	8.8	<1	< 0.05	< 0.02	26	< 1	7	13	26	0.14	0.025	<0.1	<0.005	<0.01	3.85
12/1/2015	MAX	7.96	430	150	14	6.5	< 2	11	<0.1	< 0.05	0.037	33	< 1	9.9	16	47	2.4	0.044	<0.1	0.0088	<0.01	4.56
6/20/2016	MAX	8.23	370	130	11	8.2	< 2	< 4	0.41	< 0.05	< 0.02	29	< 1	7.9	14	41	0.29	0.037	<0.1	0.011	<0.01	4.35
11/29/2016	MAX	8.04	390	130	11	8.6	< 2	< 4	<0.2	< 0.05	< 0.02	35	< 1	11	22	41	0.24	0.029	<0.1	0.0054	<0.01	4.2

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 9-96 Outwash

6/5/2017	MAX	8.01	310	110	8	8	2	9.7	0.16	< 0.05	< 0.02	31	< 1	6	13	31	1.2	0.028	<0.1	0.0052	<0.01	3.39
12/6/2017	MAX	8.11	400	140	10	6	< 2	< 4	<0.1	< 0.05	< 0.02	29	< 1	15	16	42	0.44	0.026	<0.1	<0.005	<0.01	4.16
6/13/2018	MAX	8.12	310	110	5.8	9.1	< 2	17	<0.1	< 0.05	< 0.02	26	< 1	9.5	16	30	0.49	0.024	<0.1	<0.005	<0.01	2.19
12/11/2018	MAX	8.11	340	130	8.3	11	< 2	6.6	<0.1	< 0.05	< 0.02	28	< 1	3.7	10	40	0.61	0.024	<0.1	<0.005	<0.01	2.45
6/13/2019	MAX	8.2	300	91	5.7	12	< 2	< 4	<0.1	< 0.05	< 0.02	34	< 1	11	13	31	0.4	0.021	<0.1	<0.005	<0.01	1.85
12/3/2019	MAX	8.19	300	120	7.7	8.3	< 2	< 4	0.16	< 0.05	< 0.02	25	< 1	4.1	11	37	0.2	0.02	<0.1	<0.005	<0.01	2.87

Monitor: 10-00 Bedrock

6/27/2001	Philip	7.84	662	259	31.5	< 1	< 0.5	< 5	0.14	0.07	0.009	103	< 1	22	9.9	93.7	0.02	0.02	<0.1	0.016		
12/3/2001	Philip	8.01	666	267	30.7	< 1	0.8	< 5	0.19	0.04	0.01	85.8	< 1	25.8	12	95.1	0.04	0.02	<0.1	0.061		
6/4/2002	Philip	8.23	595	239	28.2	2	< 0.5	< 5	0.19	0.04	0.013	76	< 1	21.5	9.2	84.4	0.02	0.02	<0.1	<0.005		
12/3/2002	Philip	8	660	255	29.5	1	< 0.5	7	0.42	0.06	0.013	76.8	< 1	26.9	11.3	87.7	0.03	0.01	<0.1	<0.005		
6/2/2003	Philip	7.78	659	242	29.1	< 1	< 0.5	< 5	0.17	0.05	< 0.001	25.2	11	44.9	10	87	0.03	0.01		<0.005		
12/1/2003	Philip	8.09	626	236	28.2	1.1	0.8	< 5	0.21	< 0.03	0.009	78.5	< 1	27.6	10.2	85.2	0.04	0.02	<0.1	0.015		
6/9/2004	Philip	7.78	600	238	28.2	< 1	< 0.5	< 5	0.13	0.08	0.005	82.4	< 1	27.8	9.7	91	0.07	0.02		0.13	<0.2	<0.2
11/30/2004	Philip	7.89	626	245	27.7	2	< 0.5	< 5	0.13	0.03	0.005	77.7	< 1	28.1	10.4	83.5	0.04	0.02		<0.005		
8/3/2005	Maxx	8.18	599	240	31	1.2	< 2	< 4	0.3	< 0.05	< 0.02	67	< 1	20	10	86	<0.05	0.011	<0.05	<0.005		
11/28/2005	Maxx	8.07	616	251	31		< 2	5	0.2	< 0.05	< 0.02	71	< 1	23	10	90	<0.05	0.016	<0.05	<0.005		
6/1/2006	MAX	8.1	646	254	30	1.1	< 2	< 4	1	0.09	< 0.02	77	< 1	20	9.1	88	0.03	0.014	<0.05	<0.005		
12/4/2006	MAX	8.2	651	257	28	1	< 2	4	0.3	0.11	< 0.02	82	< 1	17	8.6	83	0.02	0.014	<0.05	<0.005		
3/30/2007	MAX	8.2	648	249	27	1.1	< 2	< 4	0.5	0.12	< 0.02	75	< 1	19	7.7	79	0.02	0.014	<0.05	<0.005		
6/14/2007	MAX	8.1	656	246	29	1.1	< 2	5	0.2	0.15	< 0.02	81	< 1	21	8.9	84	0.03	0.015	<0.05	<0.005		
12/5/2007	MAX	8.2	652	239	28	1.1	< 2	11	0.2	0.07	< 0.02	81	< 1	21	8.8	86	<0.02	<0.01	<0.1	<0.005	<0.01	<0.1
6/25/2008	MAX	8.2	654	237	28	1.1		11	0.3	0.11	< 0.02	82	< 1	23	9.5	86	<0.02	<0.01	<0.1	<0.005	<0.01	<0.1
12/9/2008	MAX	8.1	679	238	29	1.1	< 2	< 4	0.2	0.07	< 0.02	91	< 1	27	11	85	0.03	0.018	<0.1	<0.005	<0.01	<0.1
6/25/2009	MAX	8	631	240	29	1.1	< 2	< 4	0.3	< 0.05	< 0.02	80	< 1	17	8.8	87	0.03	0.016	<0.1	<0.005	<0.01	<0.1
12/16/2009	MAX	8	685	239	32	1.2	< 2	< 4	0.2	0.06	0.02	84	< 1	28	14	94	0.04	0.019	<0.1	<0.005	<0.01	<0.1
6/24/2010	N/A																					
12/22/2010	N/A																					
6/15/2011	N/A																					
12/14/2011	N/A																					
6/18/2012	NA																					
7/19/2012	MAX	7.88	650	240	30	1.1	< 2	11	0.97	0.11	0.24	68	< 1	22	9.1	87	3.1	0.015	<0.1	<0.005	<0.01	<0.1
12/10/2012	MAX	7.93	670	240	30	1.1	< 2	< 4	0.54	0.077	0.23	74	< 1	25	9.3	91	6.6	<0.01	<0.1	<0.005	<0.01	<0.1
6/18/2013	MAX	8.04	710	240	29	1.2	< 2	5.1	0.24	0.054	0.03	82	< 1	32	12	95	0.81	0.017	<0.1	<0.005	<0.01	<0.1
12/2/2013	MAX	8	690	250	31	1.1	< 2	7	0.2	0.053	0.041	80	< 1	30	11	92	0.04	0.014	<0.1	<0.005	<0.01	<0.1
5/21/2014	MAX	8	700	240	29	1.1	< 2	< 4	0.29	< 0.05	< 0.02	81	< 1	30	10	94	0.81	0.013	<0.1	<0.005	<0.01	<0.1
12/2/2014	MAX	7.94	740	240	30	1.2	< 2	< 4	0.19	0.094	0.03	90	< 1	37	14	92	0.63	0.025	<0.1	<0.005	<0.01	<0.1
6/16/2015	MAX	7.86	720	240	31	1.3	< 2	< 4	0.12	0.053	0.026	92	< 1	36	14	95	0.22	0.022	<0.1	<0.005	<0.01	<0.1
12/1/2015	MAX	7.97	710	230	31	1.2	< 2	10	0.16	< 0.05	0.087	84	< 1	32	12	91	1.8	0.019	<0.1	<0.005	<0.01	<0.1
6/20/2016	MAX	8.05	700	240	28	1.1	< 2	6.2	0.17	0.054	0.22	83	< 1	32	11	87	4.6	0.018	<0.1	<0.005	<0.01	<0.1

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Conductivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 10-00 Bedrock

11/29/2016	MAX	8	700	230	31	1.2	< 2	8.6	0.16	0.071	0.16	89	< 1	37	13	94	4.7	0.013	<0.1	<0.005	<0.01	<0.1
6/5/2017	MAX	8.15	720	250	30	1.1	< 2	8.7	0.2	0.055	0.085	81	< 1	34	9.9	92	2.1	0.015	<0.1	<0.005	<0.01	<0.1
12/6/2017	MAX	7.98	730	260	30	1.1	< 2	< 4	0.1	< 0.05	0.027	79	< 1	31	10	88	0.58	0.015	<0.1	<0.005	<0.01	<0.1
6/13/2018	MAX	8.12	710	250	30	1.2	< 2	17	0.16	0.078	< 0.02	80	< 1	31	11	89	0.26	0.022	<0.1	<0.005	<0.01	<0.1
12/11/2018	MAX	8	710	250	29	1.1	< 2	< 4	<0.1	0.061	0.024	78	< 1	31	11	88	0.56	0.011	<0.1	<0.005	<0.01	<0.1
6/13/2019	MAX	8.06	680	240	29	1	< 2	< 4	0.13	< 0.05	0.045	80	< 1	27	8.5	89	0.53	0.014	<0.1	<0.005	<0.01	<0.1
12/3/2019	MAX	7.94	690	240	31	1.1	< 2	< 4	0.11	< 0.05	< 0.02	78	< 1	29	11	88	0.31	0.014	<0.1	<0.005	<0.01	<0.1

Monitor: 11a-00 Bedrock

6/27/2001	Philip	8.13	528	263	25.3	2	2.9	< 5	0.28	0.13	0.03	46.8	< 1	7.1	25.9	68.7	0.34	0.1	<0.1	0.138		
12/3/2001	Philip	7.99	512	262	24.9	2	1.2	< 5	0.32	0.12	0.007	34.9	< 1	5.1	12	83.2	0.04	0.04	<0.1	0.254		
6/4/2002	Philip	8.13	454	241	23.7	2	0.9	< 5	0.41	0.13	0.01	26.7	< 1	5	6	64.4	0.04	0.03	<0.1	<0.005		
12/3/2002	Philip	8.12	500	253	24.3	3	< 0.5	< 5	0.33	0.12	0.009	25.9	< 1	4	6.1	67	<0.01	0.03	<0.1	0.011		
6/2/2003	Philip	7.71	515	231	24.7	2	< 0.5	< 5	0.38	0.11	< 0.001	31.8	9	6.3	5.8	67.5	<0.01	0.03		<0.005		
12/1/2003	Philip	8.02	507	233	23.6	1.6	1	9	0.52	< 0.03	0.004	35.9	< 1	7	5.6	64.8	0.02	0.04	<0.1	<0.005		
6/8/2004	Philip	7.81	478	236	24.2	1	< 0.5	6	0.26	0.1	0.003	33.4	< 1	6.9	5.4	80.3	0.05	0.03		0.185	<0.2	<0.2
11/30/2004	Philip	7.96	494	241	23.8	1	< 0.5	10	0.53	0.13	0.007	29.4	< 1	6.7	5.1	66	<0.01	0.02		<0.005		
8/3/2005	Maxx	8.13	471	238	25	1.9	< 2	8	0.6	0.06	< 0.02	20	< 1	5	5.5	62	0.066	0.038	0.079	<0.005		
11/28/2005	Maxx	8.2	470	248	26		< 2	10	0.4	0.14	< 0.02	26	< 1	7	5.2	70	<0.05	0.036	<0.05	<0.005		
6/1/2006	MAX	8.1	520	250	26	2	< 2	< 4	0.4	0.16	< 0.02	25	< 1	8	5.2	72	<0.02	0.034	<0.05	<0.005		
12/4/2006	MAX	8.1	532	252	25	1.8	< 2	< 4	0.3	0.12	< 0.02	38	< 1	10	5.3	70	<0.02	0.035	<0.05	<0.005		
3/30/2007	MAX	8.3	523	244	23	1.8	< 2	< 4	0.4	0.26	< 0.02	29	< 1	11	4.3	64	<0.02	0.033	<0.05	<0.005		
6/14/2007	MAX	8.3	539	242	27	1.8	< 2	< 4	0.4	0.24	< 0.02	32	< 1	12	5.2	77	<0.02	0.033	<0.05	0.015		
12/5/2007	MAX	8.2	534	236	25	1.9	< 2	11	0.2	0.12	< 0.02	33	< 1	12	6	69	<0.02	0.031	<0.1	<0.005	<0.01	<0.1
6/25/2008	MAX	8.2	534	231	27	2.3		16	0.6	0.21	< 0.02	30	< 1	15	6.5	73	<0.02	0.026	<0.1	<0.005	<0.01	<0.1
12/9/2008	MAX	8.1	526	237	23	1.7	< 2	< 4	0.3	0.1	< 0.02	34	< 1	12	4.9	65	<0.02	0.035	<0.1	<0.005	<0.01	0.1
6/25/2009	MAX	8	559	232	27	1.8	< 2	11	0.2	< 0.05	< 0.02	44	< 1	16	5.2	74	<0.02	0.035	<0.1	<0.005	<0.01	0.1
12/15/2009	MAX	8	539	233	25	1.8	< 2	5	0.1	< 0.05	0.03	34	< 1	14	5.2	69	<0.02	0.038	<0.1	<0.005	<0.01	0.2
6/28/2010	MAX	8.1	546	225	25	1.8	< 2	5	0.2	< 0.05	0.03	39	< 1	18	4.8	69	<0.02	0.036	<0.1	<0.005	<0.01	0.1
12/22/2010	MAX	7.85	575	227	28	1.9	< 2	< 4	0.3	0.24	< 0.02	38	< 1	22	5.4	75	<0.02	0.032	<0.1	<0.005	<0.01	<0.1
6/15/2011	MAX	7.97	568	228	27	1.8	< 2	10	0.2	0.1	< 0.02	51	< 1	24	5.3	75	0.25	0.033	<0.1	<0.005	<0.01	<0.1
12/14/2011	MAX	8.12	588	230	27	1.8	< 2	< 4	0.3	0.1	0.03	35	< 1	24	5.4	75	0.21	0.025	<0.1	0.011	0.05	<0.1
6/19/2012	MAX	8.09	590	230	27	1.8	< 2	8.1	0.39	0.073	0.025	39	< 1	24	5.2	74	0.56	0.031	<0.1	0.04	<0.01	<0.1
12/11/2012	MAX	7.85	580	240	25	1.7	< 2	< 4	<0.1	0.058	< 0.02	40	< 1	22	5.2	75	0.17	0.034	<0.1	<0.005	<0.01	0.11
6/21/2013	MAX	8.2	570	230	26	1.9	< 2	< 4	0.31	0.13	< 0.02	39	< 1	21	5.6	74	0.3	0.033	<0.1	0.01	<0.01	<0.1
12/4/2013	MAX	7.8	580	230	26	1.7	< 2	7.9	0.34	0.12	< 0.02	37	< 1	24	5.8	71	<0.02	0.031	<0.1	<0.005	0.014	<0.1
5/21/2014	MAX	7.98	570	230	27	1.7	< 2	< 4	0.54	< 0.05	< 0.02	38	< 1	24	5.9	75	0.04	0.034	<0.1	<0.005	<0.01	<0.1
12/3/2014	MAX	8.05	580	230	27	1.9	< 2	< 4	0.21	0.19	< 0.02	38	1.3	24	5.9	74	0.16	0.037	<0.1	0.0065	<0.01	<0.1
6/22/2015	MAX	7.83	580	240	26	1.8	< 2	8.3	0.13	< 0.05	0.021	38	< 1	24	5.7	71	0.19	0.033	<0.1	<0.005	0.015	<0.1
12/2/2015	MAX	7.88	590	220	26	1.8	< 2	5.2	0.22	0.12	0.025	35	1.6	23	5.8	74	0.23	0.04	<0.1	0.0063	0.035	<0.1
6/21/2016	MAX	8.16	570	240	26	1.7	< 2	11	0.16	< 0.05	0.022	37	< 1	24	6.2	70	0.26	0.03	<0.1	0.012	<0.01	0.11

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 11a-00 Bedrock

11/30/2016	MAX	7.97	580	230	27	1.8	< 2	5.5	0.14	< 0.05	< 0.02	33	< 1	22	6.2	71	0.28	0.036	<0.1	0.0086	0.035	<0.1
6/5/2017	MAX	8.17	570	230	26	1.7	< 2	< 4	0.22	< 0.05	< 0.02	39	< 1	22	5.9	70	0.25	0.036	<0.1	<0.005	<0.01	<0.1
12/5/2017	MAX	8	580	250	25	1.7	< 2	< 4	0.17	0.11	0.027	38	1.4	20	5.7	68	0.23	0.034	<0.1	<0.005	0.06	<0.1
6/14/2018	MAX	8.14	570	240	28	1.9	< 2	4.3	0.12	0.087	0.024	37	< 1	20	6.4	72	0.26	0.032	<0.1	<0.005	<0.01	<0.1
12/12/2018	MAX	7.97	570	240	25	1.7	< 2	< 4	0.1	0.085	0.035	38	< 1	20	5.8	67	0.27	0.03	<0.1	<0.005	<0.01	<0.1
6/13/2019	MAX	8.14	570	230	26	1.7	< 2	< 4	0.2	< 0.05	0.04	36	< 1	20	6.1	72	0.29	0.032	<0.1	<0.005	<0.01	0.12
12/2/2019	MAX	7.93	560	240	26	1.7	< 2	< 4	<0.1	< 0.05	< 0.02	37	< 1	20	6.2	70	0.17	0.031	<0.1	<0.005	<0.01	<0.1

Monitor: 11b-00 Outwash

6/27/2001	Philip	7.99	798	264	25.6	2	7.2	5	0.22	< 0.03	0.017	55	< 1	54	54.1	83.1	0.03	0.07	<0.1	0.113		
12/3/2001	Philip	7.98	1081	266	28.4	2.2	1.4	6	0.28	< 0.03	0.023	50.4	< 1	155	92.8	100	<0.01	0.04	<0.1	0.013		
6/4/2002	Philip	8.02	751	252	24.7	1	0.9	6	0.39	< 0.03	0.005	35	< 1	69.3	40.3	91.4	<0.01	0.09	<0.1	0.015		
12/3/2002	Philip	8	813	250	28.2	2	< 0.5	6	0.37	< 0.03	0.022	42.2	< 1	68.9	26.8	103	<0.01	0.15	<0.1	0.063		
6/2/2003	Philip	7.72	873	226	28.1	2	0.6	5	0.37	0.04	< 0.001	48.5	7	70.6	37.2	101	<0.01	0.41		0.029		
12/1/2003	Philip	8.1	629	185	13.1	1.1	< 0.5	12	0.51	< 0.03	0.005	43	< 1	58.8	58.9	51.6	0.02	0.58	<0.1	0.012		
6/8/2004	Philip	7.9	887	192	18.3	< 1	0.7	23	0.97	0.03	0.007	37.7	< 1	165	93.4	79.2	0.02	1.09		0.129	<0.2	4.7
11/30/2004	Philip	8	781	212	15.1	1	< 0.5	7	0.26	< 0.03	0.002	29.4	< 1	118	83.2	60.6	<0.01	0.57		0.011		
8/3/2005	Maxx	8.04	919	235	21	1.6	< 2	8	0.8	< 0.05	< 0.02	37	< 1	139	88	84	<0.05	1.2	<0.05	0.028		
11/28/2005	Maxx	8.12	1210	235	21		< 2	< 4	0.7	< 0.05	< 0.02	37	< 1	192	150	91	<0.05	0.6	<0.05	0.02		
6/1/2006	MAX	8.1	961	268	18	1.4	< 2	8	0.6	< 0.05	0.05	40	< 1	129	120	69	<0.02	0.8	<0.05	0.02		
12/4/2006	MAX	8.2	899	279	14	1.2	< 2	< 4	0.5	< 0.05	< 0.02	48	< 1	92	110	53	<0.02	1.9	<0.05	0.012		
3/30/2007	MAX	8.3	780	274	12	1	< 2	7	0.4	0.09	< 0.02	34	< 1	61	95	44	<0.02	1.5	<0.05	<0.005		
6/14/2007	MAX	8.2	756	264	15	1.3	< 2	7	0.4	0.08	< 0.02	36	< 1	54	96	60	<0.02	1.8	<0.05	0.016		
12/5/2007	MAX	8.2	755	259	16	1.5	< 2	12	0.3	< 0.05	5.2	27	< 1	66	77	65	<0.02	0.58	<0.1	0.013	<0.01	3.4
6/25/2008	MAX	8.2	1100	250	19	1.4		6	0.5	0.08	< 0.02	25	< 1	180	110	81	<0.02	0.39	<0.1	0.018	<0.01	5.5
12/9/2008	MAX	8.1	939	264	16	1.4	< 2	5	0.4	< 0.05	0.03	27	< 1	110	110	63	<0.02	0.9	<0.1	0.019	<0.01	4.4
6/25/2009	MAX	8	1130	253	18	1.4	< 2	< 4	0.3	< 0.05	< 0.02	25	< 1	190	140	74	<0.02	0.85	<0.1	0.018	<0.01	3.8
12/15/2009	MAX	8	890	250	17	1.5	< 2	< 4	0.2	< 0.05	0.03	19	< 1	110	89	71	<0.02	0.44	<0.1	0.016	<0.01	3.5
6/28/2010	MAX	8	966	243	17	1.5	< 2	6	0.3	< 0.05	< 0.02	35	< 1	140	95	75	<0.02	0.24	<0.1	0.017	<0.01	3.3
12/17/2010	MAX	7.96	966	255	18	1.5	< 2	< 4	0.2	< 0.05	< 0.02	38	< 1	130	110	75	<0.02	0.57	<0.1	0.017	<0.01	3.3
6/14/2011	MAX	8.01	1140	224	16	1.9	< 2	17	0.5	< 0.05	< 0.02	30	< 1	190	140	73	<0.02	0.58	<0.1	0.014	<0.01	3
12/14/2011	MAX	8.16	975	238	15	1.4	< 2	< 4	1	< 0.05	0.19	25	< 1	140	110	64	1.9	0.49	<0.1	0.02	<0.01	2.7
6/18/2012	MAX	8.04	970	230	16	1.5	< 2	9.8	0.45	0.055	0.024	23	1	140	100	71	1.6	0.21	<0.1	0.034	<0.01	2.1
12/11/2012	MAX	7.87	1000	250	18	1.6	< 2	< 4	0.26	< 0.05	0.045	23	< 1	140	100	84	2	0.19	<0.1	0.02	<0.01	3
6/19/2013	MAX	7.9	1300	250	18	1.6	< 2	4.9	0.43	< 0.05	0.067	28	< 1	220	130	87	1.8	0.15	<0.1	0.022	<0.01	3
12/4/2013	MAX	7.97	1100	330	27	1.8	< 2	10	0.48	< 0.05	0.19	23	< 1	140	150	91	<0.02	0.27	<0.1	0.11	<0.01	2.8
5/21/2014	MAX	7.96	1600	270	23	1.8	< 2	< 4	0.29	< 0.05	< 0.02	27	< 1	290	220	100	<0.02	0.1	<0.1	0.073	<0.01	3.13
12/3/2014	MAX	8.07	1000	270	22	1.9	< 2	< 4	0.17	< 0.05	0.03	17	< 1	140	130	85	<0.02	0.16	<0.1	0.058	<0.01	2.15
6/22/2015	MAX	7.81	1300	230	23	1.6	< 2	8.7	0.39	< 0.05	0.061	20	< 1	240	130	94	2.7	0.27	<0.1	0.023	<0.01	1.94
12/2/2015	MAX	8.01	1100	250	30	1.9	< 2	4	0.41	< 0.05	0.044	28	< 1	150	120	110	0.07	0.18	<0.1	0.09	<0.01	3.73
6/21/2016	MAX	8.09	1000	260	18	1.4	< 2	5.2	0.31	< 0.05	0.09	40	< 1	140	100	79	2.4	0.2	<0.1	0.029	<0.01	2.98

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 11b-00 Outwash

11/30/2016	MAX	7.99	1000	290	16	1.7	< 2	< 4	<0.1	< 0.05	0.029	37	< 1	120	110	73	2	0.082	<0.1	0.028	<0.01	2.84
6/5/2017	MAX	8.29	1000	260	10	1.3	< 2	8.4	0.22	< 0.05	0.021	22	< 1	130	160	46	0.6	0.17	<0.1	0.01	<0.01	1.6
12/5/2017	MAX	8.08	810	270	13	1.3	< 2	< 4	<0.1	< 0.05	0.055	39	< 1	68	81	61	2.4	0.084	<0.1	0.013	<0.01	1.47
6/14/2018	MAX	8.28	720	230	11	1.2	< 2	5	<0.1	0.081	0.24	21	< 1	77	84	51	9.1	0.14	<0.1	0.018	<0.01	1.96
12/12/2018	MAX	7.99	720	250	18	1.4	< 2	< 4	0.13	< 0.05	0.13	34	< 1	47	68	70	2.4	0.092	0.1	0.094	<0.01	2.01
6/13/2019	MAX	8.18	900	240	13	1.2	< 2	< 4	<0.1	< 0.05	0.028	28	< 1	120	110	62	0.35	0.087	<0.1	<0.005	<0.01	1.73
12/2/2019	MAX	8.02	700	250	13	1.2	< 2	< 4	0.11	< 0.05	< 0.1	22	< 1	50	75	59	0.49	0.093	<0.1	0.01	<0.01	2.3

Monitor: 12a-00 Bedrock

6/27/2001	Philip	7.5	888	390	43.6	14	1.2	7	0.92	0.45	0.006	96.2	< 1	82.8	22.6	109	<0.01	0.07	<0.1	1.44		
12/3/2001	Philip	7.77	920	389	44.7	10.1	1.2	16	0.75	0.19	0.008	50.6	< 1	24.7	19.7	110	<0.01	0.06	<0.1	1.17		
6/4/2002	Philip	8.33	889	346	40.5	15	0.6	10	1.34	0.64	0.007	44.5	< 1	44.3	20.6	123	0.04	0.02	<0.1	1.51		
12/3/2002	Philip	7.78	4365	372	41.2	15	< 0.5	24	4.22	4.23	0.012	55.7	< 1	1200	763	109	<0.1	<0.1	<1	0.958		
6/2/2003	Philip	7.37	915	350	40.4	18	< 0.5	11	1.04	0.41	0.002	46.3	10	55.5	36.2	103	<0.01	0.02		1.17		
12/1/2003	No A																					
6/8/2004	Philip	7.53	845	319	37	13.9	< 0.5	10	0.89	0.47	0.009	45.5	< 1	45.3	23	106	<0.01	0.02		1.15	<0.2	22.5
11/30/2004	Philip	7.57	823	321	37.7	13	< 0.5	13	0.67	0.13	0.002	50.5	< 1	38.5	16.4	98.4	<0.01	0.02		1		
8/3/2005	Maxx	7.93	891	370	44	16	< 2	9	0.6	0.17	< 0.02	40	< 1	42	27	110	<0.05	0.028	0.084	1.1		
11/28/2005	Maxx	7.88	791	331	40		< 2	54	2.5	0.16	< 0.02	54	< 1	30	20	100	<0.05	0.024	<0.05	0.97		
6/1/2006	MAX	7.9	858	338	39	16	< 2	13	1.2	0.24	< 0.02	40	< 1	34	25	110	<0.02	0.02	<0.05	1.1		
12/4/2006	MAX	7.8	1020	423	41	22	< 2	8	1.2	0.56	< 0.02	49	< 1	41	34	110	<0.02	0.024	<0.05	1.2		
3/30/2007	MAX	8.1	938	376	33	23	< 2	5	1.1	0.47	< 0.02	40	< 1	35	26	110	<0.02	0.022	<0.05	1.3		
6/14/2007	MAX	8	947	353	37	17	< 2	8	3.5	0.24	< 0.02	45	< 1	40	29	100	<0.02	0.019	<0.05	1.1		
12/5/2007	MAX	8	796	343	34	11	< 2	12	0.4	0.1	0.03	39	< 1	34	17	94	<0.02	0.027	<0.1	0.92	<0.01	1.4
6/25/2008	MAX	8	796	343	32	13		6	0.6	0.07	< 0.02	36	< 1	23	18	93	<0.02	0.02	<0.1	0.99	<0.01	8.9
12/9/2008	MAX	7.9	816	343	30	12	< 2	9	0.5	0.06	< 0.02	40	< 1	27	18	96	<0.02	0.032	<0.1	0.92	0.02	5.9
6/25/2009	MAX	7.7	707	298	30	13	< 2	4	0.5	0.05	< 0.02	38	< 1	13	15	83	<0.02	0.05	<0.1	0.81	0.01	8
12/16/2009	MAX	7.6	742	312	37	10	< 2	10	0.3	< 0.05	< 0.02	39	< 1	31	13	93	<0.02	0.019	<0.1	0.81	0.03	1.4
6/24/2010	MAX	7.9	699	304	30	14	< 2	7	0.6	< 0.05	< 0.02	35	< 1	11	15	86	<0.02	0.02	<0.1	0.84	0.02	5.5
12/20/2010	MAX	7.75	658	304	32	8.7	< 2	7	0.4	< 0.05	< 0.02	34	< 1	9	6.5	87	<0.02	0.02	<0.1	0.77	0.02	1.7
6/15/2011	MAX	7.82	603	283	26	12	< 2	12	0.3	< 0.05	< 0.02	26	< 1	5	8.4	77	<0.02	0.016	<0.1	0.74	<0.01	3
12/15/2011	MAX	8.01	701	318	33	11	< 2	< 4	0.8	< 0.05	0.06	32	< 1	13	11	92	0.55	0.011	<0.1	0.82	<0.01	2.3
6/18/2012	MAX	7.8	680	300	30	9.5	< 2	10	0.5	< 0.05	< 0.02	32	< 1	18	9.4	82	0.05	0.02	<0.1	0.77	<0.01	1.9
12/10/2012	MAX	7.62	710	310	33	6.2	< 2	< 4	0.62	< 0.05	< 0.02	31	< 1	25	11	90	<0.02	0.016	<0.1	0.74	0.016	1.3
6/18/2013	MAX	7.87	630	290	28	11	< 2	7.3	0.19	< 0.05	< 0.02	29	< 1	6	7.4	84	<0.02	0.016	<0.1	0.76	<0.01	2.2
12/2/2013	MAX	7.77	660	320	31	12	< 2	< 4	0.27	< 0.05	< 0.02	28	< 1	8	7.4	89	<0.02	0.02	<0.1	0.78	<0.01	1.5
5/20/2014	MAX	7.63	590	290	26	11	< 2	< 4	0.12	< 0.05	< 0.02	25	< 1	4	5.4	78	<0.02	0.016	<0.1	0.82	<0.01	1.29
12/2/2014	MAX	7.64	670	310	30	8.7	< 2	< 4	0.15	< 0.05	< 0.02	26	< 1	14	6.8	87	<0.02	0.025	<0.1	0.71	0.019	1.04
6/17/2015	MAX	7.69	710	310	30	9	< 2	5.8	0.24	< 0.05	< 0.02	28	< 1	28	9.7	79	0.02	0.015	<0.1	0.73	<0.01	1.33
12/1/2015	MAX	7.75	690	300	34	6.4	< 2	8.6	0.16	< 0.05	< 0.02	33	< 1	18	7.5	86	0.09	0.02	<0.1	0.72	<0.01	0.59
6/23/2016	MAX	7.99	630	310	28	9.6	< 2	7.6	0.29	< 0.05	< 0.02	28	< 1	4.8	5.8	80	0.04	0.017	<0.1	0.68	<0.01	1.19

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Conductivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 12a-00 Bedrock

11/29/2016	MAX	7.78	740	330	33	7.4	< 2	< 4	0.15	< 0.05	< 0.02	29	< 1	34	16	82	0.13	0.016	<0.1	0.8	<0.01	0.15
6/5/2017	MAX	7.98	560	250	25	8.6	< 2	5.9	0.23	< 0.05	< 0.02	23	< 1	2.9	3.7	71	0.06	0.017	<0.1	0.58	<0.01	0.68
12/5/2017	MAX	7.78	700	330	30	7.4	< 2	< 4	0.16	< 0.05	< 0.02	29	< 1	18	7.9	82	0.03	0.018	<0.1	0.68	<0.01	0.38
6/13/2018	MAX	7.82	550	290	25	8.8	< 2	15	<0.1	< 0.05	< 0.02	21	< 1	2.9	3.6	73	0.05	0.021	<0.1	0.59	<0.01	0.65
12/11/2018	MAX	7.83	680	320	32	6.5	< 2	5.9	<0.1	< 0.05	< 0.02	28	< 1	16	8.1	86	0.03	0.013	<0.1	0.69	<0.01	0.55
6/13/2019	MAX	7.94	550	270	24	8.4	< 2	5.8	<0.1	< 0.05	< 0.02	19	< 1	3.1	3.3	72	0.04	0.014	<0.1	0.55	<0.01	0.57

Monitor: 12b-00 Outwash

6/27/2001	Philip	7.77	760	354	27.2	4	0.9	11	0.45	0.13	0.026	48.9	< 1	40	25.2	106	0.62	0.1	<0.1	0.372		
12/3/2001	Philip	7.83	435	204	12.8	3.5	1.2	12	0.26	< 0.03	0.042	21.3	< 1	11.7	12.3	54.8	0.02	0.07	<0.1	0.209		
6/4/2002	Philip	8.51	1144	353	25.6	11	2.9	48	10.8	9.3	0.053	30.1	< 1	169	94.7	97	0.01	0.09	<0.1	0.352		
12/3/2002	Philip	7.76	1187	420	37.2	5	1.2	32	1.41	0.71	0.239	35.4	< 1	135	112	110	16.7	0.05	0.3	0.006		
6/2/2003	Philip	7.38	1108	398	33.7	3	92	88	1.33	0.57	0.004	4.5	157	117	66	118	22.7	0.11		0.017		
12/1/2003	No A																					
6/8/2004	Philip	7.56	710	339	24.9	4.1	2.1	29	1.94	1.46	0.151	20.1	< 1	51	33.8	118	11	0.09		0.342	<0.2	0.2
11/30/2004	Philip	7.62	687	341	24.4	4	< 0.5	24	1.03	0.43	0.046	32.3	< 1	22.7	16.4	96.7	3.25	0.08		0.079		
8/3/2005	Maxx	7.78	610	306	21	4.2	< 3	27	2.4	1.07	0.1	20	1	14	16	90	7.1	0.092	0.17	0.026		
11/28/2005	Maxx	7.93	647	345	26		< 2	14	1	0.35	< 0.02	28	< 1	13	13	100	2.1	0.068	<0.05	0.32		
6/1/2006	MAX	8.1	584	292	19	2.5	< 2	8	1	0.49	0.02	24	< 1	10	12	72	1.7	0.05	0.053	0.15		
12/4/2006	MAX	7.9	648	328	22	3.2	< 2	5	0.8	0.43	< 0.02	26	< 1	11	14	92	0.78	0.065	<0.05	0.21		
3/30/2007	MAX	8.1	526	257	15	2.2	< 2	8	0.7	0.39	< 0.02	18	< 1	8	10	76	1.1	0.039	<0.05	0.22		
6/14/2007	MAX	8	685	337	22	3	< 2	16	0.6	0.44	< 0.02	30	< 1	11	13	93	4.5	0.049	<0.05	0.22		
12/5/2007	MAX	7.9	657	305	22	2.8	< 2	11	0.3	< 0.05	0.02	27	< 1	7	8.4	95	<0.02	0.035	<0.1	0.58	<0.01	4.5
6/25/2008	MAX	8.2	482	235	16	2.7		5	0.6	0.16	< 0.02	22	< 1	5	8.9	70	<0.02	0.067	<0.1	0.61	<0.01	0.2
12/9/2008	MAX	7.9	707	356	25	4	< 2	9	0.5	< 0.05	< 0.02	27	< 1	6	13	100	<0.02	0.058	<0.1	0.74	<0.01	1.4
6/25/2009	MAX	7.7	587	297	20	3	< 2	< 4	0.4	0.12	0.03	21	< 1	4	9.3	87	<0.02	0.053	<0.1	0.61	<0.01	0.4
12/16/2009	MAX	7.5	764	383	31	4.7	< 2	5	0.5	< 0.05	< 0.02	25	< 1	4	9	120	<0.02	0.037	<0.1	0.65	<0.01	3.6
6/24/2010	MAX	7.9	532	263	18	2.8	< 2	11	0.5	0.07	< 0.02	13	< 1	8	9.5	80	<0.02	0.051	<0.1	0.54	<0.01	<0.1
12/17/2010	MAX	7.68	712	353	30	3.9	< 2	9	0.4	< 0.05	< 0.02	20	< 1	7	7.7	100	<0.02	0.057	<0.1	0.47	<0.01	2.1
6/15/2011	MAX	7.84	516	260	18	2.6	< 2	14	0.3	0.09	0.02	16	< 1	5	7.1	77	<0.02	0.044	<0.1	0.35	<0.01	0.1
12/15/2011	MAX	8.01	749	354	29	3.9	< 2	14	0.7	< 0.05	0.88	32	< 1	8	9.6	110	6.1	0.035	<0.1	0.18	<0.01	2.4
6/18/2012	MAX	7.73	710	340	26	3.5	< 2	21	0.96	< 0.05	0.28	29	< 1	6	7.5	100	16	0.039	<0.1	0.7	<0.01	2.4
12/10/2012	MAX	7.64	780	380	30	4.2	< 2	6.9	1.2	< 0.05	0.6	33	< 1	9	11	120	13	0.035	<0.1	0.3	<0.01	3.2
6/18/2013	MAX	7.86	510	250	17	2.6	< 2	11	0.51	< 0.05	0.32	16	< 1	6	6.5	76	8	0.04	<0.1	0.61	<0.01	0.14
12/2/2013	MAX	7.59	590	290	23	3.4	< 2	7.5	0.55	< 0.05	0.17	21	< 1	5	6.6	92	5.4	0.044	<0.1	0.55	<0.01	0.95
5/20/2014	MAX	7.64	530	250	18	2.5	< 2	< 4	0.31	< 0.05	0.12	18	< 1	11	8.4	77	2.5	0.035	<0.1	0.52	<0.01	<0.1
12/2/2014	MAX	7.57	740	320	26	3.7	< 2	6.8	0.27	< 0.05	0.098	19	< 1	30	13	100	4.1	0.045	<0.1	0.48	<0.01	1.9
6/17/2015	MAX	7.69	670	300	24	2.8	< 2	7.6	0.3	< 0.05	0.15	26	< 1	26	13	87	4.7	0.032	<0.1	0.34	<0.01	1.01
12/1/2015	MAX	7.57	810	350	29	3.9	< 2	11	0.2	< 0.05	0.14	23	< 1	31	26	100	4.3	0.029	<0.1	0.18	<0.01	2.56
6/23/2016	MAX	7.68	640	310	22	4.3	< 2	5.5	0.17	< 0.05	0.085	2.1	< 1	< 1	11	84	2.4	0.032	<0.1	0.34	<0.01	1.49
11/29/2016	MAX	7.68	710	360	26	3	< 2	< 4	0.17	< 0.05	< 0.1	36	< 1	9.4	14	110	2.9	0.046	<0.1	0.19	<0.01	0.76

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 12b-00 Outwash

6/5/2017	MAX	8.03	470	230	18	3.3	< 2	5.9	0.18	< 0.05	0.22	14	< 1	6	8.2	69	5.1	0.043	<0.1	0.12	<0.01	<0.1
12/5/2017	MAX	7.68	720	360	24	2.6	< 2	5.6	0.24	< 0.05	0.081	20	< 1	9	14	94	2.4	0.043	<0.1	0.24	<0.01	2.42
6/13/2018	MAX	8.05	450	210	15	2.1	< 2	17	<0.1	< 0.05	0.16	12	< 1	10	6.2	61	3.7	0.037	<0.1	0.21	<0.01	0.39
12/11/2018	MAX	7.84	660	310	25	2.8	< 2	5.9	<0.1	< 0.05	0.039	18	< 1	19	16	95	0.99	0.033	<0.1	0.31	<0.01	1.93
6/13/2019	MAX	7.92	490	190	17	2.2	< 2	< 4	0.19	< 0.05	0.028	10	< 1	33	24	68	0.27	0.028	<0.1	0.25	<0.01	0.65

Monitor: 13a-01 Bedrock

12/3/2001	Philip	7.95	913	272	38.8	2.9	0.8	< 5	0.21	0.09	0.008	105	< 1	83.9	39.9	106	0.77	0.04	<0.1	0.111		
6/4/2002	Philip	8.08	851	259	35	2	< 0.5	< 5	0.24	0.1	0.005	107	< 1	85.5	38	97.7	0.96	0.04	<0.1	<0.005		
12/3/2002	Philip	7.99	902	262	35.6	2	< 0.5	< 5	0.24	0.1	0.008	104	< 1	85.3	40.3	99.8	0.81	0.03	<0.1	<0.005		
6/2/2003	Philip	7.77	921	248	35.2	2	< 0.5	< 5	0.23	0.11	< 0.001	111	9	88.5	41	100	0.45	0.03		0.022		
12/1/2003	Philip	8.15	853	250	34.5	2.3	< 0.5	6	0.25	< 0.03	0.004	110	< 1	97.1	39	109	0.74	0.05	<0.1	0.193		
6/9/2004	Philip	7.81	854	254	34.3	2.1	< 0.5	< 5	0.19	0.14	0.007	119	< 1	97.1	39.7	112	0.64	0.04		0.117	<0.2	<0.2
11/30/2004	Philip	7.96	897	254	33.9	2	< 0.5	6	0.25	0.1	0.006	115	< 1	101	40.8	98.8	0.65	0.04		<0.005		
8/3/2005	Maxx	8.02	889	252	36	2.5	< 2	4	0.5	0.19	< 0.02	107	< 1	93	44	100	0.58	0.043	<0.05	<0.005		
11/28/2005	Maxx	8	884	263	37		< 2	< 4	0.2	0.12	< 0.02	101	< 1	87	44	110	0.59	0.041	<0.05	<0.005		
6/1/2006	MAX	8.1	929	266	33	2.2	< 2	5	0.5	0.17	< 0.02	106	< 1	111	40	94	0.43	0.045	<0.05	<0.005		
12/4/2006	MAX	8	967	268	35	2.5	< 2	< 4	0.3	0.18	< 0.02	111	< 1	100	43	100	0.5	0.044	<0.05	<0.005		
3/30/2007	MAX	8.1	958	260	32	2.4	< 2	5	0.3	0.21	< 0.02	103	< 1	94	39	90	0.5	0.042	<0.05	<0.005		
6/14/2007	MAX	8.2	967	258	34	2.5	< 2	4	0.4	0.21	< 0.02	110	< 1	97	44	100	0.43	0.043	<0.05	<0.005		
12/5/2007	MAX	8.1	939	251	34	2.4	< 2	8	0.2	0.17	< 0.02	103	< 1	97	42	98	0.42	0.038	<0.1	<0.005	<0.01	<0.1
6/25/2008	MAX	8.2	967	247	37	2.6		11	0.5	0.19	< 0.02	120	< 1	100	49	100	0.3	0.043	<0.1	<0.005	<0.01	<0.1
12/9/2008	MAX	8	965	251	34	2.5	< 2	< 4	0.3	0.14	< 0.02	124	< 1	95	45	97	0.32	0.043	<0.1	<0.005	<0.01	<0.1
6/25/2009	MAX	7.9	969	248	34	2.6	< 2	< 4	0.2	0.13	< 0.02	120	< 1	96	44	100	0.54	0.047	<0.1	<0.005	<0.01	<0.1
12/16/2009	MAX	7.8	955	248	35	2.7	< 2	7	0.3	0.12	0.03	110	< 1	95	45	100	0.37	0.047	<0.1	<0.005	<0.01	<0.1
6/28/2010	MAX	7.9	953	244	32	2.5	< 2	9	0.4	0.1	0.02	120	< 1	92	40	95	0.4	0.049	<0.1	<0.005	<0.01	<0.1
12/20/2010	MAX	7.76	952	243	34	2.6	< 2	6	0.3	0.13	< 0.02	100	< 1	95	43	100	0.2	0.048	<0.1	<0.005	<0.01	<0.1
6/16/2011	MAX	7.95	936	241	36	2.7	< 2	13	0.2	0.14	< 0.02	120	< 1	95	44	100	0.39	0.043	<0.1	<0.005	<0.01	<0.1
12/13/2011	MAX	8.02	980	245	37	2.7	< 2	< 4	0.2	0.08	0.04	110	< 1	93	44	100	0.44	0.043	<0.1	<0.005	<0.01	<0.1
6/20/2012	MAX	7.86	970	250	35	2.6	< 2	8.2	0.46	0.079	0.032	110	< 1	93	44	100	0.42	0.046	<0.1	<0.005	<0.01	<0.1
12/11/2012	MAX	7.85	960	250	31	2.6	< 2	< 4	0.47	0.15	< 0.02	110	< 1	91	40	100	0.37	0.048	<0.1	<0.005	<0.01	<0.1
6/17/2013	MAX	7.71	960	260	32	2.3	< 2	< 4	0.72	0.16	< 0.02	110	< 1	95	42	94	0.42	0.048	<0.1	<0.005	<0.01	<0.1
12/9/2013	MAX	7.89	980	240	35	2.5	< 2	< 4	0.24	0.15	< 1	110	< 1	97	44	100	0.35	0.041	<0.1	<0.005	<0.01	<0.1
5/22/2014	MAX	7.86	950	240	32	2.5	< 2	< 4	0.28	0.093	< 0.04	110	< 1	97	45	110	0.31	0.045	<0.1	<0.005	<0.01	<0.1
12/3/2014	MAX	7.99	930	250	36	2.7	< 2	< 4	0.2	0.16	< 0.02	110	< 1	99	45	100	0.3	0.053	<0.1	<0.005	<0.01	<0.1
6/18/2015	MAX	7.93	960	240	35	2.7	< 2	4.1	0.23	0.15	< 0.02	110	< 1	99	45	100	0.45	0.048	<0.1	<0.005	<0.01	<0.1
12/4/2015	MAX	8	960	240	35	2.6	< 2	4.9	0.14	0.14	< 0.02	100	< 1	95	45	98	0.34	0.041	<0.1	<0.005	<0.01	<0.1
6/21/2016	MAX	8.01	960	250	34	2.4	< 2	< 4	0.21	0.11	< 0.02	100	< 1	99	43	93	0.37	0.042	<0.1	<0.005	<0.01	<0.1
12/6/2016	MAX	7.96	970	250	34	2.7	< 2	< 4	0.21	0.11	< 0.02	100	< 1	100	45	97	0.39	0.048	<0.1	<0.005	<0.01	<0.1
6/7/2017	MAX	8.05	970	250	35	2.6	< 2	< 4	0.28	0.14	< 0.02	100	< 1	110	45	98	0.4	0.051	<0.1	<0.005	<0.01	<0.1
12/6/2017	MAX	7.98	990	260	33	2.6	< 2	< 4	0.19	0.12	< 0.02	95	< 1	110	45	96	0.39	0.044	<0.1	<0.005	<0.01	<0.1

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Conductivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 13a-01 Bedrock

6/18/2018	MAX	7.85	1000	250	36	2.7	< 2	< 4	0.22	0.13	< 0.02	97	< 1	110	48	100	0.49	0.038	<0.1	<0.005	<0.01	<0.1
12/10/2018	MAX	7.93	1000	250	34	2.4	< 2	4.9	0.12	0.17	< 0.02	100	< 1	110	47	100	0.3	0.04	<0.1	<0.005	<0.01	<0.1
6/18/2019	MAX	7.88	1000	240	35	2.7	< 2	< 4	0.18	0.12	< 0.02	110	< 1	110	51	110	0.33	0.05	<0.1	<0.005	<0.01	<0.1
12/4/2019	MAX	7.88	960	250	33	2.5	< 2	< 4	0.22	0.16	< 0.02	96	< 1	110	46	98	0.49	0.038	<0.1	<0.005	<0.01	<0.1

Monitor: 13b-01 Outwash

12/3/2001	Philip	7.93	655	296	29.7	2.2	1.4	< 5	0.23	< 0.03	0.223	50.4	< 1	14.9	4.8	84.7	0.01	0.02	<0.1	0.024		
6/4/2002	Philip	8.17	576	299	30.4	2	0.7	11	0.75	< 0.03	0.006	38	< 1	7	5	88	<0.01	0.08	<0.1	0.08		
12/3/2002	Philip	7.93	683	300	31.6	2	< 0.5	< 5	0.18	< 0.03	0.213	50.4	< 1	17.4	7.2	92.8	0.01	0.01	<0.1	0.022		
6/2/2003	Philip	7.65	699	287	33.6	1	0.7	9	0.56	< 0.03	< 0.001	53.8	12	23.3	4.9	97.2	<0.01	0.01		0.042		
12/1/2003	Philip	7.8	665	375	35.8	1.4	0.8	5	0.2	< 0.03	0.036	29.4	< 1	11.9	7.5	103	0.05	0.1	<0.1	0.06		
6/9/2004	Philip	7.72	610	291	30.4	< 1	< 0.5	7	0.48	< 0.03	0.004	44.8	< 1	16.7	5.7	105	0.05	0.02		0.252	<0.2	4.6
11/30/2004	Philip	7.71	810	369	35.4	2	< 0.5	20	0.91	< 0.03	0.002	29.8	< 1	51.8	19.9	110	<0.01	0.04		0.055		
8/3/2005	Maxx	7.98	800	345	38	2	< 2	19	1.1	< 0.05	< 0.02	25	< 1	55	12	110	0.15	0.014	<0.05	0.061		
11/28/2005	Maxx	8.06	846	506	45		< 2	7	0.5	< 0.05	< 0.02	17	< 1	11	14	140	<0.05	0.063	<0.05	0.09		
6/1/2006	MAX	8	1090	403	41	1.7	< 2	12	0.7	< 0.05	< 0.02	21	< 1	132	30	120	<0.02	0.019	<0.05	0.072		
12/4/2006	MAX	7.9	1070	471	41	2	< 2	< 4	0.4	0.08	< 0.02	26	< 1	65	32	140	<0.02	0.035	<0.05	0.089		
3/30/2007	MAX	8.1	977	419	38	1.9	< 2	< 4	0.4	0.08	< 0.02	22	< 1	65	40	130	<0.02	0.032	<0.05	0.072		
6/14/2007	MAX	8.1	971	383	35	2	< 2	5	0.4	0.09	< 0.02	24	< 1	79	38	130	<0.02	0.029	<0.05	0.07		
12/5/2007	MAX	8	1260	363	36	2	< 2	14	0.2	< 0.05	< 0.02	49	< 1	160	88	120	<0.02	0.021	<0.1	0.07	<0.01	3.3
6/25/2008	MAX	8.1	1340	309	45	2.4		4	0.5	< 0.05	< 0.02	29	< 1	200	49	160	<0.02	0.017	<0.1	0.093	<0.01	6
12/9/2008	MAX	8	1180	348	28	2.5	< 2	< 4	0.3	< 0.05	< 0.02	35	< 1	160	83	120	<0.02	0.033	<0.1	0.07	<0.01	2.6
6/25/2009	MAX	7.7	1190	355	31	2.2	< 2	< 4	0.3	< 0.05	< 0.02	24	< 1	160	78	130	<0.02	0.029	<0.1	0.092	0.02	4.1
12/16/2009	MAX	7.9	1030	338	29	2.4	< 2	9	0.5	0.29	0.03	28	< 1	120	73	110	2.5	0.028	<0.1	0.018	<0.01	2.7
6/28/2010	MAX	7.9	1050	402	30	2	< 2	7	0.3	< 0.05	0.02	28	< 1	83	50	130	<0.02	0.031	<0.1	0.095	0.02	2.4
12/20/2010	MAX	7.71	1120	357	31	2.2	< 2	< 4	0.2	< 0.05	< 0.02	36	< 1	130	59	140	<0.02	0.026	<0.1	0.089	<0.01	2.1
6/16/2011	MAX	7.76	1040	423	30	2	< 2	11	0.3	< 0.05	< 0.02	24	< 1	77	50	140	<0.02	0.026	<0.1	0.12	0.03	2.2
12/13/2011	MAX	7.86	987	407	30	2.1	< 2	14	1.1	< 0.05	0.32	21	< 1	62	39	130	20	0.027	<0.1	0.13	<0.01	2
6/20/2012	MAX	7.69	1100	440	30	2.1	< 2	13	0.53	< 0.05	0.043	28	< 1	68	44	140	1.4	0.029	<0.1	0.12	0.017	2.3
12/11/2012	MAX	7.74	1000	410	28	2.1	< 2	< 4	1.4	< 0.05	< 0.04	33	< 1	66	37	140	1.2	0.029	<0.1	0.11	0.011	3
6/17/2013	MAX	7.78	1100	420	30	1.8	< 2	30	1.4	0.096	0.35	30	< 1	89	38	140	11	0.032	<0.1	0.15	0.1	3.5
12/9/2013	MAX	7.69	1100	440	27	2	< 2	< 4	0.31	< 0.05	0.027	24	< 1	83	49	140	<0.02	0.025	<0.1	0.13	0.034	2.4
5/22/2014	MAX	7.68	1100	440	28	1.9	< 2	< 4	0.47	< 0.05	< 0.04	31	< 1	66	52	150	<0.02	0.029	<0.1	0.23	0.019	2.82
12/3/2014	MAX	7.88	1100	410	28	2.1	< 2	< 4	0.22	< 0.05	< 0.02	22	< 1	95	53	150	<0.02	0.036	<0.1	0.2	0.029	2.08
6/18/2015	MAX	7.95	870	410	26	1.8	< 2	< 4	0.23	< 0.05	< 0.02	20	< 1	38	35	130	0.19	0.027	<0.1	0.13	0.024	1.14
12/4/2015	MAX	7.81	1100	340	28	1.9	< 2	4.3	0.11	< 0.05	< 0.02	41	< 1	110	40	140	0.26	0.02	<0.1	0.076	<0.01	0.48
6/21/2016	MAX	7.88	1100	380	30	1.7	< 2	11	0.22	< 0.05	< 0.02	25	< 1	120	28	150	0.11	0.022	<0.1	0.14	0.037	2.62
12/6/2016	MAX	7.77	1400	340	29	2.3	8	11	<0.1	< 0.05	0.1	47	< 1	180	110	140	2	0.027	<0.1	0.12	<0.01	1.4
6/7/2017	MAX	8.15	590	230	26	1.9	< 2	< 4	0.23	< 0.05	< 0.02	38	< 1	33	2	75	0.2	0.03	<0.1	0.014	0.014	<0.1
12/6/2017	MAX	7.86	1400	350	28	2.2	< 2	< 4	0.1	< 0.05	< 0.02	56	< 1	190	110	120	0.23	0.026	<0.1	0.079	<0.01	1.1
6/18/2018	MAX	7.81	880	360	24	1.6	< 2	4.6	<0.1	< 0.05	< 0.02	28	< 1	48	43	100	0.24	0.018	<0.1	0.027	<0.01	1.43

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 13b-01 Outwash

12/10/2018	MAX	7.79	1000	350	24	1.8	< 2	< 4	<0.1	< 0.05	< 0.02	35	< 1	100	80	100	0.16	0.019	<0.1	0.038	<0.01	1.18
6/18/2019	MAX	7.82	1000	410	31	1.8	< 2	< 4	0.34	< 0.05	< 0.02	38	< 1	69	54	140	0.14	0.028	<0.1	0.081	0.011	3.21
12/4/2019	MAX	7.81	1200	320	29	2	< 2	< 4	<0.1	< 0.05	< 0.02	45	< 1	160	78	130	0.08	0.02	<0.1	0.06	<0.01	1.04

Monitor: 14a-01 Bedrock

12/4/2001	Philip	7.95	674	263	27.9	< 1	2	10	0.23	< 0.03	0.011	64.8	< 1	26.6	27.4	84	0.25	0.04	<0.1	0.128		
6/4/2002	Philip	8.44	556	240	22.4	2	1.4	8	0.5	< 0.03	0.006	56.1	< 1	10.7	24.9	63.5	<0.01	0.04	<0.1	0.007		
12/3/2002	Philip	8.01	519	240	23.7	< 1	< 0.5	< 5	0.25	< 0.03	0.006	38.8	< 1	4.8	11.5	65.3	<0.01	0.01	<0.1	0.007		
6/2/2003	Philip	7.82	489	215	23.3	1	1.1	15	0.13	0.03	< 0.001	49.7	29	7	20	64.6	0.13	0.02		0.006		
12/1/2003	Philip	8.18	542	232	23.7	< 1	0.7	7	0.24	< 0.03	0.003	53.1	< 1	12	18.2	72.9	0.05	0.03	<0.1	0.083		
6/9/2004	Philip	8.04	527	234	25.7	< 1	< 0.5	19	0.86	< 0.03	0.004	61.2	< 1	14.2	19.6	69.3	0.01	0.02		<0.005	<0.2	<0.2
11/30/2004	Philip	7.92	527	236	24.4	1	< 0.5	< 5	0.06	< 0.03	< 0.002	48.6	< 1	12.8	9.1	68.1	0.03	<0.01		<0.005		
8/3/2005	Maxx	8.22	533	234	26	1.1	< 2	15	1.1	< 0.05	< 0.02	51	< 1	11	19	67	<0.05	0.031	0.069	<0.005		
11/28/2005	Maxx	8.18	529	242	29		< 2	9	0.4	< 0.05	< 0.02	42	< 1	15	14	78	0.16	0.018	<0.05	<0.005		
6/1/2006	MAX	8.2	605	253	28	1.1	< 2	9	0.4	< 0.05	< 0.02	52	< 1	15	16	77	0.14	0.022	<0.05	<0.005		
12/4/2006	MAX	8.2	597	253	26	1	< 2	< 4	0.2	0.08	< 0.02	61	< 1	13	14	74	0.11	0.017	<0.05	<0.005		
3/30/2007	MAX	8.2	599	249	24	0.99	< 2	< 4	0.2	0.06	< 0.02	61	< 1	13	13	72	<0.02	0.018	<0.05	<0.005		
6/14/2007	MAX	8.1	601	243	29	1.1	< 2	< 4	0.2	0.1	< 0.02	63	< 1	14	12	80	<0.02	0.015	<0.05	0.01		
12/5/2007	MAX	8.2	603	241	27	1.2	< 2	12	0.1	< 0.05	< 0.02	62	< 1	12	16	77	<0.02	0.013	<0.1	<0.005	<0.01	<0.1
6/25/2008	MAX	8.2	590	236	29	1.1		7	0.3	< 0.05	< 0.02	58	< 1	15	11	80	<0.02	<0.01	<0.1	<0.005	<0.01	<0.1
12/9/2008	MAX	8	606	239	26	1.1	< 2	< 4	0.2	< 0.05	0.04	67	< 1	17	14	72	<0.02	0.016	<0.1	<0.005	<0.01	<0.1
6/25/2009	MAX	8	635	237	29	1.2	< 2	< 4	0.2	< 0.05	< 0.02	71	< 1	21	16	86	0.06	0.022	<0.1	<0.005	<0.01	<0.1
12/16/2009	MAX	7.9	629	242	29	1.2	< 2	< 4	0.1	< 0.05	< 0.02	64	< 1	20	17	79	0.03	0.017	<0.1	<0.005	<0.01	<0.1
6/29/2010	MAX	8.1	599	231	26	0.98	< 2	6	0.2	< 0.05	0.02	64	< 1	19	10	75	<0.02	0.016	<0.1	<0.005	<0.01	<0.1
12/20/2010	MAX	7.92	672	252	27	1.2	< 2	< 4	0.2	< 0.05	< 0.02	65	< 1	23	19	77	<0.02	0.017	<0.1	<0.005	<0.01	<0.1
6/15/2011	MAX	7.96	666	239	28	1.2	< 2	14	0.1	< 0.05	< 0.02	73	< 1	28	16	83	0.11	0.023	<0.1	<0.005	<0.01	<0.1
12/14/2011	MAX	8.13	652	240	28	1.2	< 2	< 4	0.2	< 0.05	< 0.02	65	< 1	23	17	81	0.14	0.015	<0.1	0.014	<0.01	<0.1
6/19/2012	MAX	8.06	620	240	27	1.1	< 2	7.6	0.15	< 0.05	0.022	57	< 1	20	14	76	0.09	0.019	<0.1	0.018	<0.01	<0.1
12/17/2012	MAX	7.72	620	240	28	1.1	< 2	7	0.31	< 0.05	< 0.02	62	< 1	20	18	81	0.16	0.012	<0.1	0.0061	<0.01	<0.1
6/18/2013	MAX	8.05	620	240	25	1.3	< 2	< 4	0.22	< 0.05	0.025	63	< 1	20	29	74	0.29	0.024	<0.1	<0.005	<0.01	<0.1
12/4/2013	MAX	7.94	650	250	27	1.2	< 2	11	0.31	< 0.05	0.041	63	< 1	24	22	76	0.02	0.023	<0.1	0.008	<0.01	<0.1
5/26/2014	MAX	8.02	630	240	25	1	< 2	< 4	0.27	< 0.05	< 0.02	62	< 1	22	18	80		0.019		<0.005	<0.01	<0.1
12/4/2014	MAX	7.96	620	230	26	1.2	< 2	4.5	<0.1	< 0.05	< 0.02	56	< 1	21	15	78	0.02	0.019	<0.1	<0.005	<0.01	<0.1
6/22/2015	MAX	7.79	640	250	26	1.2	< 2	9	<0.1	< 0.05	0.022	63	< 1	23	21	75	1.3	0.024	<0.1	<0.005	<0.01	<0.1
12/30/2015	MAX	7.8	640	240	29	1.2	< 2	< 4	<0.1	< 0.05	< 0.02	63	< 1	23	25	80	1.3	0.024	<0.1	0.006	<0.01	<0.1
6/21/2016	MAX																					
6/22/2016	MAX	8.2	640	240	26	1.1	< 2	4.2	<0.1	< 0.05	0.027	67	< 1	24	26	71	0.74	0.025	<0.1	0.008	<0.01	0.16
12/5/2016	MAX	7.88	650	250	24	1	< 2	< 4	0.13	< 0.05	< 0.02	60	< 1	23	25	70	0.51	0.025	<0.1	0.012	<0.01	<0.1
6/8/2017	MAX	8.17	640	240	25	1.1	< 2	4.8	0.13	< 0.05	< 0.02	64	< 1	24	26	69	0.32	0.026	<0.1	<0.005	<0.01	<0.1
12/8/2017	MAX	8.02	660	250	26	1.1	< 2	< 4	<0.1	< 0.05	< 0.02	64	< 1	23	27	71	0.4	0.025	<0.1	<0.005	<0.01	<0.1
6/19/2018	MAX	8.22	660	250	24	1.1	< 2	8.5	0.16	< 0.05	< 0.02	61	< 1	23	29	69	0.25	0.028	<0.1	<0.005	<0.01	<0.1

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 14a-01 Bedrock

12/11/2018	MAX	7.99	650	240	25	1	< 2	5.7	<0.1	< 0.05	< 0.02	60	< 1	22	26	69	0.25	0.023	<0.1	<0.005	<0.01	<0.1
6/26/2019	MAX	8.18	610	240	26	0.97	< 2	< 4	<0.1	< 0.05	< 0.02	61	< 1	23	26	73	1.3	0.022	<0.1	<0.005	<0.01	<0.1
12/5/2019	MAX	8	650	240	25	1.1	< 2	< 4	<0.1	< 0.05	< 0.02	63	< 1	23	29	75	0.27	0.021	<0.1	<0.005	<0.01	<0.1

Monitor: 14b-01 Outwash

12/4/2001	Philip	7.94	716	336	30.3	< 1	1.3	12	0.3	< 0.03	0.009	62.9	< 1	22.3	8.2	114	0.15	0.05	<0.1	0.269		
6/4/2002	Philip	8.41	776	279	30.2	2	1	21	0.34	0.06	1.11	89.4	< 1	58.4	20.9	100	<0.01	0.02	<0.1	0.195		
12/3/2002	Philip	8.07	680	277	29.7	2	0.7	12	0.68	< 0.03	0.005	58.1	< 1	24.1	7.7	95.4	0.01	<0.01	<0.1	0.081		
6/2/2003	Philip	7.59	845	270	26.2	2	0.8	18	0.62	0.04	< 0.001	33.7	13	85.8	32.7	104	0.37	0.02		0.121		
12/1/2003	Philip	7.84	895	342	30.1	< 1	< 0.5	27	0.9	0.22	0.005	29.6	< 1	101	40.4	112	0.73	0.02	<0.1	0.245		
6/9/2004	Philip	7.55	771	327	27.9	1.2	< 0.5	20	0.7	0.14	0.002	39.2	2	70.6	33.8	129	0.8	0.01		0.505	<0.2	<0.2
11/30/2004	Philip	7.65	878	364	31.3	< 1	< 0.5	34	1.37	0.15	0.004	30.6	< 1	91.4	34.2	123	1.22	0.02		0.369		
8/3/2005	Maxx	7.93	818	267	29	2.3	< 2	20	1.3	0.06	< 0.02	83	< 1	73	31	110	0.91	0.013	0.059	0.11		
11/28/2005	Maxx	8.09	1070	305	38		6	12	0.6	0.09	< 0.02	77	< 1	143	49	140	1.3	0.02	<0.05	0.12		
6/1/2006	MAX	8	1100	361	36	2	< 2	11	0.5	0.06	0.03	59	< 1	129	60	120	0.29	0.021	<0.05	0.26		
12/4/2006	MAX	8	1120	438	37	2	< 2	9	0.9	0.09	< 0.02	64	< 1	92	67	130	0.15	0.025	<0.05	0.33		
3/30/2007	MAX	8.1	901	347	32	1.7	< 2	15	0.3	0.07	< 0.02	46	< 1	67	49	110	0.03	0.023	<0.05	0.42		
6/14/2007	MAX	8.1	909	295	36	2	< 2	8	0.2	0.09	< 0.02	87	< 1	75	39	110	0.13	0.026	<0.05	0.18		
12/5/2007	MAX	8.1	1040	294	35	1.9	< 2	13	0.3	< 0.05	< 0.02	88	< 1	120	42	120	<0.02	0.012	<0.1	0.35	<0.01	<0.1
6/25/2008	MAX	8	1270	326	35	2.6		6	0.3	< 0.05	< 0.02	84	< 1	180	100	120	<0.02	0.016	<0.1	0.4	<0.01	0.4
12/9/2008	MAX	8	1310	423	33	2.2	< 2	4	0.3	< 0.05	< 0.02	58	< 1	150	110	120	0.02	0.022	<0.1	0.41	<0.01	0.1
6/25/2009	MAX	7.8	1670	357	33	2.6	< 2	< 4	0.2	< 0.05	0.02	52	< 1	280	170	130	<0.02	0.025	<0.1	0.87	<0.01	0.2
12/15/2009	MAX	7.7	1670	398	32	2.2	< 2	4	0.3	< 0.05	0.03	42	< 1	260	170	130	<0.02	0.016	<0.1	0.7	<0.01	<0.1
6/29/2010	MAX	8	1230	365	27	2.3	< 2	9	0.4	< 0.05	< 0.02	47	< 1	150	120	110	<0.02	0.027	<0.1	0.79	<0.01	0.3
12/20/2010	MAX	7.76	1240	420	< 0.05	< 0.2	< 2	7	0.3	< 0.05	< 0.02	38	< 1	130	< 0.1	< 0.2	<0.02	<0.01	<0.1	<0.005	<0.01	4
6/14/2011	MAX	7.74	1170	370	30	2.2	< 2	8	0.4	< 0.05	< 0.02	35	< 1	130	94	120	<0.02	0.022	<0.1	1.4	<0.01	3.5
12/14/2011	MAX	8.05	977	386	24	1.9	< 2	15	3	< 0.05	1	32	< 1	63	88	93	61	0.018	<0.1	0.72	<0.01	1.2
6/19/2012	MAX	7.82	1200	340	32	2.3	< 2	9.7	0.84	< 0.05	0.65	37	< 1	150	82	130	39	0.02	<0.1	1.4	<0.01	<0.1
12/17/2012	MAX	7.48	1100	410	30	2	< 2	46	2.9	0.073	1.5	35	< 1	92	91	130	27	0.015	<0.1	0.94	<0.01	0.4
6/18/2013	MAX	7.81	1600	380	40	2.6	< 2	< 4	0.33	< 0.05	0.089	43	< 1	250	120	180	3.2	0.022	<0.1	1.7	<0.01	1.6
12/4/2013	MAX	7.68	1100	430	37	1.9	< 2	8.1	0.84	< 0.05	0.11	29	< 1	81	78	140	<0.02	0.025	0.11	1.2	<0.01	0.95
5/26/2014	MAX	7.56	1600	320	36	1.9	< 2	36	11	< 0.05	1.1	36	< 1	270	120	160	34	0.018	<0.1	1.1	<0.01	2.67
12/4/2014	MAX	7.77	1000	420	80	2.5	< 2	10	0.71	< 0.05	0.43	22	< 1	73	83	280	<0.02	0.037	0.45	2	<0.01	0.37
6/22/2015	MAX	7.64	1300	340	32	2	< 2	37	1.2	< 0.05	1.1	37	< 1	180	86	150	34	0.023	<0.1	0.98	<0.01	1.48
12/30/2015	MAX	7.58	1000	380	27	1.5	< 2	5.9	0.31	< 0.05	0.26	33	< 1	86	71	120	10	0.019	<0.1	0.52	<0.01	0.6
6/22/2016	MAX	7.81	1800	380	38	2.2	< 2	8.4	<0.1	< 0.05	0.31	63	< 1	280	150	170	14	0.024	<0.1	1.1	<0.01	0.92
12/5/2016	MAX	7.77	1700	360	46	2.9	< 2	14	0.11	< 0.05	0.094	65	< 1	260	130	200	<0.02	0.028	0.14	1.3	<0.01	<0.1
6/8/2017	MAX	7.88	2000	370	36	2.2	< 2	12	0.78	< 0.05	0.091	67	< 1	350	170	180	3.4	0.025	<0.1	0.99	<0.01	4.14
12/8/2017	MAX	7.85	860	360	25	1	< 2	11	0.26	< 0.05	0.03	N	< 1	74	34	100	0.99	<0.01	<0.1	0.41	<0.01	<0.1
6/19/2018	MAX	7.85	1100	400	27	1.5	< 2	15	0.32	< 0.05	0.25	11	< 1	110	74	120	5	0.02	<0.1	0.7	<0.01	<0.1
12/11/2018	MAX	7.72	2000	390	42	1.8	< 2	12	0.16	0.06	0.042	44	< 1	360	150	190	0.97	0.019	<0.1	0.82	<0.01	<0.1

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 14b-01 Outwash

6/26/2019	MAX	7.91	1600	340	30	1.7	< 2	6.5	0.19	< 0.05	0.05	66	< 1	300	170	140	1.4	0.019	<0.1	0.52	0.015	1.23
12/5/2019	MAX	7.6	2100	460	33	1.9	< 2	10	0.23	< 0.05	0.04	49	< 1	330	250	160	0.81	0.017	<0.1	0.73	0.018	1.29

Monitor: 15a-01 Bedrock

12/4/2001	Philip	7.95	754	259	35.1	< 1	0.6	< 5	0.16	< 0.03	0.006	92.4	< 1	48.3	7.7	104	0.27	<0.01	<0.1	<0.005		
6/4/2002	Philip	8.13	718	254	34.9	1	< 0.5	< 5	0.15	< 0.03	0.086	94.1	< 1	52.8	8.3	103	0.4	<0.01	<0.1	<0.005		
12/3/2002	Philip	8.06	794	260	35.7	2	< 0.5	8	0.49	0.03	0.011	92.3	< 1	57.6	10.6	106	0.47	<0.01	<0.1	<0.005		
6/2/2003	Philip	7.87	789	246	36	1	< 0.5	6	0.15	< 0.03	< 0.001	99	15	56.2	12.2	107	0.5	<0.01		<0.005		
12/1/2003	Philip	8.17	754	245	32.5	< 1	< 0.5	7	0.19	< 0.03	0.007	101	< 1	60.7	11.5	103	0.5	<0.01	<0.1	0.072		
6/9/2004	Philip	7.85	734	258	34.9	< 1	< 0.5	6	0.16	< 0.03	0.004	105	< 1	62.4	13	129	0.55	0.01		0.335	<0.2	<0.2
11/30/2004	Philip	7.97	754	257	33.7	1	< 0.5	< 5	0.16	< 0.03	0.005	105	< 1	61.5	13.7	101	0.52	<0.01		<0.005		
8/3/2005	Maxx	8.14	737	254	35	1.1	< 2	5	0.4	< 0.05	< 0.02	91	< 1	49	15	100	0.55	<0.01	<0.05	<0.005		
11/28/2005	Maxx	8.22	736	262	37		< 2	6	0.4	< 0.05	< 0.02	88	< 1	47	16	110	0.58	<0.01	<0.05	<0.005		
6/1/2006	MAX	8.1	790	268	33	1	< 2	10	0.4	< 0.05	< 0.02	74	1	59	15	92	0.46	0.011	<0.05	<0.005		
12/4/2006	MAX	8	811	271	35	1.1	< 2	< 4	0.3	0.18	< 0.02	79	< 1	55	17	100	0.55	0.011	<0.05	<0.005		
3/30/2007	MAX	8.1	808	263	29	1	< 2	< 4	0.3	0.1	< 0.02	92	< 1	54	15	88	0.56	0.01	<0.05	<0.005		
6/14/2007	MAX	8.1	799	258	36	1.3	< 2	< 4	0.4	0.11	< 0.02	95	< 1	51	18	110	0.4	0.011	<0.05	<0.005		
12/5/2007	MAX	8.2	799	255	35	1.2	< 2	13	0.2	0.09	< 0.02	100	< 1	51	19	110	0.47	0.012	<0.1	<0.005	<0.01	<0.1
6/25/2008	MAX	8.3	783	249	33	1.4		10	0.4	< 0.05	< 0.02	104	< 1	45	19	100	0.07	<0.01	<0.1	0.042	<0.01	<0.1
12/9/2008	MAX	8	786	252	32	1.2	< 2	< 4	0.3	0.07	< 0.02	116	< 1	42	19	96	0.45	0.013	<0.1	<0.005	<0.01	<0.1
6/25/2009	MAX	8	783	249	34	1.2	< 2	4	0.2	< 0.05	< 0.02	110	< 1	43	20	96	0.57	0.034	<0.1	<0.005	<0.01	<0.1
12/16/2009	MAX	8	802	251	32	1.2	2	< 4	0.2	< 0.05	< 0.02	110	< 1	48	19	100	0.62	0.015	<0.1	<0.005	<0.01	<0.1
6/28/2010	MAX	8.1	818	245	34	1.2	< 2	6	0.3	< 0.05	0.02	110	< 1	47	19	100	0.64	0.021	<0.1	<0.005	<0.01	<0.1
12/22/2010	MAX	7.85	844	251	37	1.3	< 2	< 4	0.2	< 0.05	< 0.02	110	< 1	56	21	110	0.64	0.016	<0.1	<0.005	<0.01	<0.1
6/14/2011	MAX	7.92	824	243	35	1.3	< 2	7	0.3	< 0.05	0.02	100	< 1	56	19	110	0.71	0.017	<0.1	<0.005	<0.01	<0.1
12/15/2011	MAX	8.02	857	247	39	1.4	< 2	< 4	0.2	0.05	< 0.02	100	< 1	61	24	120	0.19	0.012	<0.1	<0.005	<0.01	<0.1
6/18/2012	MAX	7.94	860	250	34	1.2	< 2	12	0.2	< 0.05	< 0.02	98	< 1	62	21	100	0.78	0.013	<0.1	<0.005	<0.01	<0.1
12/11/2012	MAX	7.87	860	250	34	1.3	< 2	< 4	0.59	0.064	< 0.02	110	< 1	63	22	110	0.66	0.02	<0.1	<0.005	<0.01	<0.1
6/19/2013	MAX	8.17	860	260	30	1.2	< 2	9.9	0.17	0.057	< 0.02	110	< 1	63	20	98	0.74	0.025	<0.1	<0.005	<0.01	<0.1
12/3/2013	MAX	7.83	850	250	31	1.1	< 2	< 4	0.28	< 0.05	< 0.02	94	< 1	67	21	92	0.74	0.025	<0.1	0.006	<0.01	<0.1
5/21/2014	MAX	7.9	870	250	34	1.3	< 2	< 4	<0.1	< 0.05	< 0.02	110	< 1	66	24	110	0.73	0.018	<0.1	<0.005	<0.01	<0.1
12/4/2014	MAX	7.94	840	250	41	1.7	< 2	< 4	0.15	0.082	0.13	96	< 1	68	25	140	0.75	0.028	0.17	0.077	<0.01	<0.1
6/19/2015	MAX	8.02	840	260	36	1.4	< 2	< 4	0.14	< 0.05	< 0.02	100	< 1	68	27	110	1	0.022	<0.1	<0.005	<0.01	<0.1
12/8/2015	MAX	7.93	870	240	36	1.3	< 2	< 4	0.14	< 0.05	0.025	110	< 1	66	27	110	1.2	0.014	<0.1	<0.005	<0.01	<0.1
3/11/2016	MAX	7.94	880	250	36	1.4	< 2	< 4	<0.1	< 0.05	< 0.02	110	< 1	69	27	110	1	0.024	<0.1	<0.005	<0.01	<0.1
6/22/2016	MAX	7.98	1300	240	44	1.5	< 2	5.8	0.17	< 0.05	0.021	100	< 1	170	53	130	1.2	0.017	<0.1	0.01	<0.01	<0.1
6/23/2016	MAX																					
12/1/2016	MAX	7.96	970	250	35	1.3	< 2	< 4	0.27	< 0.05	0.023	96	< 1	99	37	100	0.9	0.019	<0.1	<0.005	<0.01	<0.1
6/8/2017	MAX	8.09	1200	240	40	1.5	< 2	< 4	0.24	0.052	< 0.02	100	< 1	170	50	120	1	0.023	<0.1	<0.005	<0.01	<0.1
12/8/2017	MAX	8.02	1000	260	35	1.5	< 2	< 4	0.13	< 0.05	< 0.02	97	< 1	120	47	110	0.92	0.021	<0.1	<0.005	<0.01	<0.1
6/19/2018	MAX	7.93	1900	230	41	2	< 2	10	0.22	0.12	0.073	100	< 1	370	160	130	3.1	0.026	<0.1	<0.005	<0.01	<0.1

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Conductivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 15a-01 Bedrock

12/12/2018	MAX	7.89	1200	250	34	1.5	< 2	6.8	<0.1	< 0.05	0.026	99	< 1	140	70	110	1.1	0.021	<0.1	<0.005	<0.01	<0.1
6/18/2019	MAX	7.88	1800	220	45	1.9	< 2	< 4	0.14	< 0.05	< 0.02	110	< 1	390	150	160	1.1	0.025	<0.1	<0.005	<0.01	<0.1
12/3/2019	MAX	7.89	1400	250	31	1.6	< 2	< 4	0.13	0.082	< 0.02	96	1.7	240	120	100	0.94	0.02	<0.1	<0.005	<0.01	<0.1

Monitor: 15b-01 Outwash

12/4/2001	Philip	8.16	646	252	27	< 1	4.4	13	0.27	< 0.03	0.014	26.2	< 1	24.4	6.2	77.7	<0.01	0.08	<0.1	0.143		
6/4/2002	Philip	8.1	475	215	21.1	1	0.9	11	0.79	< 0.03	0.008	13.8	< 1	6.9	2	73.4	<0.01	<0.01	<0.1	0.007		
12/3/2002	Philip	7.95	723	200	29.4	2	0.9	12	0.75	< 0.03	0.012	14.3	< 1	9.1	2	103	<0.01	0.01	<0.1	0.009		
6/2/2003	Philip	7.95	534	214	22.4	< 1	1.4	12	0.66	< 0.03	0.002	37.1	10	5.2	5	77.2	<0.01	0.01		0.009		
12/1/2003	Philip	8.08	661	291	27.5	1.1	< 0.5	25	0.74	< 0.03	0.003	40.5	< 1	7.9	10.7	95	<0.01	0.04	<0.1	0.01		
6/9/2004	Philip	7.94	478	204	18.7	< 1	< 0.5	11	0.45	< 0.03	0.002	24.2	< 1	24.8	4	74	0.01	<0.01		0.047	<0.2	4.1
11/30/2004	Philip	7.99	558	240	21.8	< 1	< 0.5	12	0.58	< 0.03	0.002	22.4	< 1	27.9	3.3	83	<0.01	0.01		0.008		
8/3/2005	Maxx	8.06	668	335	30	0.98	< 2	18	1.4	< 0.05	< 0.02	16	< 1	10	4.6	120	0.097	<0.01	<0.05	0.03		
11/28/2005	Maxx	7.97	1150	533	53		< 2	9	0.8	< 0.05	< 0.02	26	< 1	56	10	190	<0.05	0.039	<0.05	0.045		
6/1/2006	MAX	8	853	462	32	0.97	< 2	11	0.7	< 0.05	0.02	15	< 1	8	12	120	<0.02	0.025	<0.05	0.026		
12/4/2006	MAX	7.8	949	490	36	1.2	< 2	7	0.4	< 0.05	< 0.02	24	< 1	4	16	150	0.29	0.045	<0.05	0.034		
3/30/2007	MAX	8.1	955	484	38	0.92	< 2	< 4	0.4	0.09	< 0.02	28	< 1	13	9.2	150	<0.02	0.026	<0.05	0.008		
6/14/2007	MAX	8.1	996	478	38	1	< 2	7	0.3	0.1	< 0.02	25	< 1	35	8.7	160	<0.02	0.023	<0.05	0.041		
12/5/2007	MAX	8	1130	481	42	1.3	< 2	17	0.4	< 0.05	< 0.02	28	< 1	38	15	180	<0.02	0.042	<0.1	0.049	<0.1	15
6/25/2008	MAX	8.1	1330	449	31	1.3		4	0.4	< 0.05	< 0.02	23	< 1	130	94	150	<0.02	0.016	<0.1	0.036	<0.1	13
12/9/2008	MAX	8	1100	544	25	1.2	< 2	6	0.4	< 0.05	< 0.02	18	< 1	21	90	120	<0.02	0.038	<0.1	0.037	<0.01	8.6
6/25/2009	MAX	7.7	1160	423	37	1.1	< 2	6	0.4	< 0.05	< 0.02	27	< 1	110	45	170	<0.02	0.023	<0.1	0.043	<0.01	5.7
12/16/2009	MAX	7.8	1070	540	24	1.2	< 2	< 4	0.3	< 0.05	< 0.02	16	< 1	15	98	120	<0.02	0.034	<0.1	0.039	<0.01	10
6/25/2010	MAX	7.8	1720	393	43	1.4	< 2	8	0.4	< 0.05	0.02	25	< 1	270	85	210	<0.02	0.026	<0.1	0.053	<0.01	9.7
12/17/2010	MAX	7.6	1380	521	30	1.4	< 2	6	0.3	< 0.05	< 0.02	17	< 1	120	130	150	<0.02	0.041	<0.1	0.045	<0.01	4.6
6/14/2011	MAX	7.73	1150	402	26	1.1	< 2	13	0.4	< 0.05	< 0.02	23	< 1	110	93	130	<0.02	0.024	0.11	0.032	<0.01	5.8
12/15/2011	MAX	7.84	1130	465	30	1.4	< 2	19	1.2	< 0.05	1.2	36	< 1	49	110	140	6.7	0.023	<0.1	0.055	<0.01	8.8
6/18/2012	MAX	7.68	1200	440	33	1	< 2	15	1	< 0.05	0.34	38	< 1	74	57	150	25	0.014	<0.1	0.052	<0.01	13
12/11/2012	MAX	7.66	1000	410	32	1.1	< 2	< 4	0.22	0.11	< 0.1	63	< 1	36	38	170	<0.02	0.025	<0.1	0.23	<0.01	8.5
6/19/2013	MAX	7.5	1100	340	26	0.89	< 2	4.1	0.35	0.061	0.12	63	< 1	78	40	140	6.5	0.017	<0.1	0.036	<0.01	7.8
12/3/2013	MAX	7.52	910	410	32	1.1	< 2	< 4	1.3	< 0.05	0.075	34	< 1	30	26	140	<0.02	0.024	<0.1	0.039	<0.01	3.5
5/21/2014	MAX	7.7	880	360	39	1.4	< 2	< 4	0.1	< 0.05	0.049	32	< 1	35	21	150	<0.02	0.017	<0.1	0.24	<0.01	4.65
12/4/2014	MAX	7.8	940	390	37	1.5	< 2	< 4	0.18	< 0.05	0.074	46	< 1	39	24	170	<0.02	0.034	<0.1	0.24	<0.01	5.23
6/19/2015	MAX	7.89	820	360	28	0.91	< 2	< 4	<0.5	< 0.05	0.073	61	< 1	18	22	130	3.6	0.023	<0.1	0.037	<0.01	5.85
12/8/2015	MAX	7.77	1800	180	23	6.8	< 2	19	0.41	< 0.05	0.096	190	< 1	320	170	170	2.4	0.078	<0.1	0.035	<0.01	<0.1
3/11/2016	MAX	7.93	2500	130	6.1	4	< 2	36	0.46	0.057	0.12	270	< 1	520	450	72	4.3	0.18	<0.1	0.01	0.022	0.8
6/22/2016	MAX	8.06	600	180	5.9	3.6	< 2	41	0.56	0.22	0.14	86	1.9	24	49	75	4.4	0.13	<0.1	0.018	0.137	1.16
12/1/2016	MAX	7.56	1000	190	13	15		220	1.3	< 0.05	0.19	220	34	75	36	140	2.2	0.094	<0.1	0.088	0.025	<0.1
6/8/2017	MAX	7.9	770	140	6	3.8	< 2	13	0.75	0.25	0.24	230	1.4	16	26	120	4.5	0.087	<0.1	0.016	<0.01	0.16
12/8/2017	MAX	8.02	1600	140	3	3.5	< 2	15	0.29	< 0.05	0.14	140	1.4	300	230	66	2.4	0.044	<0.1	0.0069	<0.01	<0.1
6/19/2018	MAX	7.91	710	170	4.6	3.5	< 2	26	0.84	0.47	0.37	130		32	42	89	4.4	0.068	0.13	0.0066	<0.01	<0.1

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 15b-01 Outwash

9/27/2018	MAX	7.86	530	160	4.4	2.7	< 2	25	0.46	0.27	0.17	94	< 1	16	14	84	3.4	0.055	0.13	<0.005	<0.01	<0.1
12/12/2018	MAX	7.35	2600	340	14	22	170	320	1.8	0.2	0.61	22	50	580	390	120	6.7	0.054	0.71	<0.005	<0.05	<0.5
6/18/2019	MAX	7.94	530	190	3.3	3.6	< 2	17	0.7	0.36	0.25	43	< 1	25	48	67	0.64	0.077	0.27	0.0056	0.023	<0.1
12/3/2019	MAX	7.48	1800	380	15	29	160	320	1.9	0.31	0.79	< 1	110	340	250	120	6.4	0.07	0.83	<0.005	<0.05	<0.5

Monitor: 16A-08 Bedrock

3/26/2008	MAX	8	691	251	29	3.6	< 2	4	0.4	0.16	< 0.02	70	< 1	36	42	76	<0.02	0.039	<0.1	0.053	0.02	<0.1
6/25/2008	MAX	8.3	596	238	28	2.7		7	0.5	0.19	< 0.02	46	< 1	28	6.2	82	<0.02	0.022	<0.1	0.04	<0.01	<0.1
12/9/2008	MAX	8.1	605	239	26	2	< 2	< 4	0.3	0.06	< 0.02	39	< 1	29	2.5	77	<0.02	0.025	<0.1	0.039	<0.01	<0.1
6/25/2009	MAX	8	645	239	29	2	< 2	< 4	0.3	0.05	< 0.02	47	< 1	39	4	88	<0.02	0.029	<0.1	0.043	<0.01	<0.1
12/16/2009	MAX	8.1	636	240	29	2	< 2	7	0.2	0.07	0.03	42	< 1	36	3.6	87	<0.02	0.027	<0.1	0.043	<0.01	<0.1
6/28/2010	MAX	7.9	634	236	27	1.8	< 2	4	0.2	< 0.05	0.02	53	< 1	31	2.1	83	<0.02	0.029	<0.1	0.035	<0.01	<0.1
12/20/2010	MAX	7.94	630	236	29	1.9	< 2	< 4	0.2	0.05	< 0.02	41	< 1	33	2.2	88	0.04	0.027	<0.1	0.025	0.01	<0.1
6/16/2011	MAX	7.99	620	232	29	2	< 2	18	0.4	0.06	< 0.02	58	< 1	34	2.2	88	0.06	0.025	<0.1	0.021	<0.01	<0.1
12/13/2011	MAX	8.08	653	239	30	2	< 2	< 4	0.3	< 0.05	< 0.02	43	< 1	35	3.5	87	0.63	0.021	<0.1	0.037	<0.01	<0.1
6/20/2012	MAX	8.03	640	230	27	1.9	< 2	10	0.19	< 0.05	0.033	39	< 1	33	2.7	84	0.48	0.025	<0.1	0.032	<0.01	<0.1
12/12/2012	MAX	8.02	620	250	27	1.8	< 2	< 4	0.27	0.091	< 0.02	43	< 1	32	2.5	86	0.3	0.027	<0.1	0.029	<0.01	<0.1
6/17/2013	MAX	8.07	620	230	27	1.7	< 2	< 4	0.26	0.064	< 0.02	40	< 1	31	2.3	79	0.37	0.028	<0.1	0.026	<0.01	<0.1
12/9/2013	MAX	8.02	630	240	27	1.8	< 2	< 4	0.23	0.052	< 0.02	37	< 1	32	2.2	83	0.38	0.022	<0.1	0.023	<0.01	<0.1
5/26/2014	MAX	7.9	620	230	28	1.8	< 2	< 4	<0.1	< 0.05	< 0.04	43	< 1	32	2.2	86	0.19	0.028	<0.1	0.031	<0.01	<0.1
12/3/2014	MAX	8.03	620	240	29	2	< 2	< 4	0.12	0.084	< 0.02	40	< 1	32	2.1	87	0.07	0.032	<0.1	0.028	<0.01	<0.1
6/18/2015	MAX	8.11	600	230	28	1.9	< 2	< 4	0.15	0.1	< 0.02	44	< 1	32	3.7	84	0.15	0.034	<0.1	0.028	<0.01	<0.1
12/4/2015	MAX	8.06	630	230	29	1.9	< 2	4.6	0.13	< 0.05	< 0.02	39	< 1	32	2.3	85	0.18	0.022	<0.1	0.021	0.01	<0.1
6/21/2016	MAX	8.14	600	230	27	1.7	< 2	4.5	0.12	< 0.05	< 0.02	42	< 1	31	3.4	77	0.24	0.028	<0.1	0.039	<0.01	<0.1
12/5/2016	MAX	7.93	610	240	27	1.8	< 2	< 4	0.11	< 0.05	< 0.02	36	< 1	31	2.3	82	0.23	0.03	<0.1	0.032	0.019	<0.1
6/7/2017	MAX	7.97	970	270	24	1.8	< 2	4.5	0.25	< 0.05	< 0.02	29	< 1	100	48	120	0.32	0.024	<0.1	0.091	0.03	1.86
12/7/2017	MAX	8.1	610	240	27	1.9	< 2	< 4	0.11	< 0.05	< 0.02	38	< 1	31	2.1	78	0.16	0.024	<0.1	0.014	<0.01	<0.1
6/14/2018	MAX	8.17	590	230	30	2	< 2	9.7	<0.1	0.066	< 0.02	39	< 1	30	2.4	80	0.19	0.029	<0.1	0.013	<0.01	<0.1
12/11/2018	MAX	8	590	230	28	1.8	< 2	5	<0.1	0.053	< 0.02	37	< 1	29	2.2	75	0.15	0.029	<0.1	0.015	<0.01	<0.1
6/19/2019	MAX	8.06	580	220	27	1.8	< 2	< 4	<0.1	< 0.05	< 0.02	39	< 1	30	2.1	79	0.15	0.03	<0.1	0.0095	0.019	<0.1
12/3/2019	MAX	7.98	560	230	25	1.7	< 2	< 4	<0.1	0.065	0.04	39	< 1	30	1.9	73	0.23	0.023	<0.1	0.014	<0.01	<0.1

Monitor: 16B-08 Outwash

3/26/2008	MAX	8	1130	477	42	1.5	< 2	15	0.9	0.09	< 0.02	105	< 1	38	60	130	<0.02	0.027	<0.1	0.16	0.12	3.3
6/25/2008	MAX	8.2	1170	318	43	2.4		14	0.3	< 0.05	< 0.02	68	< 1	160	42	130	<0.02	<0.01	<0.1	1.1	<0.01	<0.1
12/9/2008	MAX	7.8	1290	597	51	2.1	< 2	17	0.8	< 0.05	< 0.02	50	< 1	53	39	170	<0.02	0.028	<0.1	0.72	<0.01	2.9
6/25/2009	MAX	7.8	1640	382	46	3.1	< 2	9	0.4	< 0.05	< 0.02	58	< 1	260	150	150	<0.02	0.022	<0.1	1.8	<0.01	<0.1
12/15/2009	MAX	7.6	1350	555	48	2.1	< 2	19	0.5	< 0.05	0.03	48	< 1	96	71	160	0.03	0.033	<0.1	1.1	<0.01	<0.1
6/23/2010	MAX	7.9	1470	373	41	2.8	< 2	9	0.4	< 0.05	0.02	79	< 1	210	120	130	<0.02	0.022	<0.1	1.3	<0.01	<0.1
12/20/2010	MAX	7.55	1240	586	49	1.6	< 2	22	0.8	< 0.05	< 0.02	49	< 1	39	46	170	<0.02	0.029	<0.1	0.75	0.03	1.8
6/16/2011	MAX	7.78	1340	383	37	2.6	< 2	20	0.4	< 0.05	< 0.02	63	< 1	170	130	120	0.09	0.021	<0.1	1.3	0.02	0.9
12/13/2011	MAX	7.73	1190	518	50	1.3	< 2	17	1.1	< 0.05	0.13	71	< 1	23	38	160	1.3	0.033	<0.1	0.49	0.03	10

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 16B-08 Outwash

6/20/2012	MAX	7.78	1200	360	27	2.1	< 2	14	0.45	< 0.05	< 0.02	38	< 1	120	120	89	0.18	0.021	<0.1	0.55	<0.01	<0.1
12/12/2012	MAX	7.75	1100	560	45	1.1	< 2	16	0.74	< 0.05	< 0.02	55	< 5	10	23	170	0.14	0.034	<0.1	0.53	0.013	5
6/17/2013	MAX	7.89	1200	370	30	2.1	< 2	7.3	0.35	< 0.05	< 0.02	41	< 1	130	110	97	0.1	0.021	<0.1	0.92	<0.01	<0.1
12/9/2013	MAX	7.58	1200	570	47	1.5	< 2	6.6	0.78	< 0.05	< 0.02	43	< 1	38	43	160	<0.02	0.031	<0.1	0.72	<0.01	0.49
5/26/2014	MAX	7.69	1200	360	29	2.3	< 2	7.1	0.2	< 0.05	< 0.02	35	< 1	140	120	99	0.1	0.025	<0.1	1	<0.01	<0.1
12/3/2014	MAX	7.68	1100	570	47	1.3	< 2	17	0.64	0.053	< 0.02	39	< 1	13	25	160	<0.02	0.047	<0.1	0.62	<0.01	2.61
6/18/2015	MAX	7.84	1300	430	35	2.5	< 2	9.7	0.23	< 0.05	< 0.02	39	< 1	150	120	120	0.07	0.032	<0.1	1.1	<0.01	<0.1
12/4/2015	MAX	7.48	1100	530	45	1.6	< 2	17	0.4	< 0.05	< 0.02	36	< 1	33	38	150	0.08	0.032	<0.1	0.7	<0.01	<0.1
6/21/2016	MAX	7.96	1200	360	27	2.2	< 2	14	0.22	< 0.05	< 0.02	45	< 1	130	120	94	0.15	0.026	<0.1	0.91	<0.01	<0.1
12/5/2016	MAX	7.58	1300	400	33	2.5	< 2	9.4	0.27	< 0.05	< 0.02	57	< 1	140	97	120	0.11	0.034	<0.1	1.1	<0.01	<0.1
6/7/2017	MAX	8.05	1300	320	28	2.3	< 2	4.5	0.2	< 0.05	< 0.02	64	< 1	180	120	110	0.17	0.027	<0.1	1.1	0.011	0.18
12/7/2017	MAX	7.88	880	420	26	1.3	< 2	16	0.41	< 0.05	< 0.02	< 5	< 1	42	20	120	0.2	0.015	<0.1	0.15	<0.01	0.44
6/14/2018	MAX	7.89	810	360	27	1.8	2	20	0.26	0.069	0.021	< 1	< 1	41	23	120	0.19	0.027	<0.1	0.098	0.014	0.37
12/11/2018	MAX	7.78	970	320	29	2.4	< 2	11	0.14	0.088	< 0.04	55	< 1	84	55	97	0.1	0.024	<0.1	0.45	0.014	0.19
6/19/2019	MAX	7.82	1200	310	39	2.3	< 2	4	0.15	< 0.05	< 0.02	62	< 1	160	56	140	0.05	0.016	<0.1	0.96	0.016	<0.1
12/3/2019	MAX	7.82	860	300	26	2	< 2	< 4	0.2	< 0.05	< 0.02	52	< 1	73	46	91	0.11	0.015	<0.1	0.44	0.034	1.36

Monitor: 17A-08 Bedrock

3/26/2008	MAX	8.2	721	248	28	2.1	< 2	7	0.6	0.21	< 0.02	96	< 1	29	67	64	<0.02	0.039	<0.1	0.007	<0.01	0.3
6/25/2008	MAX	8.3	643	233	30	2.2	< 4	< 4	0.5	0.29	< 0.02	63	< 1	36	16	80	0.05	0.022	<0.1	<0.005	<0.01	<0.1
12/9/2008	MAX	8.1	609	237	26	1.4	< 2	< 4	0.4	0.1	< 0.02	51	< 1	27	15	69	0.02	0.028	<0.1	<0.005	<0.01	<0.1
6/25/2009	MAX	8	608	230	28	1.6	< 2	< 4	0.4	0.18	< 0.02	51	< 1	29	10	77	0.13	0.028	<0.1	<0.005	<0.01	<0.1
12/16/2009	MAX	7.9	615	232	29	1.6	< 2	4	0.2	0.08	< 0.02	48	< 1	30	11	79	0.1	0.027	<0.1	<0.005	<0.01	0.2
6/23/2010	MAX	8.1	645	229	30	1.6	< 2	< 4	0.5	0.13	< 0.02	59	< 1	34	12	79	0.11	0.027	<0.1	<0.005	<0.01	<0.1
12/20/2010	MAX	7.92	650	228	29	1.6	< 2	5	0.3	0.19	< 0.02	51	< 1	36	11	81	0.03	0.027	<0.1	<0.005	0.04	<0.1
6/16/2011	MAX	8.02	647	225	29	1.6	< 2	11	0.3	0.17	< 0.02	57	< 1	38	12	83	0.05	0.024	<0.1	<0.005	<0.01	<0.1
12/15/2011	MAX	8.21	682	229	29	1.6	< 2	< 4	1	0.08	0.05	56	< 1	39	12	83	0.65	0.025	<0.1	0.014	0.05	0.1
6/20/2012	MAX	8.04	680	230	30	1.6	< 2	10	0.37	0.073	0.03	55	< 1	38	12	84	0.86	0.027	<0.1	<0.005	<0.01	<0.1
12/10/2012	MAX	7.85	680	230	28	1.6	< 2	< 4	0.41	0.12	< 0.02	66	< 1	39	12	85	0.8	0.029	<0.1	<0.005	<0.01	<0.1
6/17/2013	MAX	8.06	690	230	29	1.5	< 2	< 4	0.41	0.14	0.075	61	< 1	41	13	78	2.1	0.026	<0.1	<0.005	<0.01	<0.1
12/4/2013	MAX	7.84	710	240	32	1.9	< 2	6.1	0.46	0.12	0.08	62	< 1	45	14	87	0.13	0.028	<0.1	0.024	0.042	0.12
5/22/2014	MAX	8.05	700	230	32	1.9	< 2	< 4	0.74	0.13	0.1	67	< 1	45	14	94	0.07	0.03	<0.1	0.022	0.021	<0.1
12/2/2014	MAX	7.96	710	230	30	1.7	< 2	< 4	0.3	0.18	0.047	63	< 1	45	13	85	1.4	0.033	<0.1	0.0066	0.013	<0.1
6/17/2015	MAX	7.97	710	230	31	1.6	< 2	< 4	0.2	0.093	0.032	68	< 1	45	14	85	0.91	0.026	<0.1	0.0052	0.044	<0.1
12/3/2015	MAX	7.7	730	220	30	1.6	< 2	< 4	0.21	0.07	0.022	69	< 1	46	14	90	0.62	0.029	<0.1	<0.005	0.011	<0.1
6/21/2016	MAX	8.22	710	230	30	1.7	< 2	< 4	0.21	0.08	0.03	64	< 1	42	14	85	0.94	0.03	<0.1	0.024	0.012	<0.1
12/6/2016	MAX	7.94	690	240	29	1.5	7	< 4	0.11	< 0.05	0.032	60	< 1	37	14	82	1.2	0.03	<0.1	0.0096	0.011	<0.1
6/7/2017	MAX	8.08	660	240	27	1.5	< 2	< 4	0.21	0.063	0.034	56	< 1	36	13	78	1.1	0.029	<0.1	<0.005	0.022	<0.1
12/6/2017	MAX	8.01	670	250	28	1.5	< 2	< 4	0.12	< 0.05	0.044	56	< 1	34	13	78	1.4	0.026	<0.1	<0.005	0.019	<0.1
6/14/2018	MAX	8.05	680	250	30	1.7	< 2	5.7	0.12	0.09	0.038	56	< 1	34	14	83	1.8	0.025	<0.1	<0.005	<0.01	<0.1
12/10/2018	MAX	7.97	690	240	29	1.5	< 2	< 4	<0.1	0.074	< 0.02	61	< 1	35	15	82	1.1	0.02	<0.1	<0.005	<0.01	<0.1

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Conductivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 17A-08 Bedrock

6/18/2019	MAX	8.01	1100	300	22	1.4	4	< 4	0.28	< 0.05	4	77	< 1	110	110	95	120	0.028	<0.1	0.059	<0.01	1.3
12/4/2019	MAX	7.93	830	300	18	0.92	< 2	< 4	0.12	0.089	0.55	36	< 1	67	68	91	16	0.02	<0.1	0.064	<0.01	1.01

Monitor: 17B-08 Outwash

3/26/2008	MAX	8	2080	357	41	2.4	< 2	5	0.4	< 0.05	< 0.02	75	< 1	400	240	150	<0.02	0.025	<0.1	0.25	0.02	3.6
6/25/2008	MAX	8.3	2380	313	46	2.8		11	0.3	< 0.05	< 0.02	68	< 1	500	290	160	<0.02	0.015	<0.1	0.29	<0.01	4.2
12/9/2008	MAX	8	1580	319	32	2.5	< 2	4	0.3	< 0.05	< 0.02	56	< 1	260	170	110	<0.02	0.018	<0.1	0.14	<0.01	5.1
6/25/2009	MAX	7.8	2730	304	48	3.1	< 2	8	0.2	< 0.05	< 0.02	66	< 1	620	330	190	<0.02	0.018	<0.1	0.33	<0.01	4.9
12/16/2009	MAX	7.7	1730	321	36	2.3	< 2	6	0.2	< 0.05	0.04	39	< 1	300	180	140	<0.02	0.021	<0.1	0.16	<0.01	4.5
6/23/2010	MAX	8	1850	304	34	2.8	< 2	6	0.4	< 0.05	0.02	74	< 1	330	180	140	<0.02	0.022	<0.1	0.081	<0.01	4
12/20/2010	MAX	7.82	1640	320	29	2.2	< 2	4	0.2	< 0.05	< 0.02	45	< 1	270	170	120	<0.02	0.023	<0.1	0.13	<0.01	5
6/16/2011	MAX	7.77	2020	321	34	2.4	< 2	12	0.2	< 0.05	< 0.02	64	< 1	410	250	130	<0.02	0.019	<0.1	0.25	<0.01	4.1
12/15/2011	MAX	8.07	1510	325	28	2.1	< 2	10	0.9	< 0.05	0.34	38	< 1	230	160	110	12	0.021	<0.1	0.15	<0.01	3.5
6/20/2012	MAX	7.8	2100	330	35	2.3	< 2	11	0.55	< 0.05	0.062	41	< 1	400	230	140	2.7	0.022	<0.1	0.26	<0.01	4.4
12/10/2012	MAX	7.7	2400	330	36	2.9	< 2	< 4	0.19	< 0.05	< 0.04	59	< 1	480	260	170	1.2	0.026	<0.1	0.22	<0.01	3
6/17/2013	MAX	7.91	1900	330	31	1.9	< 2	< 4	0.5	< 0.05	< 0.02	47	< 1	350	220	120	1.3	0.02	<0.1	0.24	<0.01	2.7
12/4/2013	MAX	7.82	1600	330	27	2	< 2	6.5	0.43	< 0.05	0.032	40	< 1	270	200	100	<0.02	0.02	<0.1	0.24	<0.01	3.1
5/22/2014	MAX	7.85	1400	320	27	1.8	< 2	< 4	0.2	< 0.05	< 0.02	38	< 1	220	170	100	<0.02	0.022	<0.1	0.24	<0.01	2.78
12/2/2014	MAX	7.92	1400	320	27	1.9	< 2	4.6	0.17	0.056	0.025	36	< 1	220	160	100	1.1	0.026	<0.1	0.19	<0.01	2.55
6/17/2015	MAX	7.81	1800	300	33	1.9	< 2	4.4	0.33	< 0.05	0.022	37	1.6	350	190	120	<0.02	0.017	<0.1	0.27	<0.01	0.34
12/3/2015	MAX	7.93	1200	310	24	1.6	< 2	< 4	0.19	< 0.05	0.038	35	< 1	150	110	88	1.6	0.021	<0.1	0.14	<0.01	1.7
6/21/2016	MAX	8.05	2100	310	39	2.3	< 2	7.2	0.25	< 0.05	0.021	47	< 1	430	230	150	0.71	0.025	<0.1	0.29	<0.01	2.84
12/6/2016	MAX	7.95	1100	310	22	1.6	7	< 4	<0.1	< 0.05	0.027	56	< 1	120	99	91	1.2	0.025	<0.1	0.11	<0.01	1.46
6/7/2017	MAX	8.15	2100	350	23	2.2	< 2	< 4	0.25	< 0.05	0.028	57	< 1	380	310	85	0.81	0.03	<0.1	0.16	<0.01	1.59
12/6/2017	MAX	7.96	930	310	19	1.2	< 2	< 4	0.15	0.056	0.024	48	1.7	86	80	84	0.79	0.022	<0.1	0.095	<0.01	1.21
6/14/2018	MAX	7.96	1000	290	24	1.1	< 2	7.9	<0.1	0.11	0.22	43	< 1	130	80	110	11	0.024	<0.1	0.1	<0.01	0.97
12/10/2018	MAX	7.88	990	300	21	0.91	< 2	< 4	<0.1	< 0.05	< 0.1	58	< 1	100	79	96	5	0.017	<0.1	0.078	<0.01	1.12
6/18/2019	MAX	7.97	680	240	30	1.6	< 2	< 4	0.15	0.069	0.029	63	< 1	35	16	86	0.58	0.028	<0.1	0.0078	<0.01	<0.1
12/4/2019	MAX	8.05	690	240	29	1.7	< 2	< 4	<0.1	0.091	< 0.02	70	< 1	35	20	84	3.1	0.026	<0.1	<0.005	<0.01	<0.1

Monitor: 18A-08 Bedrock

3/26/2008	MAX	8.1	803	258	27	1.5	< 2	23	0.9	0.09	< 0.02	130	< 1	18	89	65	88	0.029	<0.1	0.022	0.12	5.7
6/25/2008	MAX	8.3	632	243	28	3		12	0.3	< 0.05	< 0.02	36	< 1	19	20	81	<0.02	<0.01	<0.1	0.25	<0.01	7.3
12/9/2008	MAX	8.1	613	247	27	1.1	< 2	< 4	0.5	0.16	< 0.02	35	< 1	16	6.1	76	<0.02	<0.01	<0.1	0.12	<0.01	6.7
6/25/2009	MAX	7.9	605	242	29	1.2	< 2	< 4	0.2	< 0.05	< 0.02	34	< 1	16	5	85	<0.02	0.012	<0.1	0.32	<0.01	6.9
12/15/2009	MAX	7.9	628	246	28	1.3	< 2	< 4	0.2	< 0.05	0.04	36	< 1	16	4.5	82	<0.02	0.01	<0.1	0.35	<0.01	8
6/30/2010	MAX	8	625	241	29	1.2	< 2	18	0.3	< 0.05	0.03	38	< 1	18	4.6	82	<0.02	0.01	<0.1	0.33	0.02	6.5
12/22/2010	MAX	7.85	628	241	31	1.2	< 2	< 4	<0.1	< 0.05	< 0.02	37	< 1	18	4.6	88	<0.02	<0.01	<0.1	0.36	<0.01	6.8
6/16/2011	MAX	7.81	840	233	34	1.5	< 2	13	0.2	< 0.05	< 0.02	130	< 1	57	24	100	0.21	0.024	<0.1	0.009	<0.01	<0.1
12/16/2011	MAX	7.91	621	251	27	1.2	< 2	32	2	0.33	1	36	2	16	4	78	20	<0.01	<0.1	0.22	0.02	5.3
6/22/2012	MAX	7.82	610	240	28	1.3	< 2	55	2.8	< 0.05	0.17	38	< 1	16	4.1	82	3.3	<0.01	<0.1	0.36	0.038	4.8
12/17/2012	MAX	7.59	610	250	30	1.2	< 2	< 4	<0.1	< 0.05	0.082	38	< 1	16	4.5	91	2	<0.01	<0.1	0.41	<0.01	5.1

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 18A-08 Bedrock

6/20/2013	MAX	8.32	610	240	28	1.2	< 2	22	1.1	0.079	1.4	39	< 1	16	4.2	87	33	<0.01	<0.1	0.36	0.035	4.7
12/9/2013	MAX	7.81	620	240	28	1.1	< 2	6.1	0.66	0.17	0.11	37	< 1	16	4.3	81	0.05	<0.01	<0.1	0.37	<0.01	5
5/27/2014	MAX	7.74	600	240	27	1	< 2	< 4	0.28	< 0.05	0.083	40	< 1	16	4.4	82	2.7	<0.01	<0.1	0.36	<0.01	4.86

Monitor: 18A-14 Bedrock

12/5/2014	N/A																					
6/16/2015	MAX	7.93	620	250	27	1.8	< 2	29	0.75	< 0.05	0.38	45	< 1	18	9.1	84	12	0.014	<0.1	0.16	<0.01	4.68
12/8/2015	MAX	7.83	610	240	29	1.6	< 2	14	<1	< 0.05	0.39	35	< 1	17	4.7	84	13	<0.01	<0.1	0.26	0.026	4.42
6/21/2016	MAX																					
6/22/2016	MAX				28	1.3									4.5	77		0.011	<0.1	0.3		
6/23/2016	MAX	8.05	610	250			< 2	6.7	<0.2	< 0.05	0.14	36	< 1	17			4.2				<0.01	5.03
12/1/2016	MAX	7.93	620	250	26	1.2	< 2	< 4	<0.2	< 0.05	0.14	36	< 1	18	4.5	75	2.9	0.011	<0.1	0.35	<0.01	4.93
6/8/2017	MAX	7.96	620	250	27	1.4	< 2	< 4	0.53	< 0.05	0.085	4.3	< 1	3.2	4.2	81	3.6	0.011	<0.1	0.31	<0.01	4.7
12/13/2017	MAX	7.87	640	260	26	1.3	< 2	< 4	<0.2	< 0.05	0.11	38	< 1	18	4.2	78	4.1	0.011	<0.1	0.31	<0.01	5.12
6/19/2018	MAX	7.99	620	260	27	1.3	< 2	7.1	<0.2	< 0.05	0.089	37	< 1	17	4.4	80	2.7	0.013	<0.1	0.3	<0.01	4.4
12/11/2018	MAX	7.93	620	260	27	1	< 2	< 4	0.16	< 0.05	0.027	36	< 1	19	4.7	83	0.92	<0.01	<0.1	0.39	<0.01	5.12
6/17/2019	MAX	8.31	610	210	2.4	1.4	< 2	12	0.23	< 0.05	1.8	7.6	< 1	81	120	12	51	<0.01	<0.1	<0.005	<0.01	<0.1
12/3/2019	MAX	7.87	610	250	25	0.99	< 2	4.6	0.27	< 0.05	< 0.02	37	< 1	18	4.2	78	0.38	<0.01	<0.1	0.37	<0.01	4.51

Monitor: 18B-08 Outwash

3/26/2008	MAX	8.2	1020	284	12	2.1	< 2	53	1	0.12	0.02	223	< 1	8	270	29	150	0.07	<0.1	0.021	0.05	1.6
6/25/2008	INS																					
12/9/2008	INS																					
6/25/2009	INS																					
12/15/2009	INS																					
6/30/2010	INS																					
12/22/2010	INS																					
6/16/2011	MAX	8.03	1080	424	18	5.5	< 2	14	0.4	< 0.05	0.03	120	< 1	19	190	60	<0.02	0.1	<0.1	<0.005	<0.01	4.4
12/16/2011	INS																					
6/22/2012	Dry																					
12/17/2012	INS																					
6/20/2013	INSV																					
12/9/2013	Dry																					
5/27/2014	MAX	7.97	520	260	26	0.73	< 2	18	2.1	< 0.05	0.43	10	< 1	9	6.2	65	10	<0.01	<0.1	0.018	<0.01	0.32

Monitor: 18B-14 Outwash

12/5/2014	N/A																					
6/16/2015	MAX	8.17	540	190	25	2.4	< 2	8.1	<1	< 0.05	0.94	19	< 1	40	24	53	37	0.029	<0.1	0.0074	<0.01	1.09
12/8/2015	MAX	7.99	610	210	28	2.2	< 2	130	0.68	< 0.05	14	21	< 1	43	19	69	320	0.012	<0.1	0.0067	<0.01	4.2
6/22/2016	MAX				15	1.5									180	39		<0.01	<0.1	0.014		
6/23/2016	MAX	8.23	1200	210			< 2	140	<0.1	< 0.05	13	20	< 1	210			520				0.03	0.16
12/1/2016	MAX	8.26	520	230	6	1.1	< 2	110	0.26	0.11	5.7	14	< 1	22	89	17	240	0.03	<0.1	0.0072	0.024	0.22

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 18B-14 Outwash

6/8/2017	MAX	8.38	590	190	3.1	1	< 2	8.7	0.95	0.081	14	14	< 1	64	110	11	200	0.01	<0.1	0.0067	<0.01	<0.1
12/13/2017	MAX	8.34	710	210	3.1	1.1	< 2	13	0.37	0.082	4.8	14	< 1	87	130	11	140	0.028	<0.1	<0.005	<0.01	<0.1
6/19/2018	MAX	8.28	940	180	4.4	1.6	< 2	19	0.36	0.23	4.7	12	< 1	150	170	18	170	<0.01	<0.1	<0.005	0.012	<0.1
12/11/2018	MAX	8.24	940	190	5.7	1.9	< 2	7.3	0.17	0.14	1.6	10	< 1	160	170	24	68	0.015	<0.1	0.0058	<0.01	<0.1
6/17/2019	MAX	8.03	610	250	28	1.1	< 2	< 4	<0.1	< 0.05	0.033	36	< 1	19	4.6	88	<0.02	<0.01	<0.1	0.4	<0.01	4.99
12/3/2019	MAX	8.24	960	200	5.4	2.5	< 2	4.6	0.16	0.083	1.1	7.1	< 1	160	170	26	44	0.02	<0.1	<0.005	<0.01	<0.1

Monitor: 19A-08 Bedrock

3/26/2008	MAX	8.1	844	245	37	1.4	< 2	13	0.3	0.1	0.03	143	< 1	45	47	94	0.02	0.03	<0.1	<0.005	0.02	<0.1
6/25/2008	MAX	8.2	841	240	37	1.3		4	0.3	0.05	< 0.02	134	< 1	50	33	100	0.04	0.022	<0.1	<0.005	<0.01	<0.1
12/9/2008	MAX	8.1	811	242	33	1.2	< 2	< 4	0.2	< 0.05	< 0.02	129	< 1	46	19	96	0.17	0.022	<0.1	<0.005	<0.01	<0.1
6/25/2009	MAX	7.9	768	236	35	1.2	< 2	2	0.2	< 0.05	< 0.02	140	< 1	27	12	100	0.17	0.026	<0.1	<0.005	<0.01	<0.1
12/15/2009	MAX	7.9	834	244	35	1.4	< 2	5	0.2	< 0.05	0.02	120	< 1	48	21	100	0.21	0.029	<0.1	<0.005	<0.01	<0.1
6/30/2010	MAX	7.8	788	234	33	1.2	< 2	6	0.2	< 0.05	0.03	130	< 1	37	16	100	0.2	0.023	<0.1	<0.005	<0.01	<0.1
12/22/2010	MAX	7.87	825	236	36	1.3	< 2	< 4	0.1	< 0.05	< 0.02	120	< 1	43	21	110	0.21	0.027	<0.1	<0.005	<0.01	<0.1
6/15/2011	MAX	7.95	838	235	35	1.4	< 2	17	0.2	< 0.05	< 0.02	130	< 1	60	25	100	0.24	0.033	<0.1	<0.005	<0.01	<0.1
12/16/2011	MAX	7.95	898	246	34	1.5	< 2	38	0.8	0.09	0.7	120	< 1	70	29	100	29	0.031	<0.1	0.067	<0.01	<0.1
6/22/2012	MAX	7.87	880	240	35	1.4	< 2	< 4	0.49	< 0.05	0.055	110	< 1	65	28	110	2.4	0.028	<0.1	<0.005	<0.01	<0.1
12/17/2012	MAX	7.74	890	250	35	1.5	< 2	8.5	0.61	0.074	0.031	120	< 1	68	32	110	0.53	0.025	<0.1	0.012	<0.01	<0.1
6/20/2013	MAX	8.13	860	240	34	1.5	< 2	< 4	0.18	0.071	< 0.02	120	< 1	63	27	110	0.77	0.036	<0.1	<0.005	<0.01	<0.1
12/9/2013	MAX	8.02	900	240	35	1.5	< 2	< 4	0.22	0.07	< 0.02	110	< 1	72	32	110	0.27	0.026	<0.1	<0.005	<0.01	<0.1
5/27/2014	MAX	7.91	890	240	34	1.4	< 2	< 4	0.2	< 0.05	< 0.04	120	< 1	70	31	100	0.28	0.032	<0.1	<0.005	<0.01	<0.1
12/4/2014	MAX	7.82	840	240	36	1.9	< 2	< 4	<0.1	0.1	0.054	110	< 1	72	31	110	0.26	0.035	<0.1	0.016	<0.01	<0.1
6/18/2015	MAX	7.98	860	250	35	1.6	< 2	9.6	0.16	0.16	0.13	110	< 1	68	31	100	4.7	0.036	<0.1	<0.005	0.014	<0.1
12/2/2015	MAX	7.94	880	230	35	1.5	< 2	5	0.12	< 0.05	0.024	120	< 1	66	30	100	0.63	0.032	<0.1	<0.005	<0.01	<0.1
6/20/2016	MAX	8.09	890	250	34	1.6	< 2	< 4	0.2	0.055	< 0.02	110	< 1	69	30	100	0.5	0.035	<0.1	0.015	<0.01	<0.1
11/28/2016	MAX	7.95	840	230	34	1.5	< 2	13	0.16	0.071	0.12	120	< 1	68	30	100	2.5	0.027	<0.1	0.0051	<0.01	<0.1
6/5/2017	MAX	8.08	850	230	34	1.5	< 2	7	0.17	< 0.05	0.023	110	< 1	67	30	99	0.95	0.035	<0.1	<0.005	<0.01	<0.1
12/7/2017	MAX	8.06	890	260	32	1.5	< 2	< 4	0.14	< 0.05	0.024	110	< 1	69	29	100	0.64	0.035	<0.1	<0.005	<0.01	<0.1
6/18/2018	MAX	7.9	900	250	35	1.5	< 2	< 4	0.17	0.054	0.021	110	< 1	67	31	100	0.63	0.028	<0.1	<0.005	<0.01	<0.1
12/10/2018	MAX	8.01	890	250	34	1.4	< 2	< 4	<0.1	0.066	< 0.02	110	< 1	72	31	99	0.5	0.029	<0.1	<0.005	<0.01	<0.1
6/25/2019	MAX	8.08	830	240	33	1.4	< 2	6.5	0.13	0.052	< 0.02	110	< 1	78	29	100	0.45	0.035	<0.1	<0.005	<0.01	<0.1
12/5/2019	MAX	7.93	870	250	34	1.5	< 2	< 4	<0.1	0.093	< 0.02	110	< 1	72	31	100	0.49	0.032	<0.1	<0.005	<0.01	<0.1

Monitor: 19B-08 Outwash

3/26/2008	MAX	8.1	1560	289	14	4.5	< 2	51	1.7	0.53	0.03	454	< 1	38	350	35	130	0.14	<0.1	0.02	<0.1	1
6/25/2008	MAX	8.3	2070	314	10	7.8		38	1.8	1	< 0.02	576	< 1	60	480	23	<0.02	0.2	<0.1	<0.005	0.26	2.5
12/9/2008	MAX	8.2	2290	485	13	8.6	< 2	13	1.1	0.44	< 0.02	596	< 1	56	470	36	<0.02	0.27	<0.1	<0.005	0.06	8.8
6/25/2009	MAX	8.2	2010	499	10	8.1	< 2	9	1.1	0.54	< 0.02	420	< 1	40	470	28	<0.02	0.23	<0.1	<0.005	0.12	10
12/15/2009	INS																					
6/30/2010	INS																					
12/22/2010	INS																					

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 19B-08 Outwash

6/15/2011	MAX	8.07	1220	485	15	6.4	< 2	16	0.4	< 0.05	0.03	150	< 1	16	250	44	1.7	0.15	<0.1	0.005	<0.01	5.4
12/16/2011	MAX	7.93	1670	666	25	7.3	< 2	25	0.8	< 0.05	0.57	180	< 1	18	160	85	15	0.1	<0.1	0.006	<0.01	5.6
6/22/2012	Dry																					
12/17/2012	MAX	7.72	1300	620	18	11	< 2	17	0.75	< 0.05	0.69	77	< 1	7	260	57	11	0.14	<0.1	0.007	<0.01	2.8
6/20/2013	INSV																					
12/9/2013	MAX	8.02	1400	650	14	10	< 2	< 4	0.3	< 0.05	0.14	77	< 1	16	220	45	0.02	0.14	<0.1	<0.005	<0.01	3.8
5/27/2014	MAX	7.71	1100	470	31	6.7	< 2	5.8	1.1	< 0.05	0.43	63	< 1	29	110	98	5.9	0.066	<0.1	0.023	<0.01	5.78
12/4/2014	MAX	7.87	1600	700	26	12	< 2	5.4	0.38	< 0.05	0.15	98	< 1	26	300	75	<0.02	0.17	0.14	0.026	0.01	4.94
6/18/2015	MAX	8.03	1500	620	22	11	< 2	< 4	0.27	0.16	0.09	110	< 1	42	250	71	2.6	0.13	<0.1	0.026	0.017	4.61
12/2/2015	MAX	7.23	1700	690	19	11	< 2	15	0.13	< 0.05	0.13	150	< 1	41	330	59	4.2	0.17	<0.1	0.014	<0.01	3.85
6/20/2016	MAX	8.09	1600	690	22	11	< 2	14	0.32	< 0.05	0.058	150	< 1	36	300	65	1	0.17	<0.1	0.014	<0.01	3.16
11/28/2016	INSV																					
6/5/2017	MAX	8.02	1500	620	28	10	< 2	7	0.31	< 0.05	0.066	120	< 1	46	280	82	1.2	0.16	<0.1	0.018	<0.01	2
12/7/2017	INSV																					
6/18/2018	MAX	7.67	1300	590	32	9.7	< 2	11	<0.1	< 0.05	0.15	95	< 1	48	180	100	1.5	0.099	<0.1	0.017	<0.01	2.51
12/10/2018	MAX	7.71	1400	620	32	11	< 2	4.5	0.14	< 0.05	0.029	93	< 1	49	180	97	0.68	0.092	<0.1	0.024	<0.01	2.9
6/25/2019	MAX	7.89	1200	520	32	8.8	< 2	< 4	0.28	0.18	0.044	82	< 1	64	150	96	1.2	0.081	<0.1	0.024	<0.01	2.42
12/5/2019	MAX	7.62	1300	530	34	8.4	< 2	< 4	0.27	< 0.05	0.06	84	< 1	60	140	99	1.2	0.071	<0.1	0.019	<0.01	2.35

Monitor: 20A-08 Bedrock

3/26/2008	MAX	8.1	732	262	30	1.8	< 2	15	0.8	0.07	< 0.02	107	< 1	19	56	72	53	0.025	<0.1	0.012	0.13	2
6/25/2008	MAX	8.3	597	242	28	1.2		11	0.4	< 0.05	< 0.02	53	< 1	16	4.9	83	<0.02	<0.01	<0.1	0.032	0.07	2.5
12/9/2008	MAX	8.1	633	251	26	1.1	< 2	4	0.3	< 0.05	< 0.02	55	< 1	17	9.2	84	<0.02	0.02	<0.1	0.068	0.05	4.1
6/25/2009	MAX	7.9	602	242	28	1.2	< 2	< 4	0.3	< 0.05	< 0.02	49	< 1	16	5.9	83	<0.02	0.011	<0.1	0.089	0.09	2.4
12/15/2009	MAX	7.9	622	247	29	1.3	< 2	< 4	0.2	< 0.05	0.03	47	< 1	16	4.9	84	<0.02	0.012	<0.1	0.11	0.04	3.8
6/29/2010	MAX	8	794	236	27	1.2	< 2	10	0.4	< 0.05	< 0.02	130	< 1	37	5.3	80	0.19	<0.01	<0.1	0.096	<0.01	<0.1
12/22/2010	MAX	7.79	630	242	31	1.2	< 2	< 4	0.4	< 0.05	< 0.02	50	< 1	18	4.7	88	<0.02	<0.01	<0.1	0.12	0.06	2.9
6/15/2011	MAX	7.94	604	239	26	1	< 2	15	0.2	< 0.05	< 0.02	48	< 1	17	4.9	80	<0.02	<0.01	<0.1	0.11	0.08	3.1
12/16/2011	MAX	8.04	629	244	27	1.2	< 2	51	1	< 0.05	1	49	< 1	18	5.4	81	15	<0.01	<0.1	0.074	0.02	3.1
6/22/2012	MAX	7.95	620	240	27	1.2	< 2	9.7	0.67	< 0.05	0.21	43	< 1	17	4	82	4.1	<0.01	<0.1	0.14	<0.01	3.4
12/17/2012	MAX	7.63	620	250	30	1.3	< 2	< 4	0.17	< 0.05	< 0.02	48	< 1	17	4.5	87	2.6	<0.01	<0.1	0.13	0.012	3.3
6/20/2013	MAX	8.38	610	240	28	1.1	< 2	6.2	0.24	< 0.05	< 0.02	44	< 1	15	3.9	86	0.81	<0.01	<0.1	0.13	0.029	2.5
12/9/2013	MAX	7.92	630	250	26	1	< 2	< 4	0.32	< 0.05	0.029	43	< 1	17	5.7	78	0.33	<0.01	<0.1	0.11	0.038	3.6
5/27/2014	MAX	7.87	610	240	28	1.1	< 2	< 4	0.22	< 0.05	< 0.02	45	< 1	17	3.9	84	<0.02	<0.01	<0.1	0.16	0.045	2.81
12/4/2014	MAX	7.89	620	240	29	1.2	< 2	< 4	<0.1	< 0.05	< 0.02	44	< 1	17	4.2	85	<0.02	<0.01	<0.1	0.13	0.03	3.11
6/18/2015	MAX	8.03	600	250	29	1.2	< 2	< 4	0.27	< 0.05	< 0.02	43	< 1	17	4.1	85	0.41	0.01	<0.1	0.12	0.036	3.09
12/2/2015	MAX	7.42	630	240	29	1.3	< 2	4.4	<0.1	< 0.05	< 0.02	46	< 1	19	4.7	84	1.7	0.013	<0.1	0.13	0.012	3.49
6/20/2016	MAX	8.1	610	250	28	1.1	< 2	23	0.32	< 0.05	0.13	42	< 1	16	4.3	82	3.6	<0.01	<0.1	0.13	<0.01	2.63
11/28/2016	MAX	7.95	620	250	28	1.2	< 2	9.2	0.16	< 0.05	0.033	41	< 1	20	4.8	84	0.25	<0.01	<0.1	0.13	<0.01	3.45
6/5/2017	MAX	7.97	620	250	28	1	< 2	6.6	0.33	< 0.05	< 0.02	42	< 1	18	4.3	82	0.25	<0.01	<0.1	0.13	<0.01	2.83
12/12/2017	MAX	7.95	670	260	27	1.1	< 2	< 4	0.31	< 0.05	0.021	40	< 1	21	4.5	81	0.07	0.01	<0.1	0.12	<0.01	4.77

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Conductivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 20A-08 Bedrock

6/18/2018	MAX	7.79	640	260	29	1.1	< 2	< 4	<0.1	< 0.05	< 0.02	41	< 1	19	4.4	82	<0.02	<0.01	<0.1	0.2	<0.01	3.47
12/10/2018	MAX	7.92	640	260	28	1.1	< 2	4.9	<0.1	< 0.05	< 0.02	41	< 1	19	4.6	84	<0.02	<0.01	<0.1	0.13	0.051	3.29
6/25/2019	MAX	7.91	600	250	28	0.99	< 2	< 4	0.19	< 0.05	< 0.02	42	< 1	18	4.2	83	0.02	<0.01	<0.1	0.13	<0.01	2.73
12/5/2019	MAX	7.75	640	250	28	1.1	< 2	< 4	0.18	< 0.05	< 0.02	40	< 1	20	4.7	87	0.1	<0.01	<0.1	0.14	<0.01	3.29

Monitor: 20B-08 Outwash

3/26/2008	MAX	8	572	244	30	1.2	< 2	10	0.5	< 0.05	< 0.02	52	< 1	11	3.5	82	73	<0.01	<0.1	0.09	<0.01	1.2
6/25/2008	MAX	8.2	933	235	26	3.3		20	0.6	< 0.05	< 0.02	78	< 1	110	57	99	<0.02	0.013	<0.1	0.63	<0.01	<0.1
12/9/2008	MAX	8	694	266	25	1.3	< 2	7	0.3	< 0.05	< 0.02	73	< 1	25	16	84	<0.02	0.018	<0.1	0.16	<0.01	<0.1
6/25/2009	MAX	7.7	822	254	26	1.9	< 2	10	0.3	< 0.05	< 0.02	49	< 1	88	45	95	<0.02	0.014	<0.1	0.37	<0.01	<0.1
12/15/2009	MAX	7.9	628	271	27	1.5	< 2	< 4	0.2	< 0.05	< 0.02	56	< 1	8	9.6	85	<0.02	0.012	<0.1	0.18	<0.01	<0.1
6/29/2010	MAX	7.8	1080	256	29	1.9	< 2	14	0.4	< 0.05	0.02	44	< 1	170	58	110	<0.02	0.013	<0.1	0.64	<0.01	<0.1
12/22/2010	MAX	7.87	631	272	31	1.5	< 2	< 4	0.2	< 0.05	< 0.02	49	< 1	12	5.9	93	<0.02	<0.01	<0.1	0.14	<0.01	0.3
6/15/2011	MAX	7.9	614	296	28	1.3	< 2	13	0.3	< 0.05	< 0.02	29	< 1	7	3.6	89	<0.02	0.016	<0.1	0.13	<0.01	<0.1
12/16/2011	MAX	7.94	590	272	25	1.1	< 2	14	0.8	< 0.05	0.27	32	< 1	10	4.3	78	7.1	<0.01	<0.1	0.098	<0.01	<0.1
6/22/2012	MAX	7.8	790	270	27	1.8	3	93	1.3	0.19	0.4	44	8.9	67	30	93	7.7	<0.01	<0.1	0.28	<0.01	<0.1
12/17/2012	MAX	7.65	670	280	32	1.5	< 2	13	0.3	< 0.05	0.072	44	< 1	24	11	97	2.5	<0.01	<0.1	0.11	<0.01	0.14
6/20/2013	MAX	8.25	910	260	28	1.5	< 2	16	0.5	< 0.05	0.089	49	< 1	100	50	100	3.1	0.013	<0.1	0.43	<0.01	<0.1
12/9/2013	MAX	7.88	790	280	28	1.4	< 2	< 4	0.34	< 0.05	0.021	43	< 1	59	23	91	<0.02	<0.01	<0.1	0.23	<0.01	<0.1
5/27/2014	MAX	7.82	700	290	31	1.4	< 2	7.5	0.28	< 0.05	< 0.02	44	< 1	29	8.8	95	1.2	0.01	<0.1	0.1	<0.01	<0.1
12/4/2014	MAX	7.86	700	310	32	1.6	< 2	5.8	0.2	< 0.05	0.032	36	< 1	25	11	100	0.04	0.013	<0.1	0.16	<0.01	<0.1
6/18/2015	MAX	7.89	730	300	31	1.7	< 2	9.7	0.12	< 0.05	0.097	49	< 1	30	13	97	3.7	0.014	<0.1	0.083	<0.01	0.1
12/2/2015	MAX	7.46	740	280	32	1.6	< 2	25	0.16	< 0.05	0.13	52	< 1	33	11	97	4.5	0.012	<0.1	0.092	<0.01	<0.1
6/20/2016	MAX	7.89	980	310	41	1.9	< 2	15	0.21	< 0.05	0.069	72	< 1	90	21	120	3	0.013	<0.1	0.18	<0.01	0.59
11/28/2016	MAX	7.86	970	310	35	1.8	< 2	8.8	0.16	< 0.05	0.057	69	< 1	98	42	110	2.5	<0.01	<0.1	0.19	<0.01	<0.1
6/5/2017	MAX	7.96	1100	310	41	1.9	< 2	5.9	0.26	< 0.05	0.027	82	< 1	110	28	120	0.99	0.014	<0.1	0.12	<0.01	1.69
12/12/2017	MAX	7.88	1100	330	40	1.9	< 2	10	0.12	< 0.05	0.028	110	< 1	100	35	120	0.54	0.013	<0.1	0.12	<0.01	<0.1
6/18/2018	MAX	7.78	1000	320	37	2	< 2	9.6	0.1	< 0.05	0.099	78	< 1	93	54	110	1.9	<0.01	<0.1	0.14	<0.01	<0.1
12/10/2018	MAX	7.86	1100	330	40	1.9	< 2	11	0.12	< 0.05	< 0.02	100	< 1	95	46	120	0.6	<0.01	<0.1	0.24	<0.01	0.24
6/25/2019	MAX	8.15	1200	300	33	1.8	< 2	15	0.25	< 0.05	< 0.02	74	< 1	170	97	120	0.51	0.013	<0.1	0.26	<0.01	0.16
12/5/2019	MAX	7.63	1100	340	38	2	< 2	15	0.12	< 0.05	< 0.02	98	< 1	81	50	120	1.1	0.012	<0.1	0.11	<0.01	<0.1

Monitor: 21A-08 Bedrock

6/25/2008	N/A																					
6/25/2008	MAX																					
6/25/2008	MAX																					
6/25/2008	N/A																					
12/9/2008	MAX	8.1	820	284	32	1.2	< 2	8	0.5	< 0.05	< 0.02	49	< 1	54	34	86	<0.02	0.013	<0.1	0.22	0.02	6.2
6/25/2009	MAX	7.8	583	261	26	0.89	< 2	6	0.3	< 0.05	< 0.02	30	< 1	5	13	78	<0.02	0.015	<0.1	0.26	<0.01	4.8
12/15/2009	MAX	7.8	776	277	29	1.1	< 2	4	0.3	< 0.05	0.02	39	< 1	47	33	86	0.05	0.018	<0.1	0.32	<0.01	6.3
6/25/2010	MAX	8	589	262	25	0.87	< 2	4	0.4	< 0.05	< 0.02	26	< 1	8	13	75	<0.02	0.012	<0.1	0.29	<0.01	4.3
12/22/2010	MAX	7.79	660	278	29	1.1	< 2	< 4	0.3	< 0.05	< 0.02	32	< 1	18	19	87	<0.02	0.01	<0.1	0.29	<0.01	5.1

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 21A-08 Bedrock

6/14/2011	MAX	7.85	557	263	26	0.86	< 2	15	0.5	< 0.05	< 0.02	21	< 1	4	7.5	79	<0.02	0.02	<0.1	0.36	<0.01	3.1
12/14/2011	MAX	8.07	619	278	26	1	< 2	15	2	< 0.05	0.14	27	< 1	10	14	79	0.83	<0.01	<0.1	0.31	<0.01	3.5
6/18/2012	MAX	7.93	570	260	24	0.88	< 2	12	0.26	< 0.05	< 0.02	24	< 1	6	9.8	73	0.44	<0.01	<0.1	0.31	<0.01	2.9
12/10/2012	MAX	7.81	650	290	28	1.1	< 2	< 4	0.34	< 0.05	< 0.02	28	< 1	19	18	84	0.07	0.011	<0.1	0.36	<0.01	3.1
6/19/2013	MAX	8.23	560	270	23	0.8	< 2	6.1	0.41	< 0.05	0.032	19	< 1	4	6.9	71	0.97	0.014	<0.1	0.31	<0.01	1.9
12/3/2013	MAX	7.76	570	280	27	1.1	< 2	5.5	0.54	0.25	0.039	20	14	6	10	80	<0.02	0.016	<0.1	0.27	<0.01	2.1
5/20/2014	MAX	7.85	580	280	25	0.82	< 2	5.6	0.15	< 0.05	< 0.02	23	< 1	8	8.9	80	0.29	0.012	<0.1	0.35	<0.01	2.32
12/3/2014	MAX	7.94	630	280	27	1	< 2	< 4	0.34	< 0.05	< 0.02	21	< 1	22	20	80	<0.02	0.017	<0.1	0.38	<0.01	1.88
6/22/2015	MAX	7.74	580	280	25	0.96	< 2	7.1	0.35	< 0.05	< 0.02	20	< 1	12	11	77	0.42	0.015	<0.1	0.34	<0.01	1.57
12/7/2015	MAX	7.86	620	280	28	1	< 2	< 4	0.25	< 0.05	< 0.02	24	< 1	16	16	81	0.11	<0.01	<0.1	0.35	<0.01	1.77
6/22/2016	MAX	8.02	550	280	25	0.84	< 2	< 4	<0.1	< 0.05	< 0.02	15	< 1	5	8.1	73	0.09	0.017	<0.1	0.32	<0.01	1.16
12/5/2016	MAX	7.84	640	290	25	0.96	< 2	9.1	<0.1	< 0.05	< 0.02	22	< 1	22	19	79	0.06	0.018	<0.1	0.35	<0.01	1.59
6/6/2017	MAX	8.11	550	280	24	0.79	< 2	8.4	0.26	< 0.05	< 0.02	14	< 1	4.3	7.6	74	0.09	0.011	<0.1	0.32	<0.01	1.21
12/6/2017	MAX	7.87	620	300	25	0.82	< 2	< 4	<0.1	< 0.05	< 0.02	18	< 1	11	10	75	0.27	0.015	<0.1	0.29	<0.01	1.03
6/14/2018	MAX	7.91	520	320	26	0.92	< 2	6.4	<0.1	< 0.05	< 0.02	13	< 1	8.2	11	80	0.14	0.014	<0.1	0.35	<0.01	0.96
12/11/2018	MAX	7.85	620	290	27	0.97	< 2	4.7	<0.1	< 0.05	0.021	19	< 1	16	16	77	0.05	0.016	<0.1	0.33	<0.01	0.98
6/14/2019	MAX	7.96	550	270	25	0.78	< 2	< 4	0.18	< 0.05	< 0.02	15	< 1	5.1	7	76	0.12	0.012	<0.1	0.32	<0.01	0.79
12/2/2019	MAX	7.79	590	280	26	0.96	< 2	< 4	0.13	< 0.05	< 0.02	18	< 1	12	13	74	0.09	0.013	<0.1	0.32	<0.01	0.68

Monitor: 22A-11 Bedrock

12/19/2011	MAX	7.88	769	212	35	1.6	< 2	< 4	0.9	< 0.05	0.14	89	< 1	56	16	110	1.3	0.015	0.16	0.015	<0.01	<0.1
6/19/2012	MAX	7.96	990	260	20	1.5	< 2	10	<0.1	0.1	< 0.02	25	< 1	130	78	94	0.19	0.024	<0.1	0.015	<0.01	4
12/11/2012	MAX	7.82	780	240	31	1.4	< 2	< 4	0.11	< 0.05	0.029	93	< 1	49	16	100	0.89	0.023	<0.1	<0.005	<0.01	<0.1
6/17/2013	MAX	8.22	780	230	31	1.3	< 2	< 4	0.26	0.062	0.055	88	< 1	49	16	88	1.2	0.02	<0.1	0.006	<0.01	<0.1
12/4/2013	MAX	7.86	770	240	33	2.3	< 2	7.1	0.35	0.14	0.11	85	< 1	55	17	93	1.2	0.025	0.18	0.01	0.023	0.12
5/21/2014	MAX	7.95	760	230	32	1.6	< 2	< 4	0.35	0.058	0.21	88	< 1	48	15	99	0.28	0.022	0.22	0.025	0.033	<0.1
12/2/2014	MAX	7.97	770	240	32	1.5	< 2	< 4	0.25	0.15	0.32	85	< 1	47	15	97	2.1	0.025	<0.1	<0.005	0.021	<0.1
6/16/2015	MAX	8.01	760	240	33	1.5	< 2	5.1	0.12	< 0.05	0.081	87	< 1	49	16	99	0.7	0.023	<0.1	<0.005	0.01	<0.1
12/3/2015	MAX	7.66	780	230	32	1.5	< 2	< 4	0.14	< 0.05	0.035	86	< 1	50	17	90	0.72	0.022	<0.1	0.0052	<0.01	<0.1
6/21/2016	MAX	8.12	770	230	32	1.4	2	7.2	0.14	< 0.05	0.06	86	< 1	48	17	92	0.72	0.021	<0.1	<0.005	0.014	<0.1
12/6/2016	MAX	8.01	790	240	32	1.5	6	< 4	0.11	0.06	0.061	78	< 1	56	18	93	0.72	0.022	<0.1	<0.005	<0.01	0.14
6/7/2017	MAX	8.18	780	240	32	1.5	< 2	4.7	0.19	0.071	0.033	86	< 1	63	18	93	0.51	0.021	<0.1	<0.005	0.013	<0.1
12/6/2017	MAX	7.98	810	260	31	1.6	4	6.3	0.86	0.72	0.11	78	2.8	61	17	93	0.44	0.019	0.14	<0.005	0.056	<0.1
6/14/2018	MAX	8.15	810	230	36	1.7	< 2	11	0.18	0.16	0.076	86	< 1	69	24	100	0.83	0.021	<0.1	<0.005	<0.01	0.18
12/10/2018	MAX	8.05	850	250	33	1.4	< 2	< 4	0.19	0.21	0.063	79	< 1	75	24	96	1.3	0.018	<0.1	<0.005	<0.01	<0.1
6/18/2019	MAX	8.08	840	240	33	1.5	< 2	< 4	0.35	0.1	0.2	85	< 1	77	26	100	1.3	0.023	<0.1	<0.005	<0.01	0.17
12/4/2019	MAX	7.96	800	250	31	1.4	< 2	< 4	0.16	0.14	0.042	81	< 1	73	23	94	0.89	0.02	<0.1	<0.005	<0.01	<0.1

Monitor: 22B-11 Outwash

12/19/2011	MAX	7.83	817	299	24	1.6	< 2	< 4	0.3	< 0.05	0.03	25	< 1	57	43	110	0.21	0.014	<0.1	0.021	<0.01	3.7
6/19/2012	MAX	7.97	770	230	32	1.3	< 2	9.8	0.43	< 0.05	0.04	83	< 1	46	13	96	1.4	0.019	<0.1	<0.005	<0.01	<0.1
12/11/2012	MAX	7.82	870	340	22	1.5	< 2	< 4	0.46	< 0.05	< 0.02	26	< 1	59	48	110	0.28	0.024	<0.1	0.012	<0.01	3.5

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 22B-11 Outwash

6/17/2013	MAX	7.89	1100	240	22	1.7	< 2	< 4	0.69	< 0.05	< 0.02	28	< 1	150	93	100	0.23	0.028	<0.1	0.013	<0.01	3.9
12/4/2013	MAX	7.85	910	300	19	1.6	< 2	7.5	0.44	< 0.05	< 0.02	23	< 1	98	83	84	<0.02	0.025	<0.1	0.021	<0.01	3
5/21/2014	MAX	7.83	1100	270	22	1.8	< 2	21	0.5	< 0.05	< 0.02	28	< 1	140	84	100	<0.02	0.022	<0.1	0.017	0.014	4.13
12/2/2014	MAX	7.9	950	340	22	1.9	< 2	< 4	0.21	0.082	< 0.02	21	< 1	96	70	110	0.05	0.031	<0.1	0.015	0.02	2.94
6/16/2015	MAX	7.95	1200	280	26	2	< 2	< 4	0.66	< 0.05	< 0.02	20	< 1	170	93	120	0.05	0.026	<0.1	0.018	<0.01	3.93
12/3/2015	MAX	7.64	870	280	23	1.5	< 2	< 4	0.12	< 0.05	< 0.02	45	< 1	75	41	100	0.2	0.024	<0.1	0.014	<0.01	0.32
6/21/2016	MAX	8.05	1100	280	22	1.6	< 2	5.4	0.22	< 0.05	0.022	27	< 1	160	110	100	0.17	0.022	<0.1	0.016	<0.01	2.78
12/6/2016	MAX	7.81	1200	350	32	1.9	< 2	< 4	<0.1	< 0.05	< 0.02	30	< 1	140	50	140	0.18	0.026	<0.1	0.023	<0.01	1.8
6/7/2017	MAX	8.1	1000	270	20	1.5	< 2	6	0.19	< 0.05	0.024	33	< 1	130	95	89	0.45	0.021	<0.1	0.014	<0.01	2.35
12/6/2017	MAX	7.93	1300	320	27	2.1	< 2	< 4	0.12	< 0.05	< 0.02	66	< 1	170	110	110	0.2	0.024	<0.1	0.025	<0.01	0.64
6/14/2018	MAX	7.97	920	310	25	1.8	< 2	7.9	<0.1	< 0.05	< 0.02	43	< 1	100	85	100	0.08	0.019	<0.1	0.013	<0.01	0.61
12/10/2018	MAX	7.96	1200	300	27	1.9	< 2	5.9	<0.1	< 0.05	< 0.02	61	< 1	130	88	110	0.02	0.017	<0.1	0.02	<0.01	0.98
6/18/2019	MAX	8.01	640	280	18	1.1	< 2	< 4	0.14	0.054	< 0.02	12	< 1	33	25	89	0.04	0.013	<0.1	0.0098	<0.01	0.73
12/4/2019	MAX	7.87	1200	320	29	2	< 2	< 4	0.16	0.068	< 0.02	45	< 1	180	78	130	0.06	0.018	<0.1	0.015	<0.01	1.05

Monitor: 23A-12 Bedrock

7/5/2012	MAX	7.8	700	230	28	0.95	< 2	4.8	<0.1	< 0.05	< 0.02	100	< 1	24	11	85	0.49	0.026	<0.1	<0.005	<0.01	<0.1
12/17/2012	MAX	7.71	720	250			< 2	< 4	0.29	< 0.05	< 0.02	95	< 1	30			0.13				<0.01	<0.1
12/18/2012	MAX	7.68	720	250	34	1.3	< 2	< 4	0.3	0.063	0.035	93	< 1	30	15	97	0.13	0.014	<0.1	<0.005	<0.01	<0.1
6/18/2013	MAX	7.99	710	230	32	1.2	< 2	< 4	0.23	0.052	< 0.02	100	< 1	25	12	96	0.15	0.024	<0.1	<0.005	<0.01	<0.1
12/5/2013	MAX	7.86	720	240	34	1.3	< 2	9.4	0.28	< 0.05	< 0.02	90	< 1	30	14	96	0.12	0.024	<0.1	<0.005	<0.01	<0.1
5/22/2014	MAX	7.91	710	240	31	1.2	< 2	< 4	0.39	< 0.05	< 0.02	92		31	14	93	0.13	0.024	<0.1	0.012	<0.01	<0.1
12/4/2014	MAX	7.9	700	230	33	1.3	< 2	< 4	<0.1	0.066	< 0.02	96	< 1	24	12	95	0.14	0.024	<0.1	<0.005	<0.01	<0.1
6/17/2015	MAX	7.89	700	230	30	1.2	< 2	< 4	0.1	< 0.05	< 0.02	110	< 1	25	12	84	0.17	0.02	<0.1	<0.005	<0.01	<0.1
12/4/2015	MAX	7.95	710	230	32	1.2	< 2	< 4	<0.1	< 0.05	< 0.02	100	< 1	24	12	90	0.14	0.019	<0.1	<0.005	<0.01	<0.1
6/20/2016	MAX	8.21	710	240	31	1.2	< 2	< 4	0.11	< 0.05	< 0.02	93	< 1	26	13	90	0.36	0.024	<0.1	<0.005	<0.01	<0.1
11/28/2016	MAX	7.94	680	230	30	1.2	< 2	< 4	0.12	< 0.05	< 0.02	100	< 1	24	11	87	0.24	0.017	<0.1	<0.005	<0.01	<0.1
6/6/2017	MAX	8.13	710	250	30	1.2	< 2	5.6	0.12	< 0.05	< 0.02	90	< 1	31	13	85	0.18	0.024	<0.1	<0.005	<0.01	<0.1
12/12/2017	MAX	7.84	720	240	30	1.2	< 2	< 4	0.1	< 0.05	0.021	100	< 1	25	12	86	1.3	0.026	<0.1	<0.005	<0.01	<0.1
6/18/2018	MAX	7.87	730	250	32	1.3	< 2	6	<0.1	< 0.05	< 0.02	85	< 1	30	14	88	0.17	0.02	<0.1	<0.005	<0.01	<0.1
12/10/2018	MAX	7.95	720	240	30	1.1	< 2	7.3	<0.1	< 0.05	< 0.02	99	< 1	26	12	89	0.18	0.017	<0.1	<0.005	<0.01	<0.1
6/25/2019	MAX	8.11	680	240	31	1.1	< 2	4.5	0.12	< 0.05	< 0.02	90	< 1	30	13	87	0.26	0.023	<0.1	<0.005	<0.01	<0.1
12/5/2019	MAX	7.93	700	240	30	1.2	< 2	< 4	<0.1	0.061	< 0.02	98	< 1	26	12	91	0.26	0.023	<0.1	<0.005	<0.01	<0.1

Monitor: 23B-12 Outwash

7/5/2012	MAX	7.83	1200	320	35	4.6	< 2	74	<1	0.075	5.6	35	< 1	150	79	96	120	0.094	<0.1	0.039	0.054	3.7
7/19/2012	MAX	7.75	1400	330	40	5	< 2	12	0.75	0.088	0.6	29	< 1	190	120	120	27	0.061	<0.1	0.18	0.011	3.5
12/18/2012	MAX	7.65	1300	380	35	4.2	< 2	23	<0.5	0.074	1.2	36	< 1	140	120	130	26	0.59	<0.1	0.22	<0.01	4.8
6/18/2013	MAX	7.91	1100	320	29	3	< 2	< 4	0.4	< 0.05	0.23	26	< 1	150	83	120	9.9	0.49	<0.1	0.16	<0.01	3.3
12/5/2013	MAX	7.71	1100	400	33	3.4	< 2	12	1.7	< 0.05	0.41	28	< 1	110	98	130	0.03	0.39	<0.1	0.2	<0.01	3.4
5/22/2014	MAX	7.72	1200	360	78	2.6	< 2	< 4	0.55	< 0.05	0.24	34	< 1	140	84	240	<0.02	0.71	0.23	0.88	<0.01	3.31
12/4/2014	MAX	7.82	1400	380	150	5.4	< 2	5	<0.5	< 0.05	0.48	33	< 1	180	140	380	<0.02	0.19	0.52	1.6	0.02	4.59

Routine Groundwater Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Cond- uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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Monitor: 23B-12 Outwash

6/17/2015	MAX	7.74	1400	320	31	2.7	< 2	4.3	0.75	< 0.05	0.33	29	< 1	210	120	110	15	0.46	<0.1	0.25	<0.01	4.68
12/4/2015	MAX	7.74	1700	360	34	3.6	< 2	17	0.96	< 0.05	0.51	34	< 1	270	200	130	19	0.12	<0.1	0.35	0.02	4.17
6/20/2016	MAX	8.05	1300	340	30	2.7	< 2	< 4	0.77	< 0.05	0.28	31	< 1	170	120	120	15	0.39	<0.1	0.26	<0.01	3.42
11/28/2016	MAX	7.79	1400	330	31	2.9	< 2	< 4	0.17	< 0.05	0.35	37	< 1	220	140	120	16	0.038	<0.1	0.37	<0.01	3.64
6/6/2017	MAX	8.03	1300	380	29	1.9	< 2	6.6	0.6	< 0.05	0.29	30	< 1	150	95	120	12	0.36	<0.1	0.19	<0.01	3.22
12/12/2017	MAX	7.73	1500	380	29	2.6	< 2	6.5	<0.5	< 0.05	1.4	38	< 1	210	140	120	15	0.074	<0.1	0.31	<0.01	3.52
6/18/2018	MAX	7.79	1500	360	31	2.2	< 2	6	<0.1	< 0.05	0.23	33	< 1	220	140	120	7.6	0.35	<0.1	0.24	<0.01	3.14
12/10/2018	MAX	7.78	1500	350	30	2.5	< 2	6.6	0.57	< 0.05	0.15	39	< 1	230	150	120	8.3	0.14	<0.1	0.28	<0.01	4.6
6/25/2019	MAX	7.96	1200	340	26	1.8	< 2	4.1	0.46	< 0.05	0.086	29	< 1	180	120	110	4.5	0.33	<0.1	0.19	<0.01	2.74
12/5/2019	MAX	7.83	1200	360	28	2.2	< 2	< 4	0.69	0.075	0.16	36	< 1	150	120	120	7	0.15	<0.1	0.25	<0.01	4.01

ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 - Guelph WRIC/Waste Transfer Station - 2019

Parameter	5-96 04-Dec-19	6a-96 02-Dec-19	6b-96 02-Dec-19	7-96 02-Dec-19
<u>MISA Group 16</u>				
1,1,1,2-Tetrachloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1,1-Trichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1,2,2-Tetrachloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1,2-Trichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1-Dichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dibromoethane:*	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloropropane:	< 0.1	< 0.1	< 0.1	< 0.1
1,3-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,4-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
Bromodichloromethane:	< 0.1	1.8	0.11	< 0.1
Bromoform:	< 0.2	< 0.2	< 0.2	< 0.2
Bromomethane:	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride:	< 0.1	< 0.1	< 0.1	< 0.1
Chlorobenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Chloroform:	< 0.1	6.4	1.1	< 0.1
Chloromethane:	< 0.5	< 0.5	< 0.5	< 0.5
Cis-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Cis-1,3-Dichloropropylene:	< 0.2	< 0.2	< 0.2	< 0.2
Dibromochloromethane:	< 0.2	0.37	< 0.2	< 0.2
Methylene Chloride:	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
trans-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Trans-1,3-Dichloropropylene:	< 0.2	< 0.2	< 0.2	< 0.2
Trichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Trichlorofluoromethane:	< 0.2	< 0.2	< 0.2	< 0.2
Vinyl chloride:	< 0.2	< 0.2	< 0.2	< 0.2
<u>MISA Group 17</u>				
Benzene:	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Styrene:	< 0.2	< 0.2	< 0.2	< 0.2
Toluene:	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
m-Xylene and p-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
<u>MISA Group 18</u>				
Acrolein:	< 10	< 10	< 10	< 10
Acrylonitrile:	< 5	< 5	< 5	< 5

ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 - Guelph WRIC/Waste Transfer Station - 2019

Parameter	8-96 04-Dec-19	9-96 03-Dec-19	10-00 03-Dec-19	11a-00 02-Dec-19
<u>MISA Group 16</u>				
1,1,1,2-Tetrachloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1,1-Trichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1,2,2-Tetrachloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1,2-Trichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1-Dichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dibromoethane:*	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloropropane:	< 0.1	< 0.1	< 0.1	< 0.1
1,3-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,4-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
Bromodichloromethane:	< 0.1	< 0.1	< 0.1	< 0.1
Bromoform:	< 0.2	< 0.2	< 0.2	< 0.2
Bromomethane:	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride:	< 0.1	< 0.1	< 0.1	< 0.1
Chlorobenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Chloroform:	< 0.1	< 0.1	< 0.1	< 0.1
Chloromethane:	< 0.5	< 0.5	< 0.5	< 0.5
Cis-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Cis-1,3-Dichloropropylene:	< 0.2	< 0.2	< 0.2	< 0.2
Dibromochloromethane:	< 0.2	< 0.2	< 0.2	< 0.2
Methylene Chloride:	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
trans-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Trans-1,3-Dichloropropylene:	< 0.2	< 0.2	< 0.2	< 0.2
Trichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Trichlorofluoromethane:	< 0.2	< 0.2	< 0.2	< 0.2
Vinyl chloride:	< 0.2	< 0.2	< 0.2	< 0.2
<u>MISA Group 17</u>				
Benzene:	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Styrene:	< 0.2	< 0.2	< 0.2	< 0.2
Toluene:	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
m-Xylene and p-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
<u>MISA Group 18</u>				
Acrolein:	< 10	< 10	< 10	< 10
Acrylonitrile:	< 5	< 5	< 5	< 5

ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 - Guelph WRIC/Waste Transfer Station - 2019

Parameter	11b-00 02-Dec-19	13a-01 04-Dec-19	13b-01 04-Dec-19	14a-01 05-Dec-19
<u>MISA Group 16</u>				
1,1,1,2-Tetrachloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1,1-Trichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1,2,2-Tetrachloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1,2-Trichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1-Dichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dibromoethane:*	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloropropane:	< 0.1	< 0.1	< 0.1	< 0.1
1,3-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,4-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
Bromodichloromethane:	0.98	< 0.1	< 0.1	< 0.1
Bromoform:	< 0.2	< 0.2	< 0.2	< 0.2
Bromomethane:	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride:	< 0.1	< 0.1	< 0.1	< 0.1
Chlorobenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Chloroform:	2	1.7	< 0.1	1.6
Chloromethane:	< 0.5	< 0.5	< 0.5	< 0.5
Cis-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Cis-1,3-Dichloropropylene:	< 0.2	< 0.2	< 0.2	< 0.2
Dibromochloromethane:	< 0.2	< 0.2	< 0.2	< 0.2
Methylene Chloride:	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
trans-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Trans-1,3-Dichloropropylene:	< 0.2	< 0.2	< 0.2	< 0.2
Trichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Trichlorofluoromethane:	< 0.2	< 0.2	< 0.2	< 0.2
Vinyl chloride:	< 0.2	< 0.2	< 0.2	< 0.2
<u>MISA Group 17</u>				
Benzene:	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Styrene:	< 0.2	< 0.2	< 0.2	< 0.2
Toluene:	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
m-Xylene and p-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
<u>MISA Group 18</u>				
Acrolein:	< 10	< 10	< 10	< 10
Acrylonitrile:	< 5	< 5	< 5	< 5

ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 - Guelph WRIC/Waste Transfer Station - 2019

Parameter	14b-01 05-Dec-19	15a-01 03-Dec-19	15b-01 03-Dec-19	16A-08 03-Dec-19
<u>MISA Group 16</u>				
1,1,1,2-Tetrachloroethane:	< 0.2	< 0.2	< 0.5	< 0.2
1,1,1-Trichloroethane:	< 0.1	< 0.1	< 0.25	< 0.1
1,1,2,2-Tetrachloroethane:	< 0.2	< 0.2	< 0.5	< 0.2
1,1,2-Trichloroethane:	< 0.2	< 0.2	< 0.5	< 0.2
1,1-Dichloroethane:	< 0.1	< 0.1	< 0.25	< 0.1
1,1-Dichloroethylene:	< 0.1	< 0.1	< 0.25	< 0.1
1,2-Dichlorobenzene:	< 0.2	< 0.2	< 0.5	< 0.2
1,2-Dibromoethane:*	< 0.2	< 0.2	< 0.5	< 0.2
1,2-Dichloroethane:	< 0.2	< 0.2	< 0.5	< 0.2
1,2-Dichloropropane:	< 0.1	< 0.1	< 0.25	< 0.1
1,3-Dichlorobenzene:	< 0.2	< 0.2	< 0.5	< 0.2
1,4-Dichlorobenzene:	< 0.2	< 0.2	< 0.5	< 0.2
Bromodichloromethane:	< 0.1	< 0.1	< 0.25	< 0.1
Bromoform:	< 0.2	< 0.2	< 0.5	< 0.2
Bromomethane:	< 0.5	< 0.5	< 1.3	< 0.5
Carbon Tetrachloride:	< 0.1	< 0.1	< 0.25	< 0.1
Chlorobenzene:	< 0.1	< 0.1	< 0.25	< 0.1
Chloroform:	< 0.1	< 0.1	< 0.25	< 0.1
Chloromethane:	< 0.5	< 0.5	< 1.3	< 0.5
Cis-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.25	< 0.1
Cis-1,3-Dichloropropylene:	< 0.2	< 0.2	< 0.5	< 0.2
Dibromochloromethane:	< 0.2	< 0.2	< 0.5	< 0.2
Methylene Chloride:	< 0.5	< 0.5	< 1.3	< 0.5
Tetrachloroethylene:	< 0.1	< 0.1	< 0.25	< 0.1
trans-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.25	< 0.1
Trans-1,3-Dichloropropylene:	< 0.2	< 0.2	< 0.5	< 0.2
Trichloroethylene:	< 0.1	< 0.1	< 0.25	< 0.1
Trichlorofluoromethane:	< 0.2	< 0.2	< 0.5	< 0.2
Vinyl chloride:	< 0.2	< 0.2	< 0.5	< 0.2
<u>MISA Group 17</u>				
Benzene:	< 0.1	< 0.1	< 0.25	< 0.1
Ethylbenzene:	< 0.1	< 0.1	< 0.25	< 0.1
Styrene:	< 0.2	< 0.2	< 0.5	< 0.2
Toluene:	< 0.2	< 0.2	< 0.5	< 0.2
o-Xylene:	< 0.1	< 0.1	< 0.25	< 0.1
m-Xylene and p-Xylene:	< 0.1	< 0.1	< 0.25	< 0.1
<u>MISA Group 18</u>				
Acrolein:	< 10	< 10	< 25	< 10
Acrylonitrile:	< 5	< 5	< 13	< 5

ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 - Guelph WRIC/Waste Transfer Station - 2019

Parameter	16B-08 03-Dec-19	17A-08 04-Dec-19	17B-08 04-Dec-19	18A-14 03-Dec-19
<u>MISA Group 16</u>				
1,1,1,2-Tetrachloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1,1-Trichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1,2,2-Tetrachloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1,2-Trichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1-Dichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dibromoethane:*	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloropropane:	< 0.1	< 0.1	< 0.1	< 0.1
1,3-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,4-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
Bromodichloromethane:	< 0.1	1.7	< 0.1	< 0.1
Bromoform:	< 0.2	< 0.2	< 0.2	< 0.2
Bromomethane:	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride:	< 0.1	< 0.1	< 0.1	< 0.1
Chlorobenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Chloroform:	0.23	4.1	< 0.1	< 0.1
Chloromethane:	< 0.5	< 0.5	< 0.5	< 0.5
Cis-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Cis-1,3-Dichloropropylene:	< 0.2	< 0.2	< 0.2	< 0.2
Dibromochloromethane:	< 0.2	< 0.2	< 0.2	< 0.2
Methylene Chloride:	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
trans-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Trans-1,3-Dichloropropylene:	< 0.2	< 0.2	< 0.2	< 0.2
Trichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Trichlorofluoromethane:	< 0.2	< 0.2	< 0.2	< 0.2
Vinyl chloride:	< 0.2	< 0.2	< 0.2	< 0.2
<u>MISA Group 17</u>				
Benzene:	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Styrene:	< 0.2	< 0.2	< 0.2	< 0.2
Toluene:	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
m-Xylene and p-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
<u>MISA Group 18</u>				
Acrolein:	< 10	< 10	< 10	< 10
Acrylonitrile:	< 5	< 5	< 5	< 5

ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 - Guelph WRIC/Waste Transfer Station - 2019

Parameter	18B-14 03-Dec-19	19A-08 05-Dec-19	19B-08 05-Dec-19	20A-08 05-Dec-19
<u>MISA Group 16</u>				
1,1,1,2-Tetrachloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1,1-Trichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1,2,2-Tetrachloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1,2-Trichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1-Dichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dibromoethane:*	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloropropane:	< 0.1	< 0.1	< 0.1	< 0.1
1,3-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,4-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
Bromodichloromethane:	< 0.1	< 0.1	< 0.1	< 0.1
Bromoform:	< 0.2	< 0.2	< 0.2	< 0.2
Bromomethane:	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride:	< 0.1	< 0.1	< 0.1	< 0.1
Chlorobenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Chloroform:	< 0.1	< 0.1	< 0.1	< 0.1
Chloromethane:	< 0.5	< 0.5	< 0.5	< 0.5
Cis-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Cis-1,3-Dichloropropylene:	< 0.2	< 0.2	< 0.2	< 0.2
Dibromochloromethane:	< 0.2	< 0.2	< 0.2	< 0.2
Methylene Chloride:	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
trans-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Trans-1,3-Dichloropropylene:	< 0.2	< 0.2	< 0.2	< 0.2
Trichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Trichlorofluoromethane:	< 0.2	< 0.2	< 0.2	< 0.2
Vinyl chloride:	< 0.2	< 0.2	< 0.2	< 0.2
<u>MISA Group 17</u>				
Benzene:	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Styrene:	< 0.2	< 0.2	< 0.2	< 0.2
Toluene:	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
m-Xylene and p-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
<u>MISA Group 18</u>				
Acrolein:	< 10	< 10	< 10	< 10
Acrylonitrile:	< 5	< 5	< 5	< 5

ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 - Guelph WRIC/Waste Transfer Station - 2019

Parameter	20B-08 05-Dec-19	21A-08 02-Dec-19	22A-11 04-Dec-19	22B-11 04-Dec-19
<u>MISA Group 16</u>				
1,1,1,2-Tetrachloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1,1-Trichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1,2,2-Tetrachloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1,2-Trichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1-Dichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dibromoethane:*	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloropropane:	< 0.1	< 0.1	< 0.1	< 0.1
1,3-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,4-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
Bromodichloromethane:	< 0.1	< 0.1	< 0.1	< 0.1
Bromoform:	< 0.2	< 0.2	< 0.2	< 0.2
Bromomethane:	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride:	< 0.1	< 0.1	< 0.1	< 0.1
Chlorobenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Chloroform:	< 0.1	< 0.1	< 0.1	0.18
Chloromethane:	< 0.5	< 0.5	< 0.5	< 0.5
Cis-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Cis-1,3-Dichloropropylene:	< 0.2	< 0.2	< 0.2	< 0.2
Dibromochloromethane:	< 0.2	< 0.2	< 0.2	< 0.2
Methylene Chloride:	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
trans-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Trans-1,3-Dichloropropylene:	< 0.2	< 0.2	< 0.2	< 0.2
Trichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Trichlorofluoromethane:	< 0.2	< 0.2	< 0.2	< 0.2
Vinyl chloride:	< 0.2	< 0.2	< 0.2	< 0.2
<u>MISA Group 17</u>				
Benzene:	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Styrene:	< 0.2	< 0.2	< 0.2	< 0.2
Toluene:	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
m-Xylene and p-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
<u>MISA Group 18</u>				
Acrolein:	< 10	< 10	< 10	< 10
Acrylonitrile:	< 5	< 5	< 5	< 5

ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 - Guelph WRIC/Waste Transfer Station - 2019

Parameter	23A-12 05-Dec-19	23B-12 05-Dec-19
<u>MISA Group 16</u>		
1,1,1,2-Tetrachloroethane:	< 0.2	< 0.2
1,1,1-Trichloroethane:	< 0.1	< 0.1
1,1,2,2-Tetrachloroethane:	< 0.2	< 0.2
1,1,2-Trichloroethane:	< 0.2	< 0.2
1,1-Dichloroethane:	< 0.1	< 0.1
1,1-Dichloroethylene:	< 0.1	< 0.1
1,2-Dichlorobenzene:	< 0.2	< 0.2
1,2-Dibromoethane:*	< 0.2	< 0.2
1,2-Dichloroethane:	< 0.2	< 0.2
1,2-Dichloropropane:	< 0.1	< 0.1
1,3-Dichlorobenzene:	< 0.2	< 0.2
1,4-Dichlorobenzene:	< 0.2	< 0.2
Bromodichloromethane:	< 0.1	< 0.1
Bromoform:	< 0.2	< 0.2
Bromomethane:	< 0.5	< 0.5
Carbon Tetrachloride:	< 0.1	< 0.1
Chlorobenzene:	< 0.1	< 0.1
Chloroform:	0.23	< 0.1
Chloromethane:	< 0.5	< 0.5
Cis-1,2-Dichloroethylene:	< 0.1	< 0.1
Cis-1,3-Dichloropropylene:	< 0.2	< 0.2
Dibromochloromethane:	< 0.2	< 0.2
Methylene Chloride:	< 0.5	< 0.5
Tetrachloroethylene:	< 0.1	< 0.1
trans-1,2-Dichloroethylene:	< 0.1	< 0.1
Trans-1,3-Dichloropropylene:	< 0.2	< 0.2
Trichloroethylene:	< 0.1	< 0.1
Trichlorofluoromethane:	< 0.2	< 0.2
Vinyl chloride:	< 0.2	< 0.2
<u>MISA Group 17</u>		
Benzene:	< 0.1	< 0.1
Ethylbenzene:	< 0.1	< 0.1
Styrene:	< 0.2	< 0.2
Toluene:	< 0.2	< 0.2
o-Xylene:	< 0.1	< 0.1
m-Xylene and p-Xylene:	< 0.1	< 0.1
<u>MISA Group 18</u>		
Acrolein:	< 10	< 10
Acrylonitrile:	< 5	< 5

ORGANIC ANALYSIS (ATG MISA Groups 19 - 20) - Guelph WRIC/Waste Transfer Station - 2019

Parameter	5-96	6a-96	6b-96	7-96
	04-Dec-19	02-Dec-19	02-Dec-19	02-Dec-19
MISA Group 19				
Acenaphthene:	< 0.2	< 0.2	< 0.2	< 0.2
5-Nitroacenaphthene:	< 1	< 1	< 1	< 1
Acenaphthylene:	< 0.2	< 0.2	< 0.2	< 0.2
Anthracene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(a)anthracene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(a)Pyrene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(b)Fluoranthene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(g,h,i)perylene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(k)Fluoranthene:	< 0.2	< 0.2	< 0.2	< 0.2
Biphenyl:	< 0.5	< 0.5	< 0.5	< 0.5
Camphene:	< 1	< 1	< 1	< 1
1-Chloronaphthalene:	< 1	< 1	< 1	< 1
2-Chloronaphthalene:	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene:	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzo(a,h)Anthracene:	< 0.2	< 0.2	< 0.2	< 0.2
Fluoranthene:	< 0.2	< 0.2	< 0.2	< 0.2
Fluorene:	< 0.2	< 0.2	< 0.2	< 0.2
Indeno(1,2,3-cd)Pyrene:	< 0.2	< 0.2	< 0.2	< 0.2
Indole:	< 1	< 1	< 1	< 1
1-Methylnaphthalene:	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene:	< 0.2	< 0.2	< 0.2	< 0.2
Naphthalene:	< 0.2	0.23	< 0.2	< 0.2
Perylene:	< 0.2	< 0.2	< 0.2	< 0.2
Phenanthrene:	< 0.2	< 0.2	< 0.2	< 0.2
Pyrene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzyl Butyl Phthalate:	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-ethylhexyl)Phthalate:	< 2	< 2	< 2	< 2
Di-N-butylPhthalate:	< 2	< 2	< 2	< 2
Di-N-octylPhthalate:	< 0.8	< 0.8	< 0.8	< 0.8
4-Bromophenyl phenyl Ethe	< 0.3	< 0.3	< 0.3	< 0.3
4-Chlorophenyl Phenyl Ethe	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-chloroisopropyl)Ether:	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-Chloroethyl)Ether:	< 0.5	< 0.5	< 0.5	< 0.5
Diphenyl ether:	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dinitrotoluene:	< 0.5	< 0.5	< 0.5	< 0.5
2,6-Dinitrotoluene:	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-chloroethoxy)Methan	< 0.5	< 0.5	< 0.5	< 0.5
Nitrosodiphenylamine /Diphenylamine:	< 1	< 1	< 1	< 1
N-Nitrosodi-N-propylamine:	< 0.5	< 0.5	< 0.5	< 0.5
MISA Group 20				
2,3,4,5-Tetrachlorophenol:	< 0.4	< 0.4	< 0.4	< 0.4
2,3,4,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,4-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,6-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dinitrophenol:	< 2	< 2	< 2	< 2
2,4-Dimethylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
2,6-Dichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
4,6-Dinitro-o-Cresol:	< 0.3	< 0.3	< 0.3	< 0.3
2-Chlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloro-3-methylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
4-Nitrophenol:	< 1.4	< 1.4	< 1.4	< 1.4
o-Cresol:	< 0.5	< 0.5	< 0.5	< 0.5
m-,p-Cresol:	< 0.5	< 0.5	< 0.5	< 0.5
Pentachlorophenol:	< 1	< 1	< 1	< 1
Phenol:	< 0.5	< 0.5	< 0.5	< 0.5

ORGANIC ANALYSIS (ATG MISA Groups 19 - 20) - Guelph WRIC/Waste Transfer Station - 2019

Parameter	8-96	9-96	10-00	11a-00
	04-Dec-19	03-Dec-19	03-Dec-19	02-Dec-19
<u>MISA Group 19</u>				
Acenaphthene:	< 0.2	< 0.2	< 0.2	< 0.2
5-Nitroacenaphthene:	< 1	< 1	< 1	< 1
Acenaphthylene:	< 0.2	< 0.2	< 0.2	< 0.2
Anthracene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(a)anthracene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(a)Pyrene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(b)Fluoranthene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(g,h,i)perylene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(k)Fluoranthene:	< 0.2	< 0.2	< 0.2	< 0.2
Biphenyl:	< 0.5	< 0.5	< 0.5	< 0.5
Camphene:	< 1	< 1	< 1	< 1
1-Chloronaphthalene:	< 1	< 1	< 1	< 1
2-Chloronaphthalene:	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene:	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzo(a,h)Anthracene:	< 0.2	< 0.2	< 0.2	< 0.2
Fluoranthene:	< 0.2	< 0.2	< 0.2	< 0.2
Fluorene:	< 0.2	< 0.2	< 0.2	< 0.2
Indeno(1,2,3-cd)Pyrene:	< 0.2	< 0.2	< 0.2	< 0.2
Indole:	< 1	< 1	< 1	< 1
1-Methylnaphthalene:	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene:	< 0.2	< 0.2	< 0.2	< 0.2
Naphthalene:	< 0.2	< 0.2	< 0.2	< 0.2
Perylene:	< 0.2	< 0.2	< 0.2	< 0.2
Phenanthrene:	< 0.2	< 0.2	< 0.2	< 0.2
Pyrene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzyl Butyl Phthalate:	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-ethylhexyl)Phthalate:	< 2	< 2	< 2	< 2
Di-N-butylPhthalate:	< 2	< 2	< 2	< 2
Di-N-octylPhthalate:	< 0.8	< 0.8	< 0.8	< 0.8
4-Bromophenyl phenyl Ethe	< 0.3	< 0.3	< 0.3	< 0.3
4-Chlorophenyl Phenyl Ethe	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-chloroisopropyl)Ether:	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-Chloroethyl)Ether:	< 0.5	< 0.5	< 0.5	< 0.5
Diphenyl ether:	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dinitrotoluene:	< 0.5	< 0.5	< 0.5	< 0.5
2,6-Dinitrotoluene:	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-chloroethoxy)Methan	< 0.5	< 0.5	< 0.5	< 0.5
Nitrosodiphenylamine /Diphenylamine:	< 1	< 1	< 1	< 1
N-Nitrosodi-N-propylamine:	< 0.5	< 0.5	< 0.5	< 0.5
<u>MISA Group 20</u>				
2,3,4,5-Tetrachlorophenol:	< 0.4	< 0.4	< 0.4	< 0.4
2,3,4,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,4-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,6-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dinitrophenol:	< 2.5	< 2	< 2	< 2
2,4-Dimethylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
2,6-Dichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
4,6-Dinitro-o-Cresol:				
2-Chlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloro-3-methylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
4-Nitrophenol:	< 1.4	< 1.4	< 1.4	< 1.4
o-Cresol:	< 0.5	< 0.5	< 0.5	< 0.5
m-,p-Cresol:	< 0.5	< 0.5	< 0.5	< 0.5
Pentachlorophenol:	< 1	< 1	< 1	< 1
Phenol:	< 0.5	< 0.5	< 0.5	< 0.5

ORGANIC ANALYSIS (ATG MISA Groups 19 - 20) - Guelph WRIC/Waste Transfer Station - 2019

Parameter	11b-00 02-Dec-19	13a-01 04-Dec-19	13b-01 04-Dec-19	14a-01 05-Dec-19
MISA Group 19				
Acenaphthene:	< 0.2	< 0.2	< 0.2	< 0.2
5-Nitroacenaphthene:	< 1	< 1	< 1	< 1
Acenaphthylene:	< 0.2	< 0.2	< 0.2	< 0.2
Anthracene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(a)anthracene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(a)Pyrene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(b)Fluoranthene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(g,h,i)perylene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(k)Fluoranthene:	< 0.2	< 0.2	< 0.2	< 0.2
Biphenyl:	< 0.5	< 0.5	< 0.5	< 0.5
Camphene:	< 1	< 1	< 1	< 1
1-Chloronaphthalene:	< 1	< 1	< 1	< 1
2-Chloronaphthalene:	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene:	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzo(a,h)Anthracene:	< 0.2	< 0.2	< 0.2	< 0.63
Fluoranthene:	< 0.2	< 0.2	< 0.2	< 0.2
Fluorene:	< 0.2	< 0.2	< 0.2	< 0.2
Indeno(1,2,3-cd)Pyrene:	< 0.2	< 0.2	< 0.2	< 0.2
Indole:	< 1	< 1	< 1	< 1
1-Methylnaphthalene:	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene:	< 0.2	< 0.2	< 0.2	< 0.2
Naphthalene:	< 0.2	< 0.2	< 0.2	< 0.2
Perylene:	< 0.2	< 0.2	< 0.2	< 0.2
Phenanthrene:	< 0.2	< 0.2	< 0.2	< 0.2
Pyrene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzyl Butyl Phthalate:	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-ethylhexyl)Phthalate:	< 2	< 2	< 2	< 2
Di-N-butylPhthalate:	< 2	< 2	< 2	< 2
Di-N-octylPhthalate:	< 0.8	< 0.8	< 0.8	< 0.8
4-Bromophenyl phenyl Ethe	< 0.3	< 0.3	< 0.3	< 0.3
4-Chlorophenyl Phenyl Ethe	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-chloroisopropyl)Ether:	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-Chloroethyl)Ether:	< 0.5	< 0.5	< 0.5	< 0.5
Diphenyl ether:	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dinitrotoluene:	< 0.5	< 0.5	< 0.5	< 0.5
2,6-Dinitrotoluene:	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-chloroethoxy)Methan	< 0.5	< 0.5	< 0.5	< 0.5
Nitrosodiphenylamine /Diphenylamine:	< 1	< 1	< 1	< 1
N-Nitrosodi-N-propylamine:	< 0.5	< 0.5	< 0.5	< 0.5
MISA Group 20				
2,3,4,5-Tetrachlorophenol:	< 0.4	< 0.4	< 0.4	< 0.4
2,3,4,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,4-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,6-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dinitrophenol:	< 2	< 2	< 2	< 2
2,4-Dimethylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
2,6-Dichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
4,6-Dinitro-o-Cresol:	< 0.3	< 0.3	< 0.3	< 0.3
2-Chlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloro-3-methylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
4-Nitrophenol:	< 1.4	< 1.4	< 1.4	< 1.4
o-Cresol:	< 0.5	< 0.5	< 0.5	< 0.5
m-,p-Cresol:	< 0.5	< 0.5	< 0.5	< 0.5
Pentachlorophenol:	< 1	< 1	< 1	< 1
Phenol:	< 0.5	< 0.5	< 0.5	< 0.5

ORGANIC ANALYSIS (ATG MISA Groups 19 - 20) - Guelph WRIC/Waste Transfer Station - 2019

Parameter	14b-01 05-Dec-19	15a-01 03-Dec-19	15b-01 03-Dec-19	16A-08 03-Dec-19
<u>MISA Group 19</u>				
Acenaphthene:	< 0.2	< 0.2	< 0.2	< 0.2
5-Nitroacenaphthene:	< 1	< 1	< 1	< 1
Acenaphthylene:	< 0.2	< 0.2	< 0.2	< 0.2
Anthracene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(a)anthracene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(a)Pyrene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(b)Fluoranthene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(g,h,i)perylene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(k)Fluoranthene:	< 0.2	< 0.2	< 0.2	< 0.2
Biphenyl:	< 0.5	< 0.5	< 0.5	< 0.5
Camphene:	< 1	< 1	< 1	< 1
1-Chloronaphthalene:	< 1	< 1	< 1	< 1
2-Chloronaphthalene:	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene:	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzo(a,h)Anthracene:	< 0.63	< 0.2	< 0.2	< 0.2
Fluoranthene:	< 0.2	< 0.2	< 0.2	< 0.2
Fluorene:	< 0.2	< 0.2	< 0.2	< 0.2
Indeno(1,2,3-cd)Pyrene:	< 0.2	< 0.2	< 0.2	< 0.2
Indole:	< 1	< 1	< 1	< 1
1-Methylnaphthalene:	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene:	< 0.2	< 0.2	< 0.2	< 0.2
Naphthalene:	< 0.2	< 0.2	< 0.2	< 0.2
Perylene:	< 0.2	< 0.2	< 0.2	< 0.2
Phenanthrene:	< 0.2	< 0.2	< 0.2	< 0.2
Pyrene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzyl Butyl Phthalate:	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-ethylhexyl)Phthalate:	12	< 2	< 2	< 2
Di-N-butylPhthalate:	< 2	< 2	< 2	< 2
Di-N-octylPhthalate:	< 0.8	< 0.8	< 0.8	< 0.8
4-Bromophenyl phenyl Ethe	< 0.3	< 0.3	< 0.3	< 0.3
4-Chlorophenyl Phenyl Ethe	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-chloroisopropyl)Ether:	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-Chloroethyl)Ether:	< 0.5	< 0.5	< 0.5	< 0.5
Diphenyl ether:	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dinitrotoluene:	< 0.5	< 0.5	< 0.5	< 0.5
2,6-Dinitrotoluene:	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-chloroethoxy)Methan	< 0.5	< 0.5	< 0.5	< 0.5
Nitrosodiphenylamine /Diphenylamine:	< 1	< 1	< 1	< 1
N-Nitrosodi-N-propylamine:	< 0.5	< 0.5	< 0.5	< 0.5
<u>MISA Group 20</u>				
2,3,4,5-Tetrachlorophenol:	< 0.4	< 0.4	< 0.4	< 0.4
2,3,4,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,4-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,6-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dinitrophenol:	< 2	< 2	< 2	< 2
2,4-Dimethylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
2,6-Dichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
4,6-Dinitro-o-Cresol:				
2-Chlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloro-3-methylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
4-Nitrophenol:	< 1.4	< 1.4	< 1.4	< 1.4
o-Cresol:	< 0.5	< 0.5	< 0.5	< 0.5
m-,p-Cresol:	< 0.5	< 0.5	90	< 0.5
Pentachlorophenol:	< 1	< 1	< 1	< 1
Phenol:	< 0.5	< 0.5	43	< 0.5

ORGANIC ANALYSIS (ATG MISA Groups 19 - 20) - Guelph WRIC/Waste Transfer Station - 2019

Parameter	16B-08 03-Dec-19	17A-08 04-Dec-19	17B-08 04-Dec-19	18A-14 03-Dec-19
MISA Group 19				
Acenaphthene:	< 0.2	< 0.2	< 0.2	< 0.2
5-Nitroacenaphthene:	< 1	< 1	< 1	< 1
Acenaphthylene:	< 0.2	< 0.2	< 0.2	< 0.2
Anthracene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(a)anthracene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(a)Pyrene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(b)Fluoranthene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(g,h,i)perylene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(k)Fluoranthene:	< 0.2	< 0.2	< 0.2	< 0.2
Biphenyl:	< 0.5	< 0.5	< 0.5	< 0.5
Camphene:	< 1	< 1	< 1	< 1
1-Chloronaphthalene:	< 1	< 1	< 1	< 1
2-Chloronaphthalene:	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene:	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzo(a,h)Anthracene:	< 0.2	< 0.2	< 0.2	< 0.2
Fluoranthene:	< 0.2	< 0.2	< 0.2	< 0.2
Fluorene:	< 0.2	< 0.2	< 0.2	< 0.2
Indeno(1,2,3-cd)Pyrene:	< 0.2	< 0.2	< 0.2	< 0.2
Indole:	< 1	< 1	< 1	< 1
1-Methylnaphthalene:	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene:	< 0.2	< 0.2	< 0.2	< 0.2
Naphthalene:	< 0.2	< 0.2	< 0.2	< 0.2
Perylene:	< 0.2	< 0.2	< 0.2	< 0.2
Phenanthrene:	< 0.2	< 0.2	< 0.2	< 0.2
Pyrene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzyl Butyl Phthalate:	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-ethylhexyl)Phthalate:	< 2	< 2	< 2	< 2
Di-N-butylPhthalate:	< 2	< 2	< 2	< 2
Di-N-octylPhthalate:	< 0.8	< 0.8	< 0.8	< 0.8
4-Bromophenyl phenyl Ethe	< 0.3	< 0.3	< 0.3	< 0.3
4-Chlorophenyl Phenyl Ethe	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-chloroisopropyl)Ether:	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-Chloroethyl)Ether:	< 0.5	< 0.5	< 0.5	< 0.5
Diphenyl ether:	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dinitrotoluene:	< 0.5	< 0.5	< 0.5	< 0.5
2,6-Dinitrotoluene:	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-chloroethoxy)Methan	< 0.5	< 0.5	< 0.5	< 0.5
Nitrosodiphenylamine /Diphenylamine:	< 1	< 1	< 1	< 1
N-Nitrosodi-N-propylamine:	< 0.5	< 0.5	< 0.5	< 0.5
MISA Group 20				
2,3,4,5-Tetrachlorophenol:	< 0.4	< 0.4	< 0.4	< 0.4
2,3,4,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,4-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,6-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dinitrophenol:	< 2	< 2	< 2	< 2
2,4-Dimethylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
2,6-Dichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
4,6-Dinitro-o-Cresol:	< 0.3	< 0.3	< 0.3	< 0.3
2-Chlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloro-3-methylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
4-Nitrophenol:	< 1.4	< 1.4	< 1.4	< 1.4
o-Cresol:	< 0.5	< 0.5	< 0.5	< 0.5
m-,p-Cresol:	< 0.5	< 0.5	< 0.5	< 0.5
Pentachlorophenol:	< 1	< 1	< 1	< 1
Phenol:	< 0.5	< 0.5	< 0.5	< 0.5

ORGANIC ANALYSIS (ATG MISA Groups 19 - 20) - Guelph WRIC/Waste Transfer Station - 2019

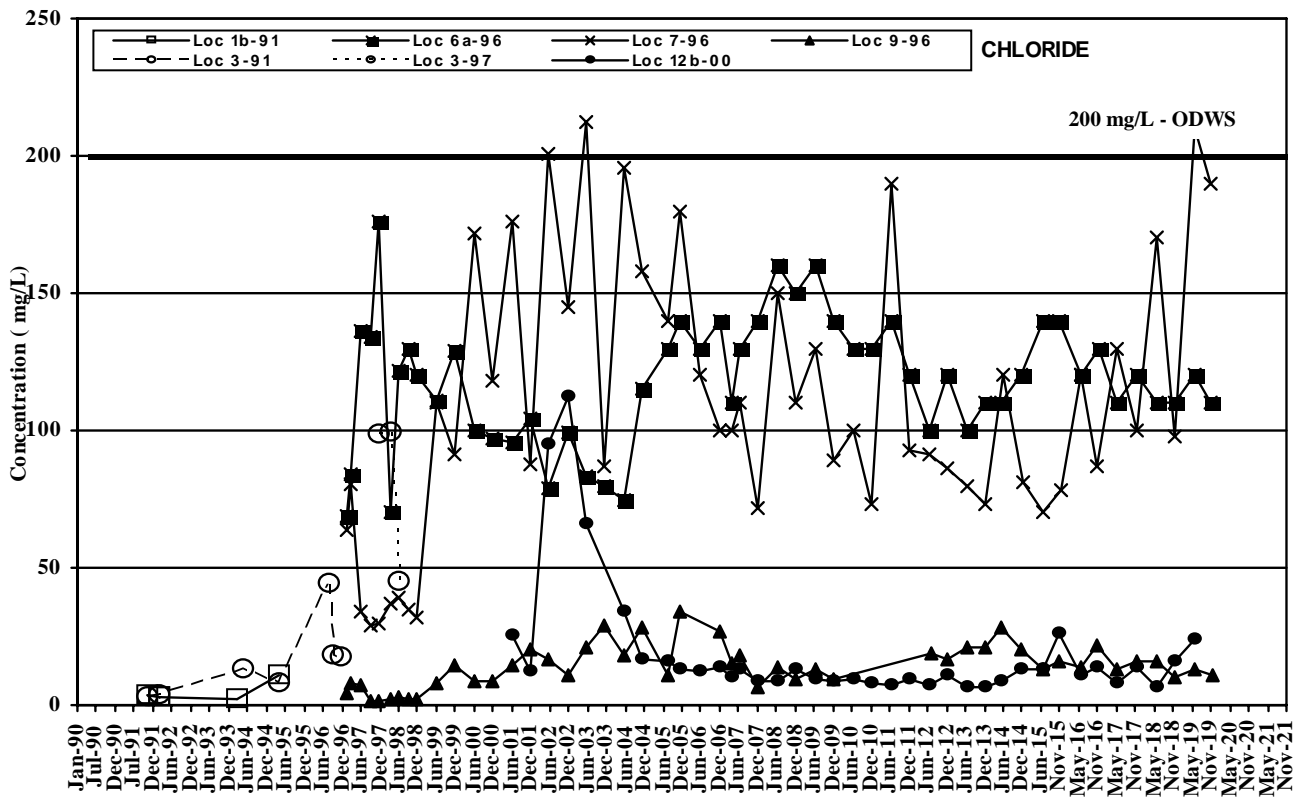
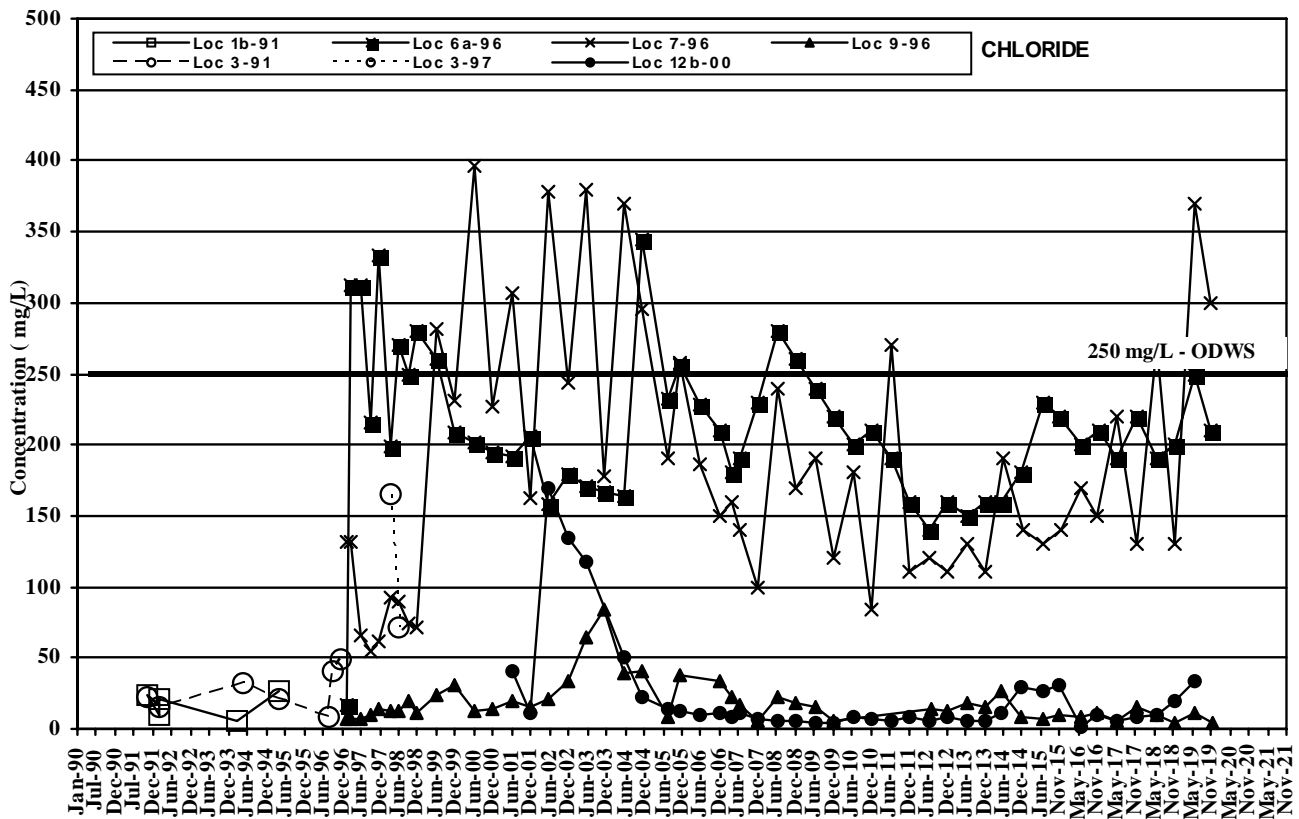
Parameter	18B-14 03-Dec-19	19A-08 05-Dec-19	19B-08 05-Dec-19	20A-08 05-Dec-19
MISA Group 19				
Acenaphthene:	< 0.2	< 0.2	< 0.2	< 0.2
5-Nitroacenaphthene:	< 1	< 1	< 1	< 1
Acenaphthylene:	< 0.2	< 0.2	< 0.2	< 0.2
Anthracene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(a)anthracene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(a)Pyrene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(b)Fluoranthene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(g,h,i)perylene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(k)Fluoranthene:	< 0.2	< 0.2	< 0.2	< 0.2
Biphenyl:	< 0.5	< 0.5	< 0.5	< 0.5
Camphene:	< 1	< 1	< 1	< 1
1-Chloronaphthalene:	< 1	< 1	< 1	< 1
2-Chloronaphthalene:	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene:	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzo(a,h)Anthracene:	< 0.2	< 0.2	< 0.2	< 0.2
Fluoranthene:	< 0.2	< 0.2	< 0.2	< 0.2
Fluorene:	< 0.2	< 0.2	< 0.2	< 0.2
Indeno(1,2,3-cd)Pyrene:	< 0.2	< 0.2	< 0.2	< 0.2
Indole:	< 1	< 1	< 1	< 1
1-Methylnaphthalene:	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene:	< 0.2	< 0.2	< 0.2	< 0.2
Naphthalene:	< 0.2	< 0.2	< 0.2	< 0.2
Perylene:	< 0.2	< 0.2	< 0.2	< 0.2
Phenanthrene:	< 0.2	< 0.2	< 0.2	< 0.2
Pyrene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzyl Butyl Phthalate:	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-ethylhexyl)Phthalate:	< 2	< 2	< 2	< 2
Di-N-butylPhthalate:	< 2	< 2	< 2	< 2
Di-N-octylPhthalate:	< 0.8	< 0.8	< 0.8	< 0.8
4-Bromophenyl phenyl Ethe	< 0.3	< 0.3	< 0.3	< 0.3
4-Chlorophenyl Phenyl Ethe	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-chloroisopropyl)Ether:	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-Chloroethyl)Ether:	< 0.5	< 0.5	< 0.5	< 0.5
Diphenyl ether:	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dinitrotoluene:	< 0.5	< 0.5	< 0.5	< 0.5
2,6-Dinitrotoluene:	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-chloroethoxy)Methan	< 0.5	< 0.5	< 0.5	< 0.5
Nitrosodiphenylamine /Diphenylamine:	< 1	< 1	< 1	< 1
N-Nitrosodi-N-propylamine:	< 0.5	< 0.5	< 0.5	< 0.5
MISA Group 20				
2,3,4,5-Tetrachlorophenol:	< 0.4	< 0.4	< 0.4	< 0.4
2,3,4,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,4-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,6-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dinitrophenol:	< 2	< 2	< 2	< 2
2,4-Dimethylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
2,6-Dichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
4,6-Dinitro-o-Cresol:	< 0.3	< 0.3	< 0.3	< 0.3
2-Chlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloro-3-methylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
4-Nitrophenol:	< 1.4	< 1.4	< 1.4	< 1.4
o-Cresol:	< 0.5	< 0.5	< 0.5	< 0.5
m-,p-Cresol:	< 0.5	< 0.5	< 0.5	< 0.5
Pentachlorophenol:	< 1	< 1	< 1	< 1
Phenol:	< 0.5	< 0.5	< 0.5	< 0.5

ORGANIC ANALYSIS (ATG MISA Groups 19 - 20) - Guelph WRIC/Waste Transfer Station - 2019

Parameter	20B-08 05-Dec-19	21A-08 02-Dec-19	22A-11 04-Dec-19	22B-11 04-Dec-19
<u>MISA Group 19</u>				
Acenaphthene:	< 0.2	< 0.2	< 0.2	< 0.2
5-Nitroacenaphthene:	< 1	< 1	< 1	< 1
Acenaphthylene:	< 0.2	< 0.2	< 0.2	< 0.2
Anthracene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(a)anthracene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(a)Pyrene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(b)Fluoranthene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(g,h,i)perylene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzo(k)Fluoranthene:	< 0.2	< 0.2	< 0.2	< 0.2
Biphenyl:	< 0.5	< 0.5	< 0.5	< 0.5
Camphene:	< 1	< 1	< 1	< 1
1-Chloronaphthalene:	< 1	< 1	< 1	< 1
2-Chloronaphthalene:	< 0.5	< 0.5	< 0.5	< 0.5
Chrysene:	< 0.2	< 0.2	< 0.2	< 0.2
Dibenzo(a,h)Anthracene:	< 0.2	< 0.2	< 0.2	< 0.2
Fluoranthene:	< 0.2	< 0.2	< 0.2	< 0.2
Fluorene:	< 0.2	< 0.2	< 0.2	< 0.2
Indeno(1,2,3-cd)Pyrene:	< 0.2	< 0.2	< 0.2	< 0.2
Indole:	< 1	< 1	< 1	< 1
1-Methylnaphthalene:	< 0.2	< 0.2	< 0.2	< 0.2
2-Methylnaphthalene:	< 0.2	< 0.2	< 0.2	< 0.2
Naphthalene:	< 0.2	< 0.2	< 0.2	< 0.2
Perylene:	< 0.2	< 0.2	< 0.2	< 0.2
Phenanthrene:	< 0.2	< 0.2	< 0.2	< 0.2
Pyrene:	< 0.2	< 0.2	< 0.2	< 0.2
Benzyl Butyl Phthalate:	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-ethylhexyl)Phthalate:	< 2	< 2	< 2	< 2
Di-N-butylPhthalate:	< 2	< 2	< 2	< 2
Di-N-octylPhthalate:	< 0.8	< 0.8	< 0.8	< 0.8
4-Bromophenyl phenyl Ethe	< 0.3	< 0.3	< 0.3	< 0.3
4-Chlorophenyl Phenyl Ethe	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-chloroisopropyl)Ether:	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-Chloroethyl)Ether:	< 0.5	< 0.5	< 0.5	< 0.5
Diphenyl ether:	< 0.3	< 0.3	< 0.3	< 0.3
2,4-Dinitrotoluene:	< 0.5	< 0.5	< 0.5	< 0.5
2,6-Dinitrotoluene:	< 0.5	< 0.5	< 0.5	< 0.5
bis(2-chloroethoxy)Methan	< 0.5	< 0.5	< 0.5	< 0.5
Nitrosodiphenylamine /Diphenylamine:	< 1	< 1	< 1	< 1
N-Nitrosodi-N-propylamine:	< 0.5	< 0.5	< 0.5	< 0.5
<u>MISA Group 20</u>				
2,3,4,5-Tetrachlorophenol:	< 0.4	< 0.4	< 0.4	< 0.4
2,3,4,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,4-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,6-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dinitrophenol:	< 2	< 2	< 2	< 2
2,4-Dimethylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
2,6-Dichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
4,6-Dinitro-o-Cresol:	< 0.3	< 0.3	< 0.3	< 0.3
2-Chlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloro-3-methylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
4-Nitrophenol:	< 1.4	< 1.4	< 1.4	< 1.4
o-Cresol:	< 0.5	< 0.5	< 0.5	< 0.5
m-,p-Cresol:	< 0.5	< 0.5	< 0.5	< 0.5
Pentachlorophenol:	< 1	< 1	< 1	< 1
Phenol:	< 0.5	< 0.5	< 0.5	< 0.5

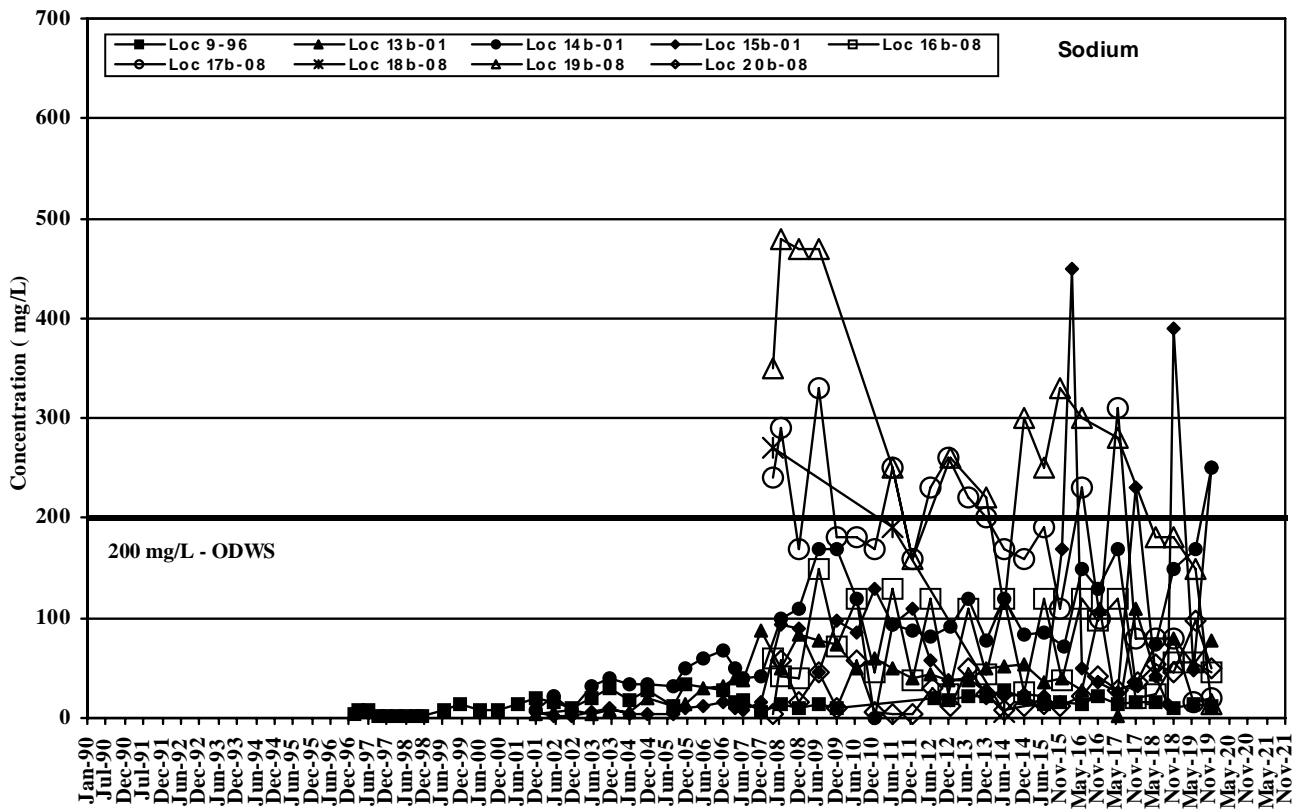
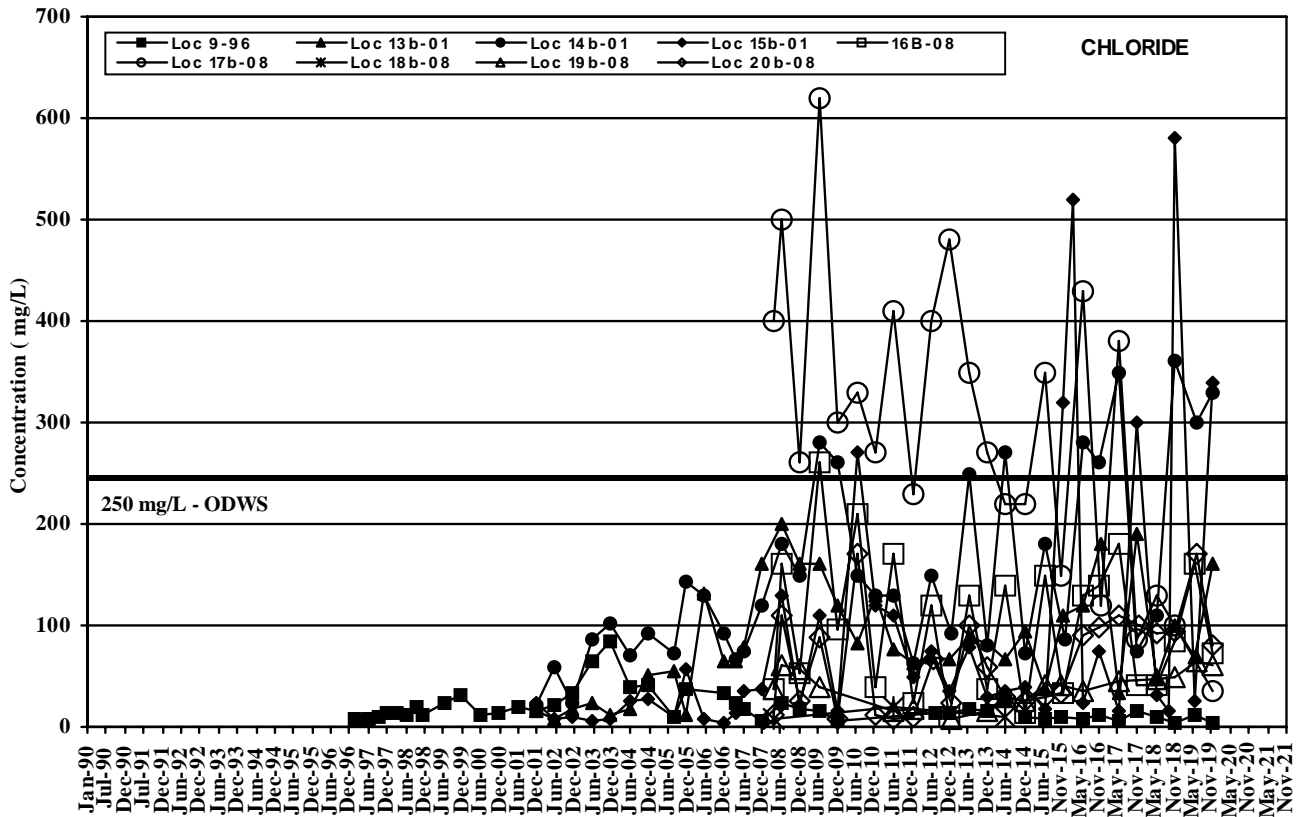
ORGANIC ANALYSIS (ATG MISA Groups 19 - 20) - Guelph WRIC/Waste Transfer Station - 2019

Parameter	23A-12 05-Dec-19	23B-12 05-Dec-19
<u>MISA Group 19</u>		
Acenaphthene:	< 0.2	< 0.2
5-Nitroacenaphthene:	< 1	< 1
Acenaphthylene:	< 0.2	< 0.2
Anthracene:	< 0.2	< 0.2
Benzo(a)anthracene:	< 0.2	< 0.2
Benzo(a)Pyrene:	< 0.2	< 0.2
Benzo(b)Fluoranthene:	< 0.2	< 0.2
Benzo(g,h,i)perylene:	< 0.2	< 0.2
Benzo(k)Fluoranthene:	< 0.2	< 0.2
Biphenyl:	< 0.5	< 0.5
Camphene:	< 1	< 1
1-Chloronaphthalene:	< 1	< 1
2-Chloronaphthalene:	< 0.5	< 0.5
Chrysene:	< 0.2	< 0.2
Dibenzo(a,h)Anthracene:	< 0.2	< 0.2
Fluoranthene:	< 0.2	< 0.2
Fluorene:	< 0.2	< 0.2
Indeno(1,2,3-cd)Pyrene:	< 0.2	< 0.2
Indole:	< 1	< 1
1-Methylnaphthalene:	< 0.2	< 0.2
2-Methylnaphthalene:	< 0.2	< 0.2
Naphthalene:	< 0.2	< 0.2
Perylene:	< 0.2	< 0.2
Phenanthrene:	< 0.2	< 0.2
Pyrene:	< 0.2	< 0.2
Benzyl Butyl Phthalate:	< 0.5	< 0.5
bis(2-ethylhexyl)Phthalate:	< 2	< 2
Di-N-butylPhthalate:	< 2	< 2
Di-N-octylPhthalate:	< 0.8	< 0.8
4-Bromophenyl phenyl Ethe	< 0.3	< 0.3
4-Chlorophenyl Phenyl Ethe	< 0.5	< 0.5
bis(2-chloroisopropyl)Ether:	< 0.5	< 0.5
bis(2-Chloroethyl)Ether:	< 0.5	< 0.5
Diphenyl ether:	< 0.3	< 0.3
2,4-Dinitrotoluene:	< 0.5	< 0.5
2,6-Dinitrotoluene:	< 0.5	< 0.5
bis(2-chloroethoxy)Methan	< 0.5	< 0.5
Nitrosodiphenylamine /Diphenylamine:	< 1	< 1
N-Nitrosodi-N-propylamine:	< 0.5	< 0.5
<u>MISA Group 20</u>		
2,3,4,5-Tetrachlorophenol:	< 0.4	< 0.4
2,3,4,6-Tetrachlorophenol:	< 0.5	< 0.5
2,3,5,6-Tetrachlorophenol:	< 0.5	< 0.5
2,3,4-Trichlorophenol:	< 0.5	< 0.5
2,3,5-Trichlorophenol:	< 0.5	< 0.5
2,4,5-Trichlorophenol:	< 0.5	< 0.5
2,4,6-Trichlorophenol:	< 0.5	< 0.5
2,4-Dinitrophenol:	< 2	< 2
2,4-Dimethylphenol:	< 0.5	< 0.5
2,4-Dichlorophenol:	< 0.3	< 0.3
2,6-Dichlorophenol:	< 0.5	< 0.5
4,6-Dinitro-o-Cresol:		
2-Chlorophenol:	< 0.3	< 0.3
4-Chloro-3-methylphenol:	< 0.5	< 0.5
4-Nitrophenol:	< 1.4	< 1.4
o-Cresol:	< 0.5	< 0.5
m-,p-Cresol:	< 0.5	< 0.5
Pentachlorophenol:	< 1	< 1
Phenol:	< 0.5	< 0.5



Guelph WRIC & Waste Transfer Station
Ground Water Chemistry Trends
Overburden Locations on Wet/Dry Facility

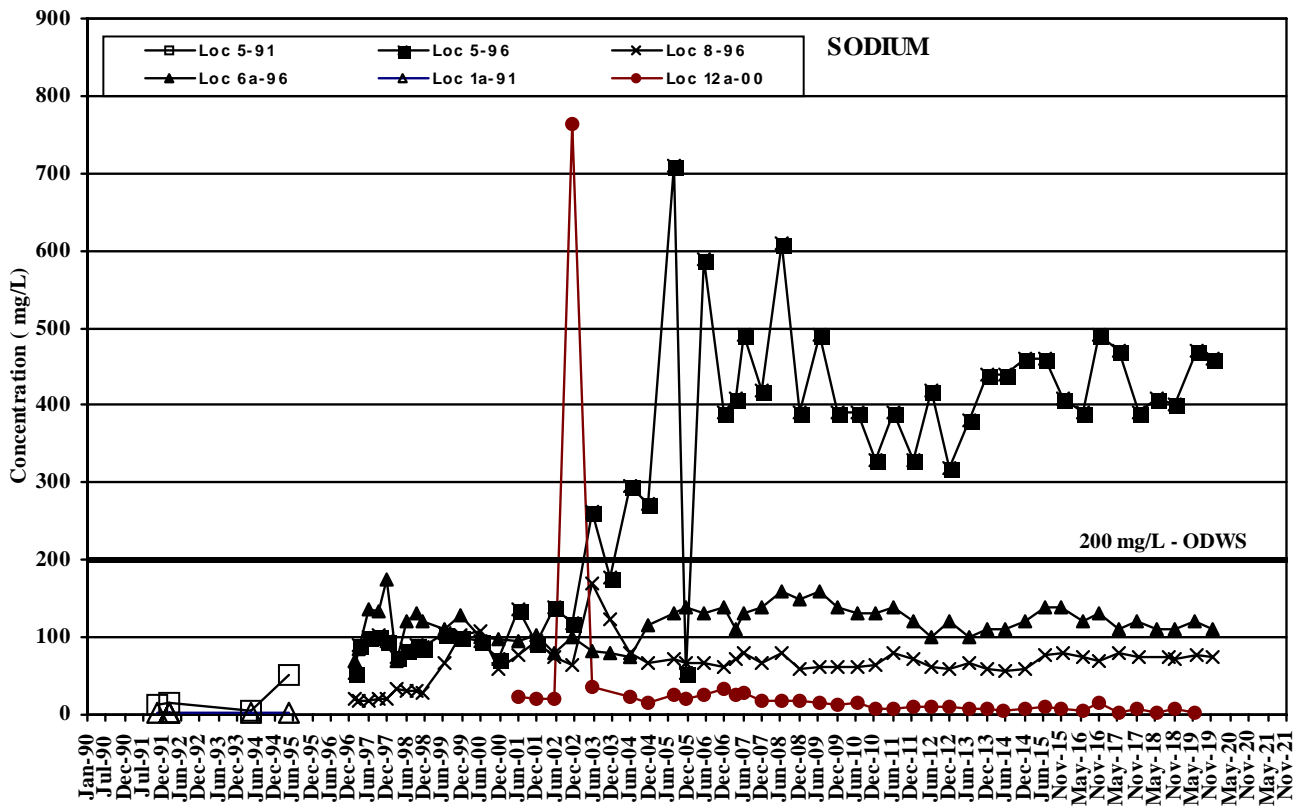
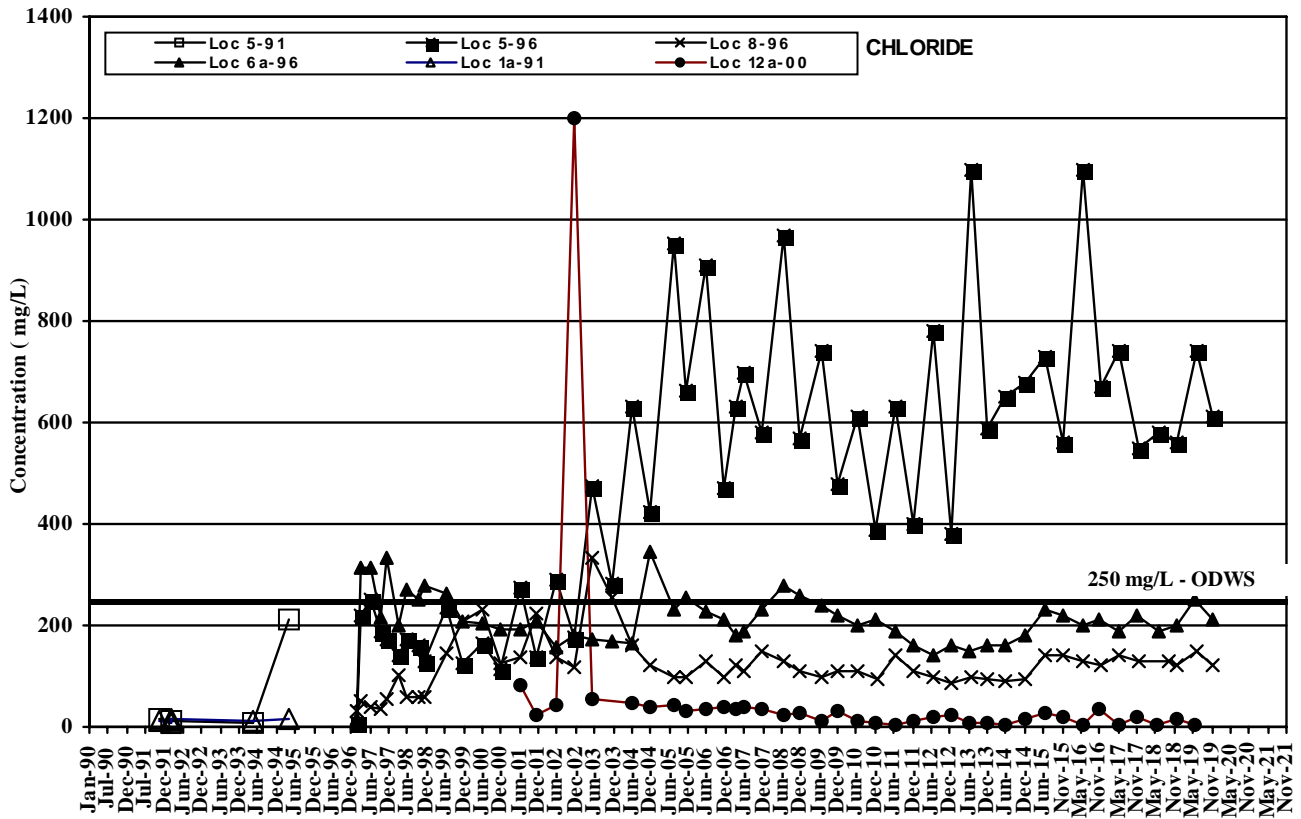
FIGURE
B1



Guelph WRIC & Waste Transfer Station
Ground Water Chemistry Trends
Overburden Locations East of Wet/Dry or
Transfer Station Property

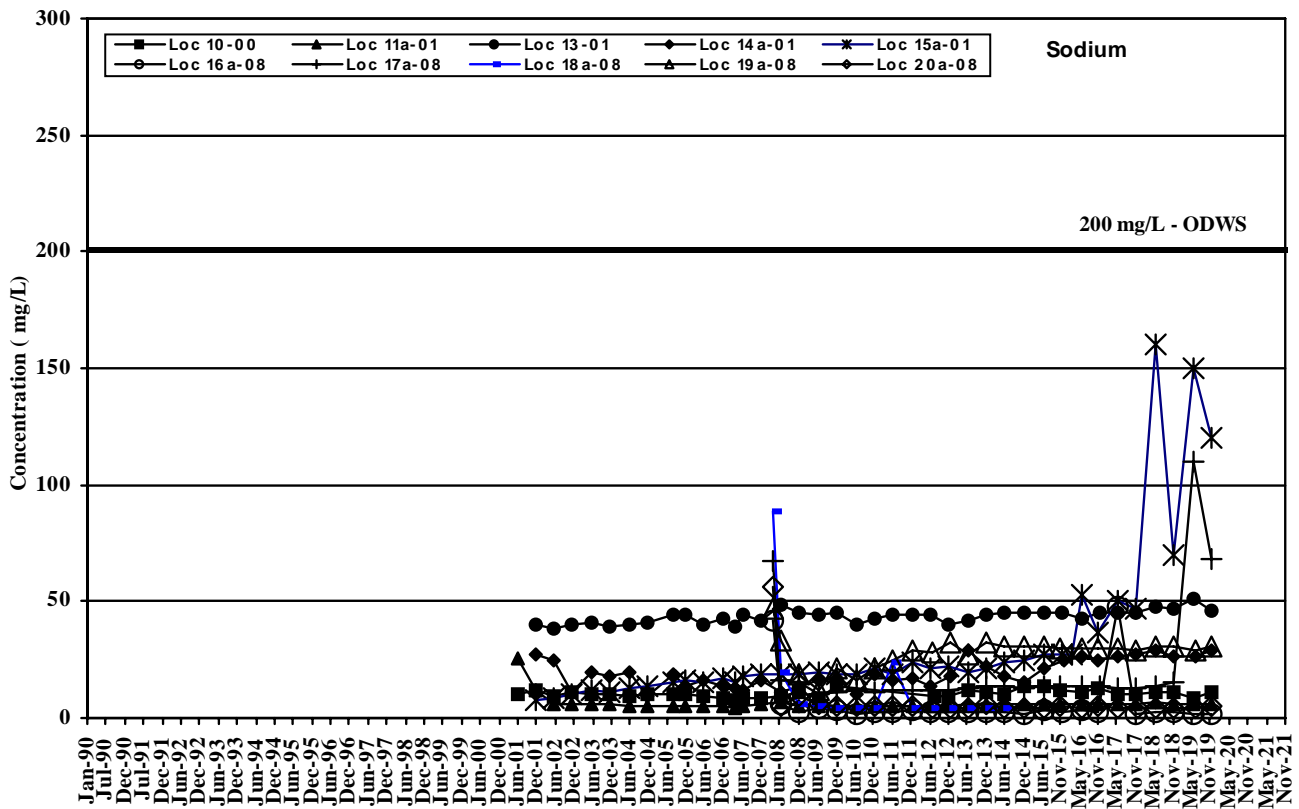
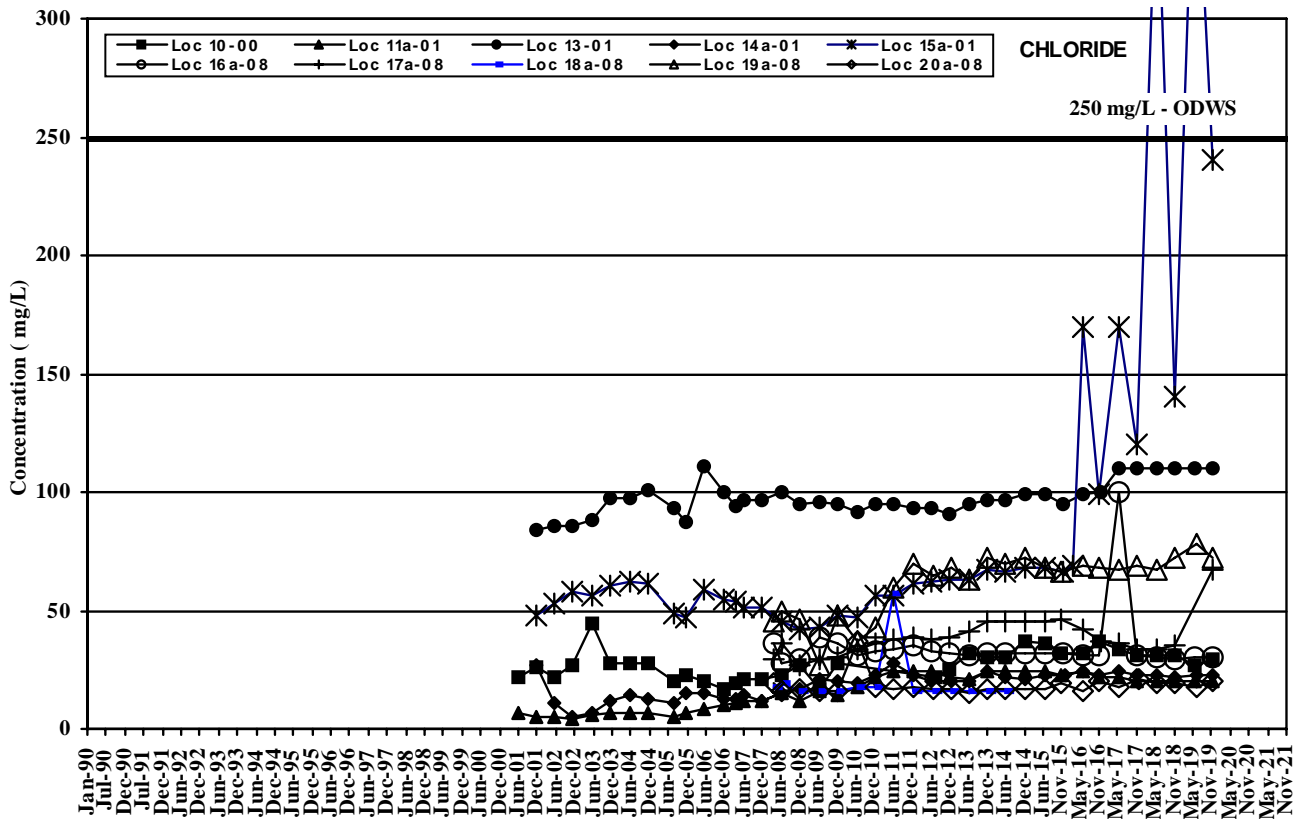
FIGURE
B2

12 Cl-NA Location EastOB



Guelph WRIC & Waste Transfer Station
Ground Water Chemistry Trends
Bedrock Locations West or on Wet/Dry Facility

FIGURE
B3



Guelph WRIC & Waste Transfer Station

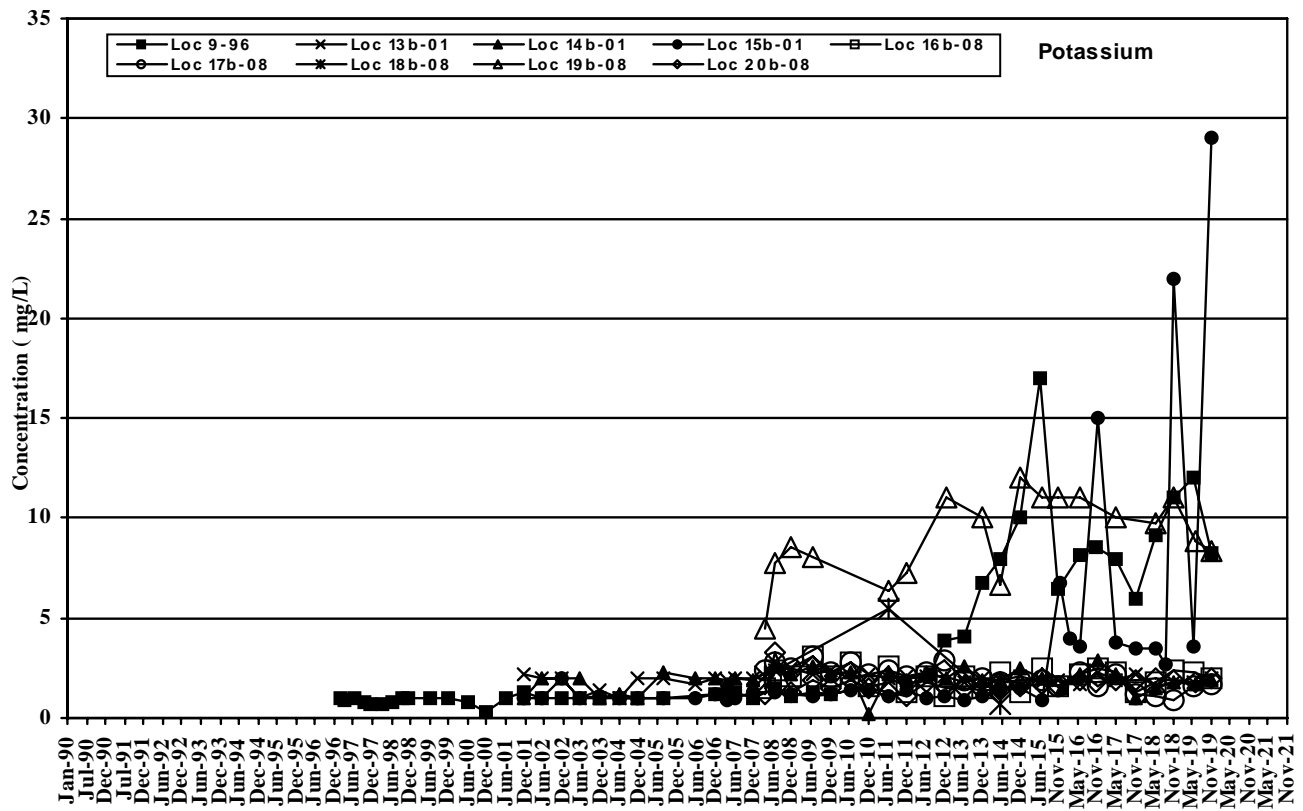
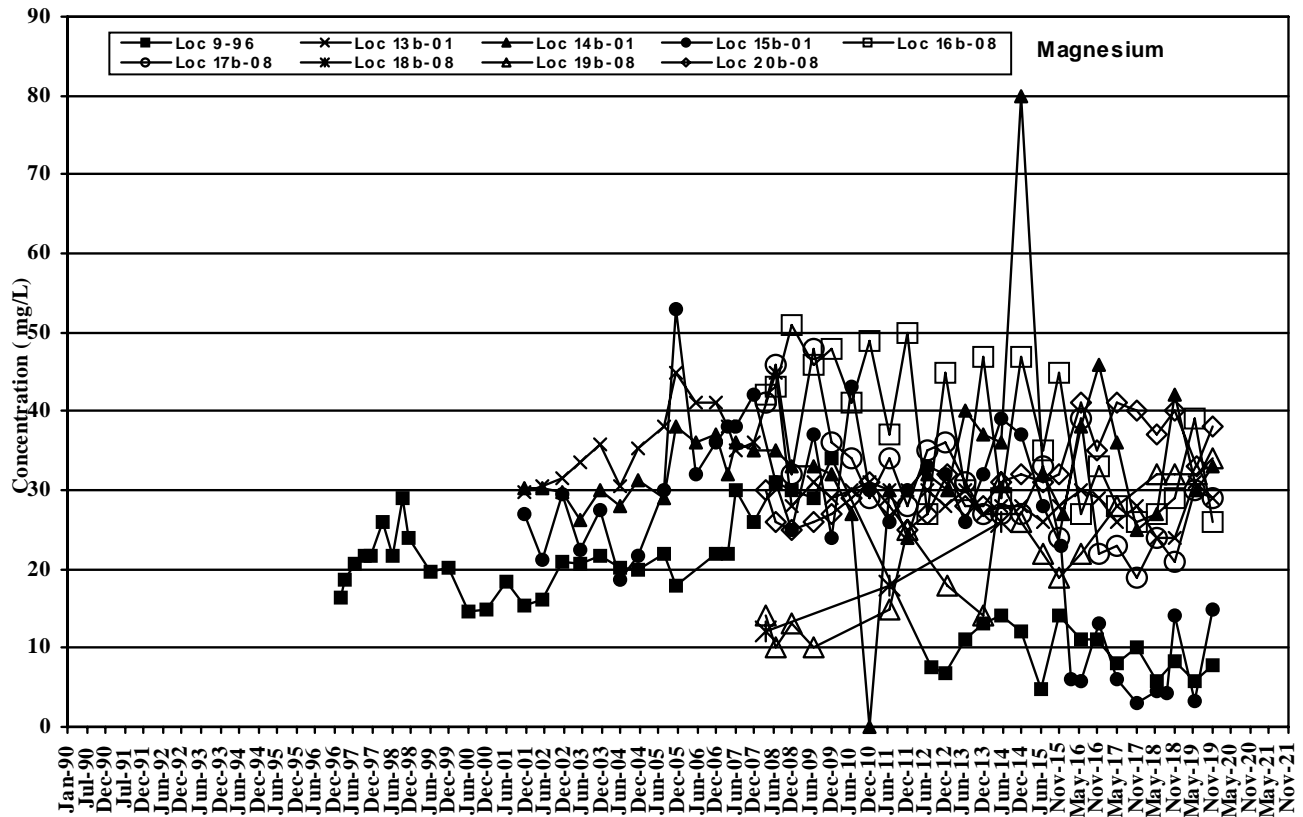
Ground Water Chemistry Trends

Bedrock Locations East of Wet/Dry or on Transfer Station Property

FIGURE

B4

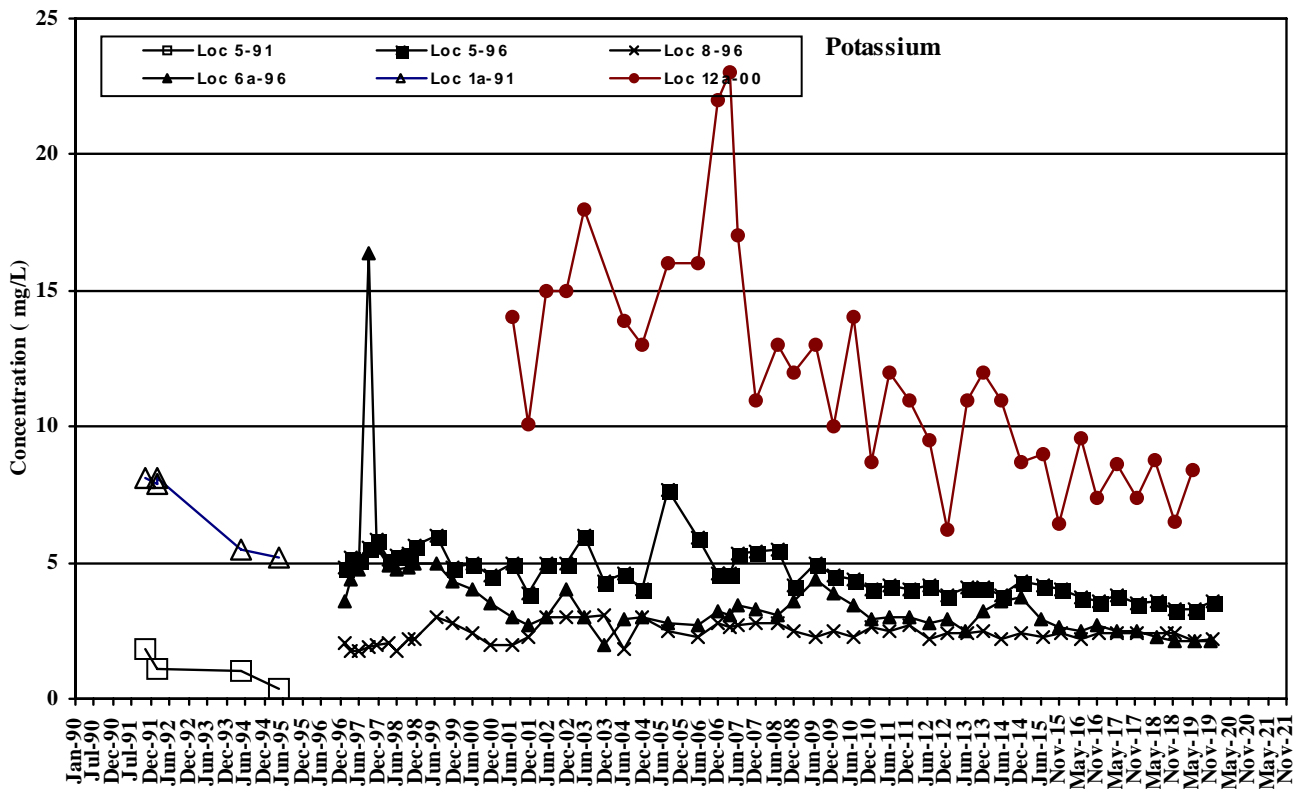
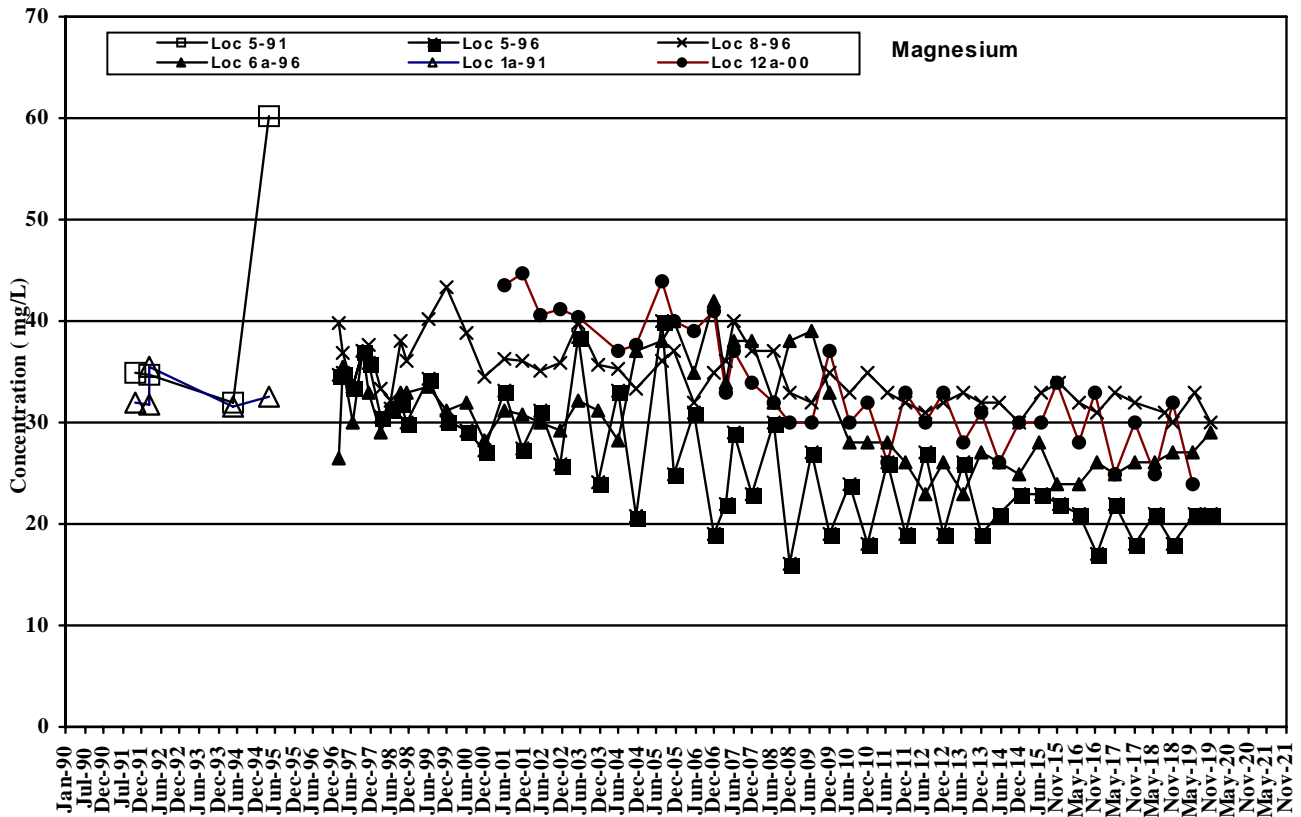
12 Cl-NA Location EastBed



Guelph WRIC & Waste Transfer Station
Ground Water Chemistry Trends
Overburden Locations East of Wet/Dry or
Transfer Station Property

FIGURE
B6

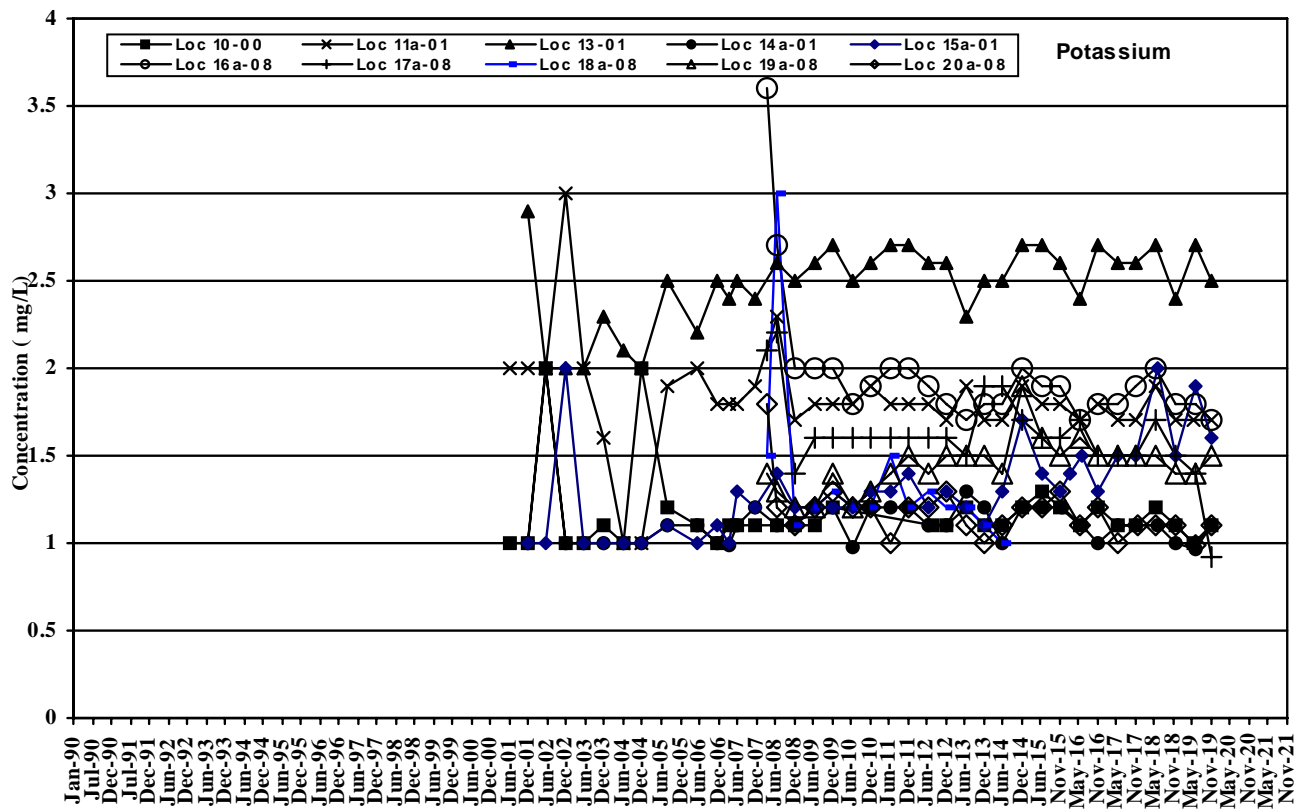
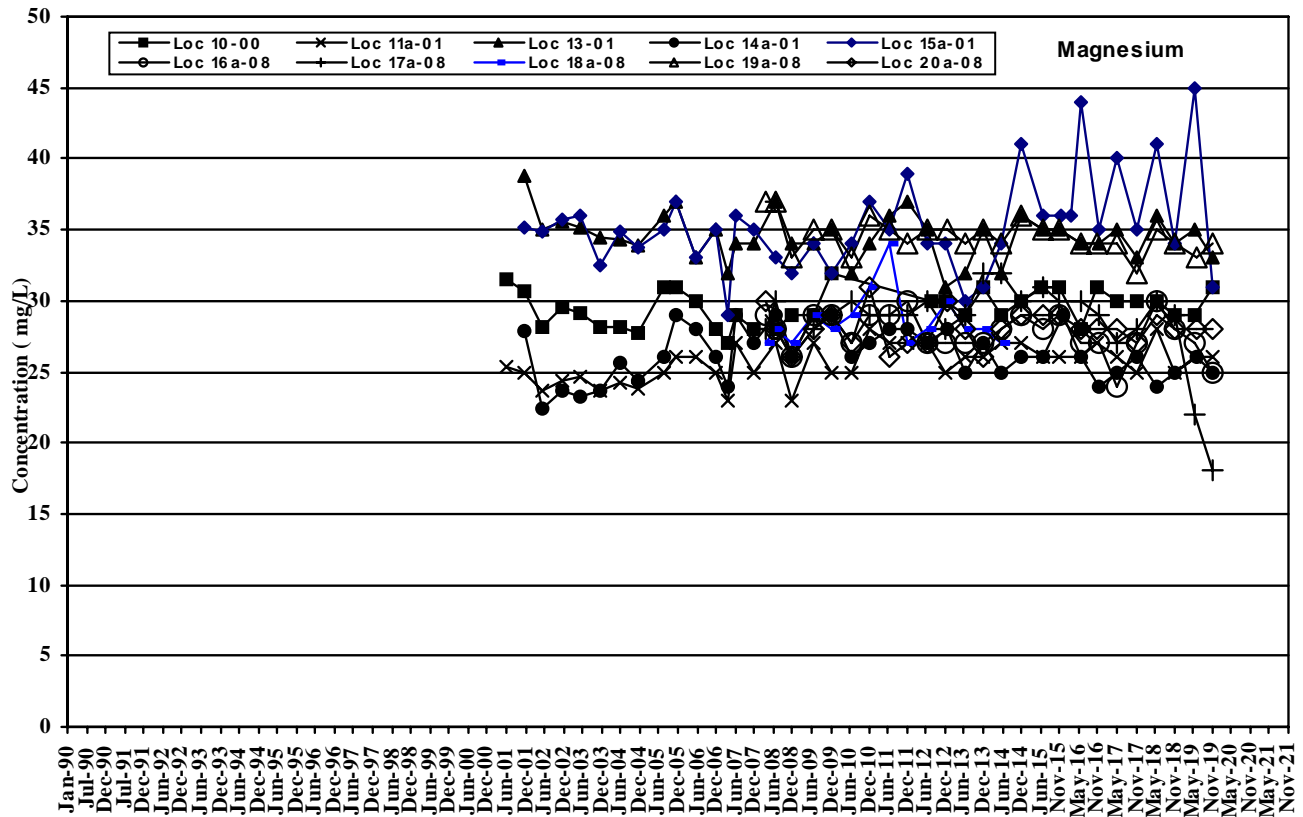
12 Mg-K Location EastOB



Guelph WRIC & Waste Transfer Station
Ground Water Chemistry Trends
Bedrock Locations West or on Wet/Dry Facility

FIGURE
B7

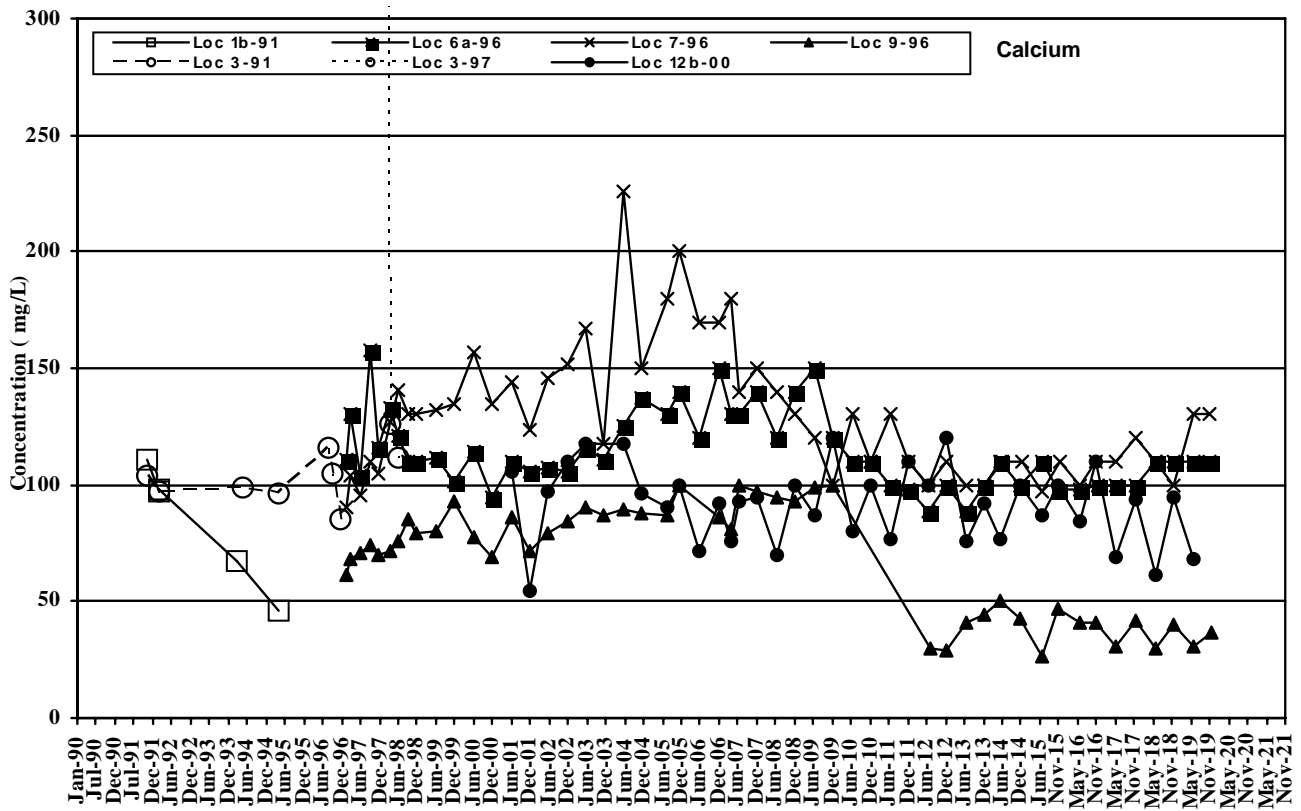
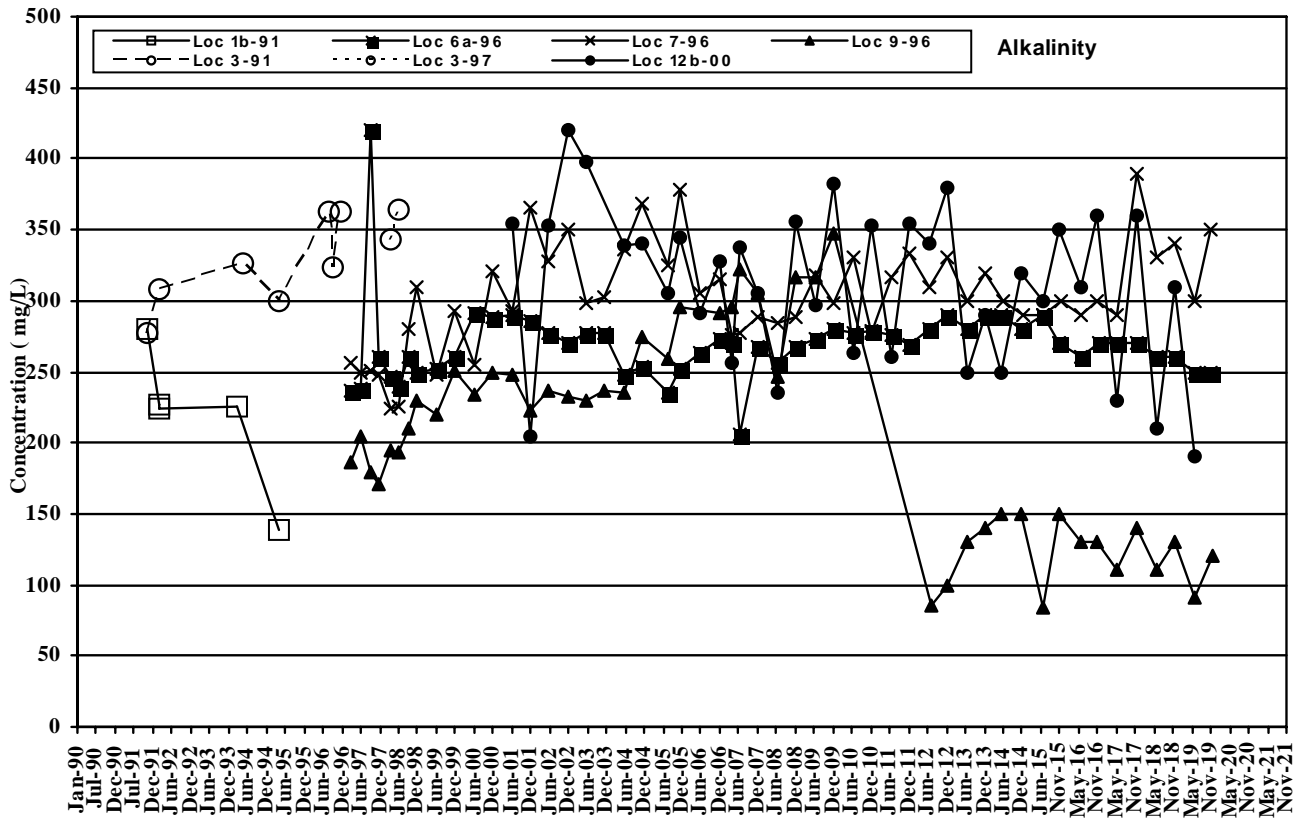
12 Mg-K Location WestBed



Guelph WRIC & Waste Transfer Station
Ground Water Chemistry Trends
Bedrock Locations East of Wet/Dry or on Transfer
Station Property

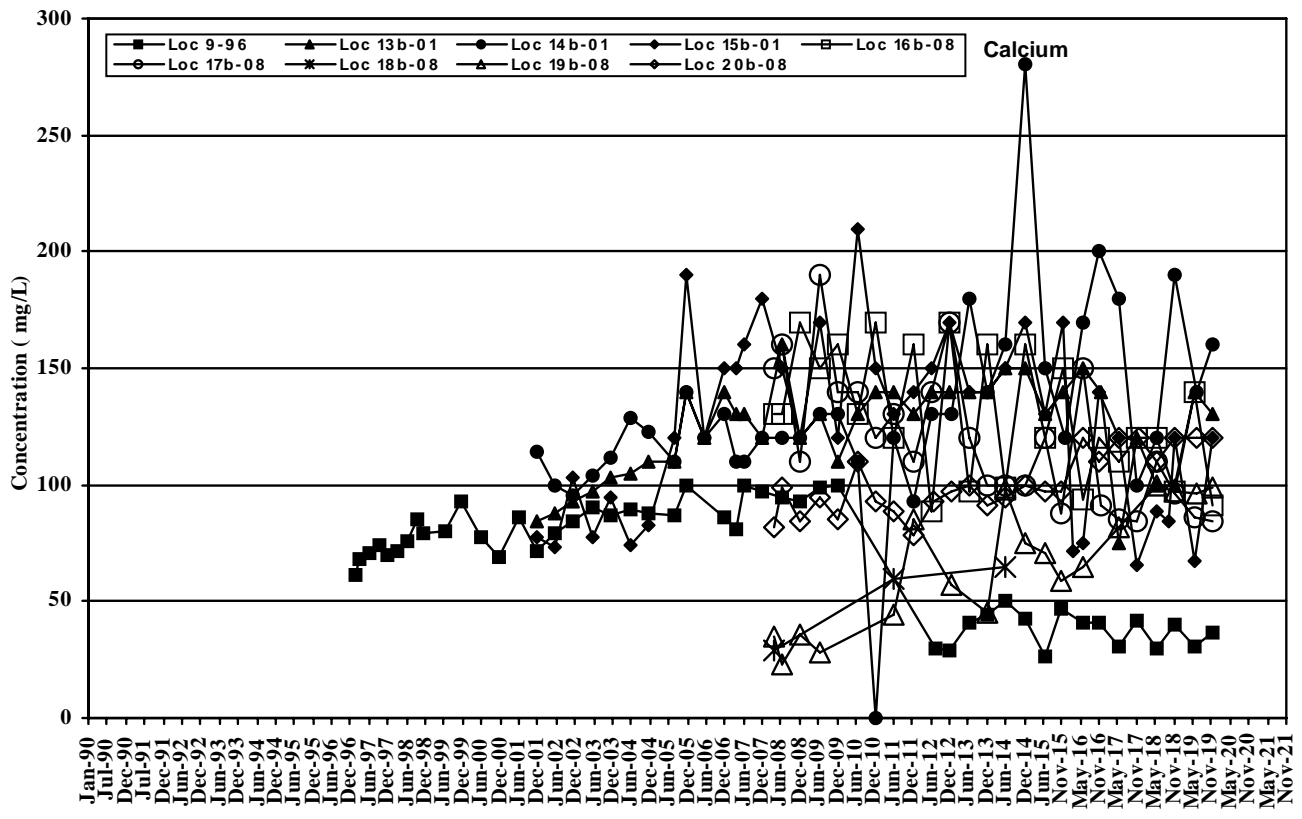
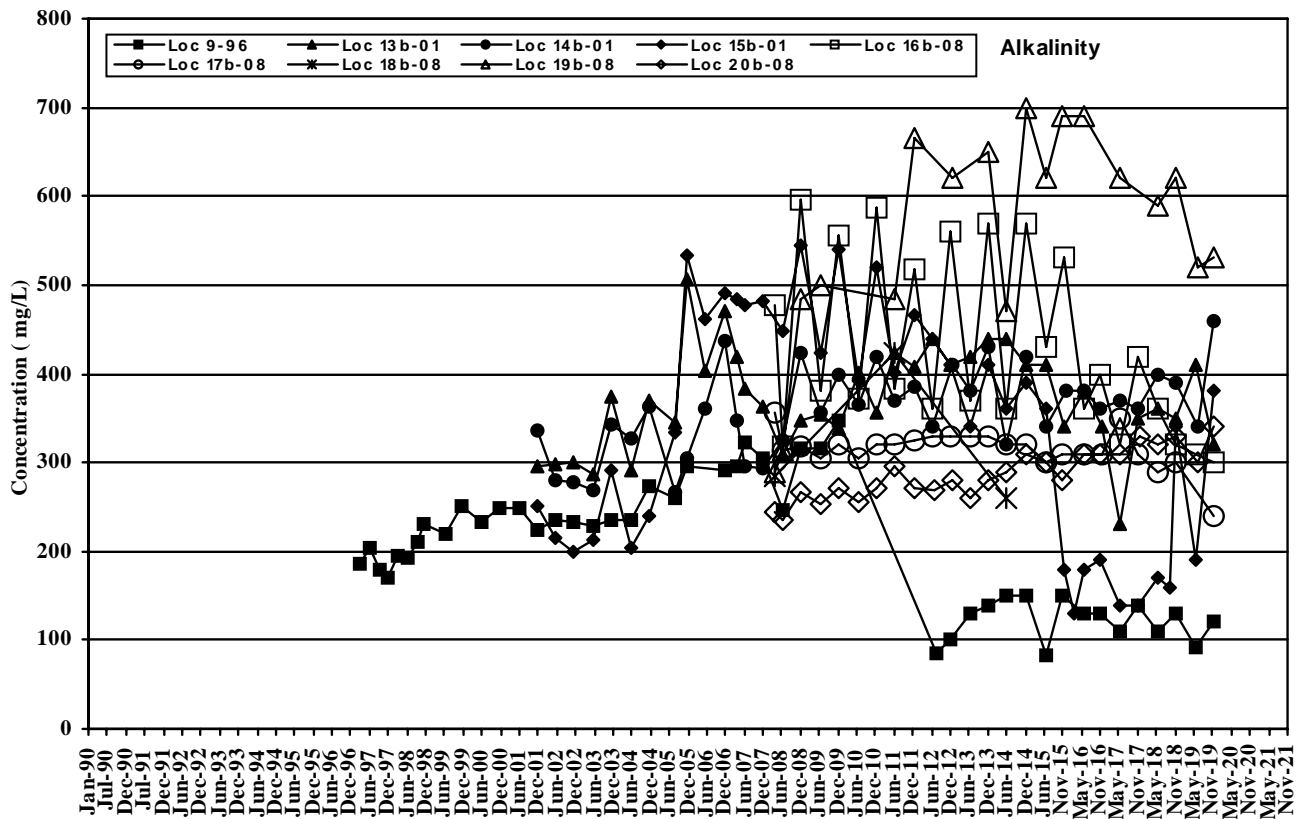
FIGURE
B8

12 Mg-K Location EastBed



Guelph WRIC & Waste Transfer Station
Ground Water Chemistry Trends
Overburden Locations on Wet/Dry Facility

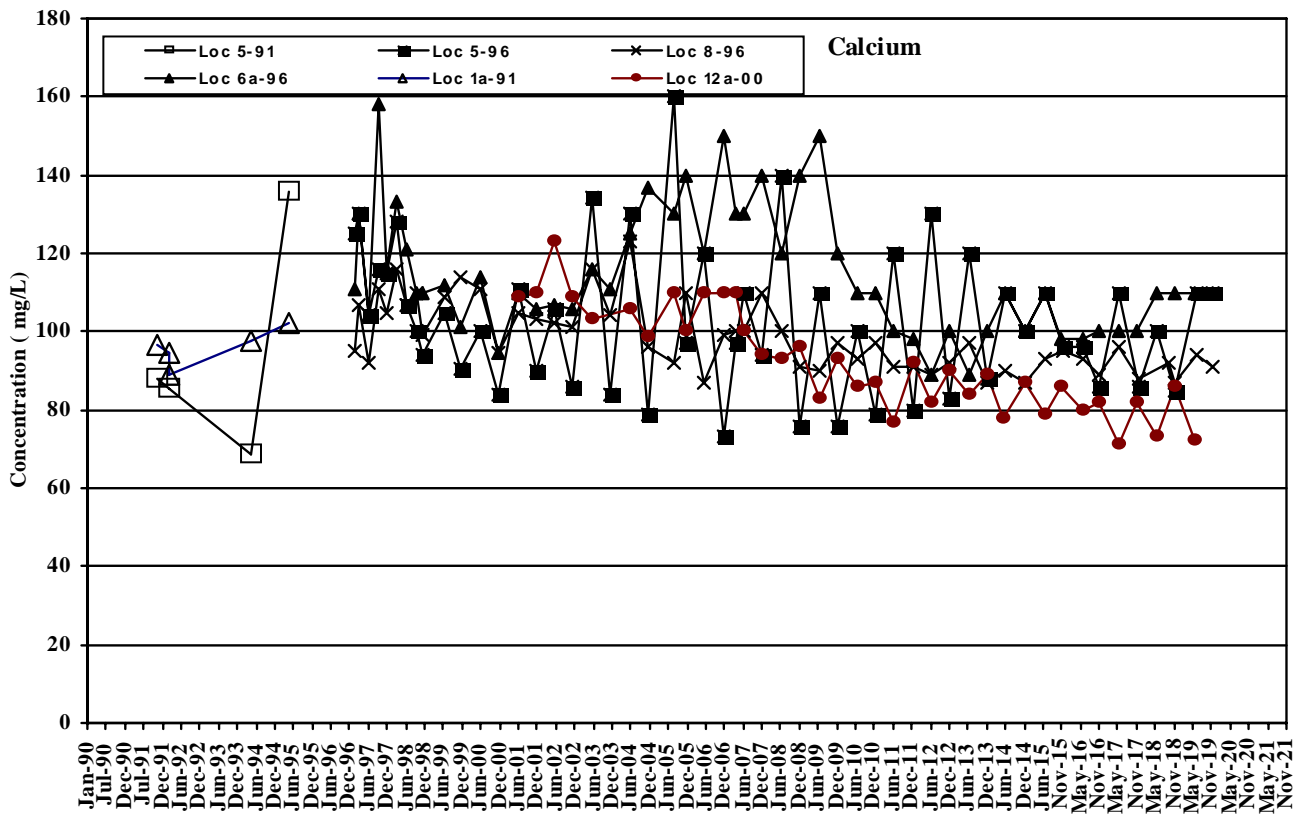
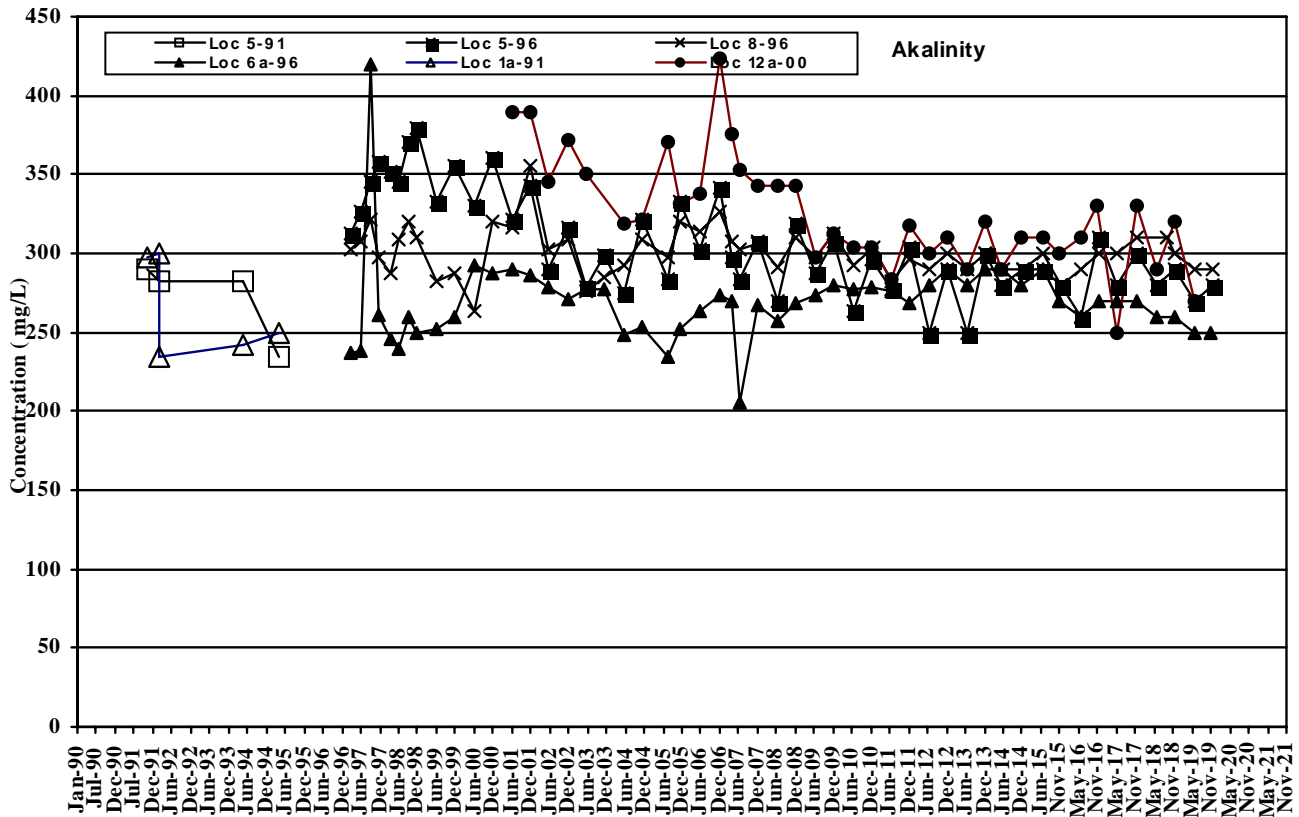
FIGURE
B9



**Guelph WRIC & Waste Transfer Station
Ground Water Chemistry Trends
Overburden Locations East of Wet/Dry or
Transfer Station Property**

**FIGURE
B10**

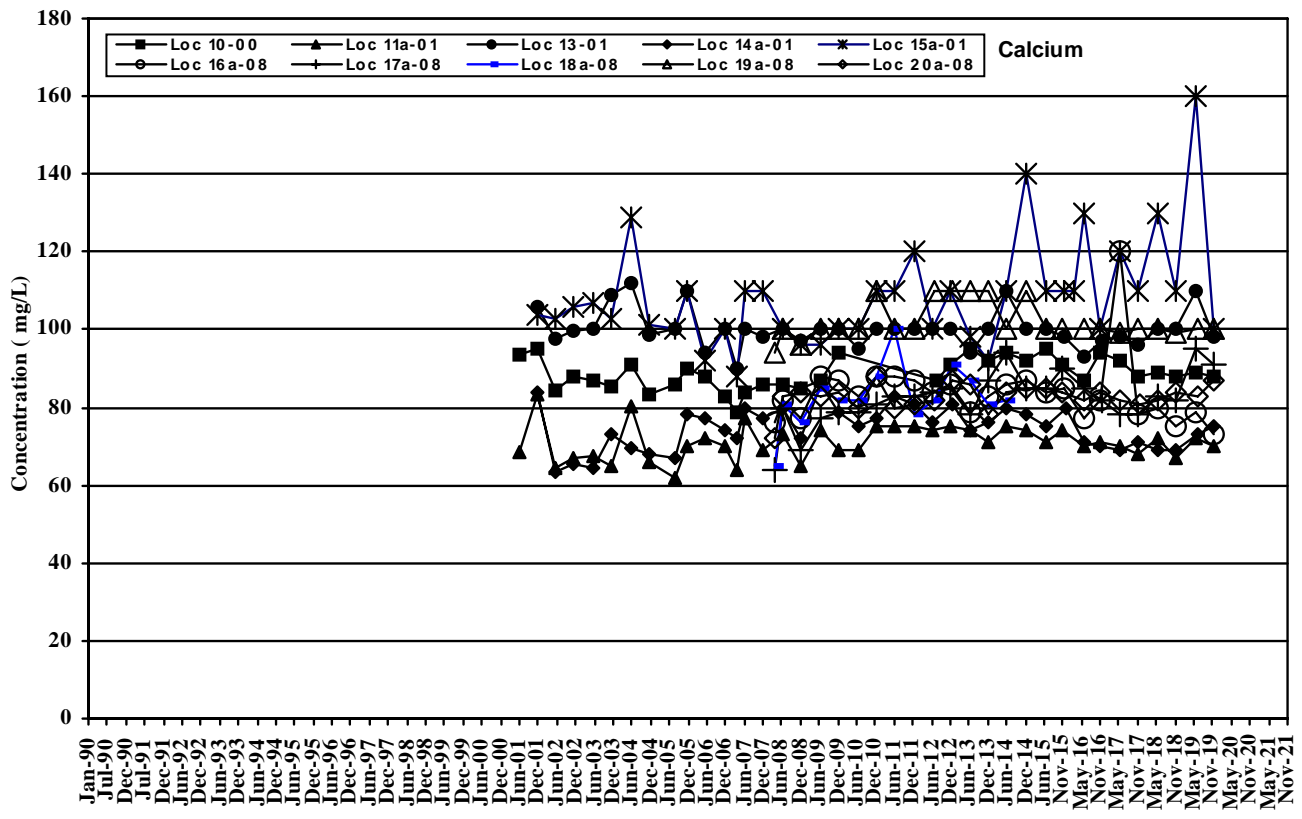
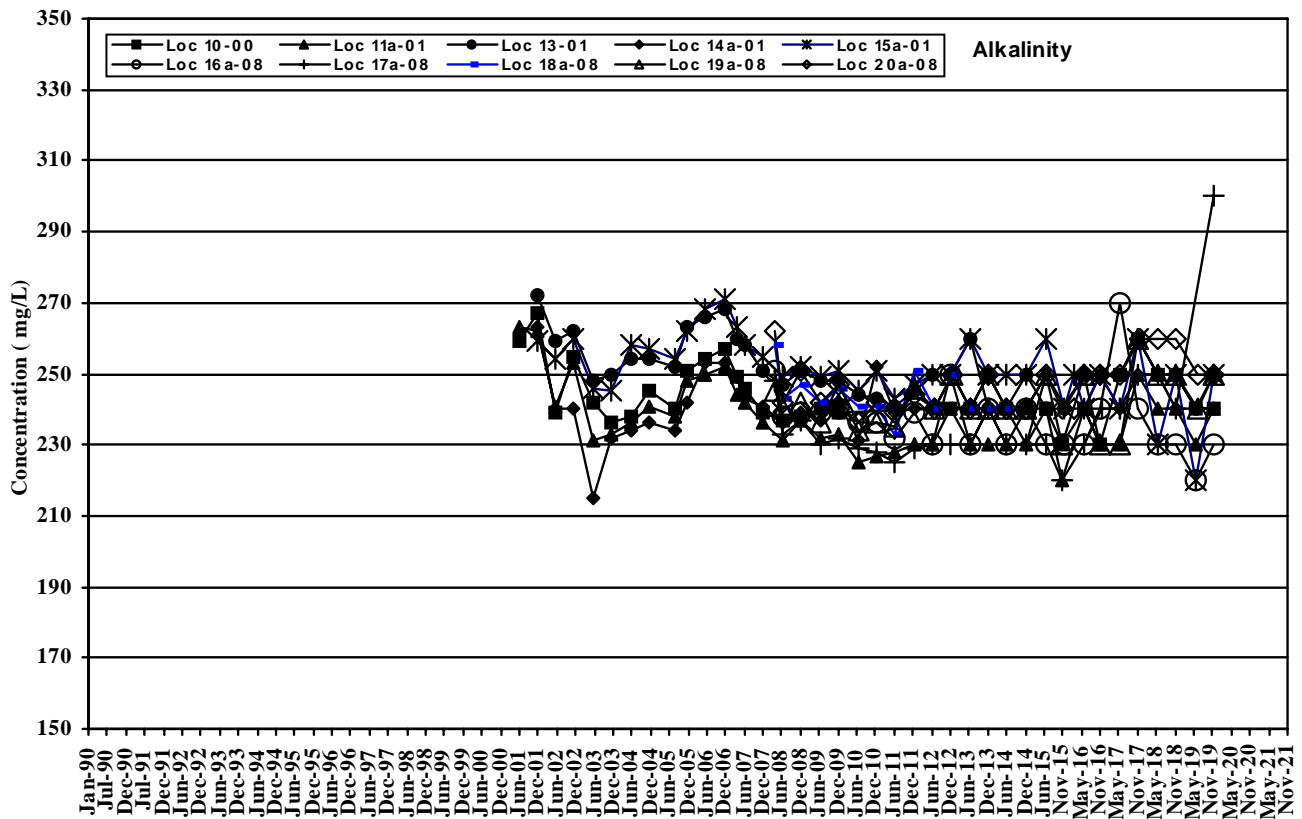
12 Alk-Ca Location EastOB



Guelph WRIC & Waste Transfer Station
Ground Water Chemistry Trends
Bedrock Locations West or on Wet/Dry Facility

FIGURE
B11

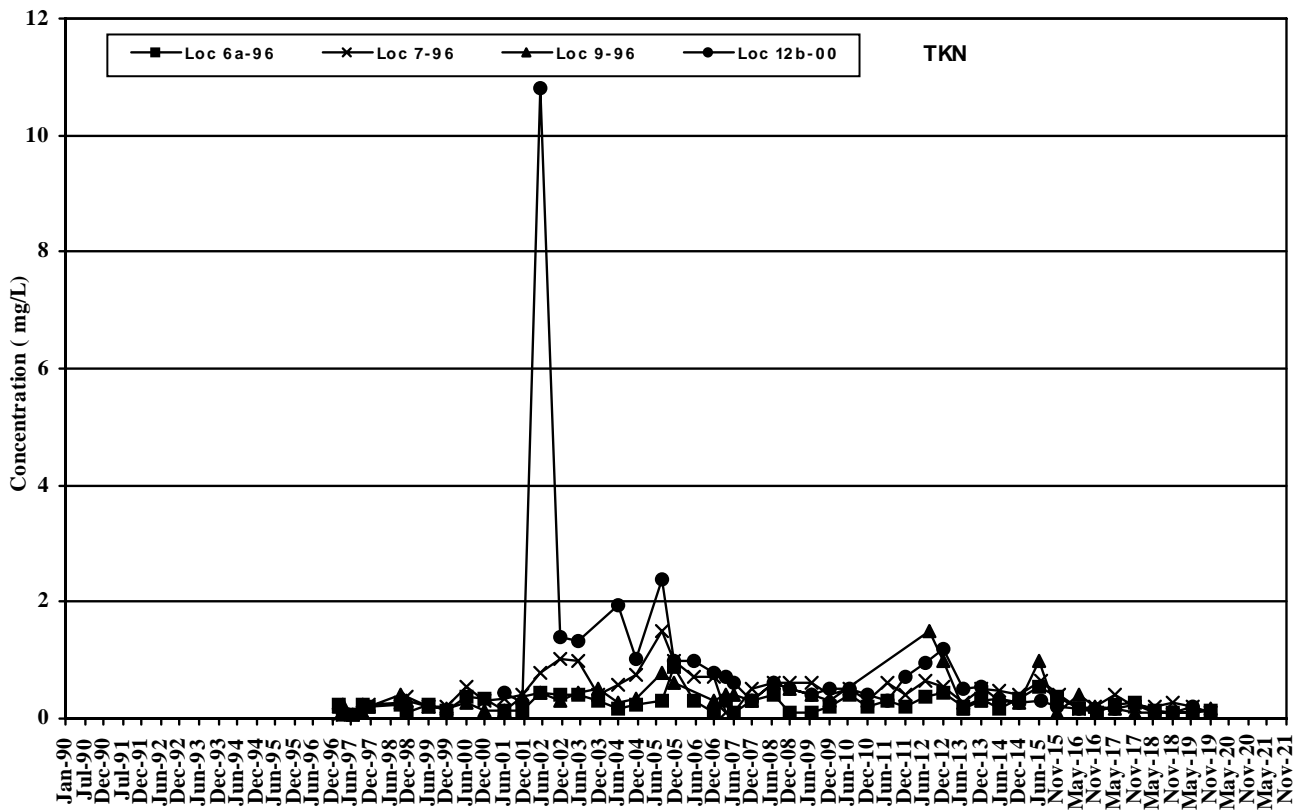
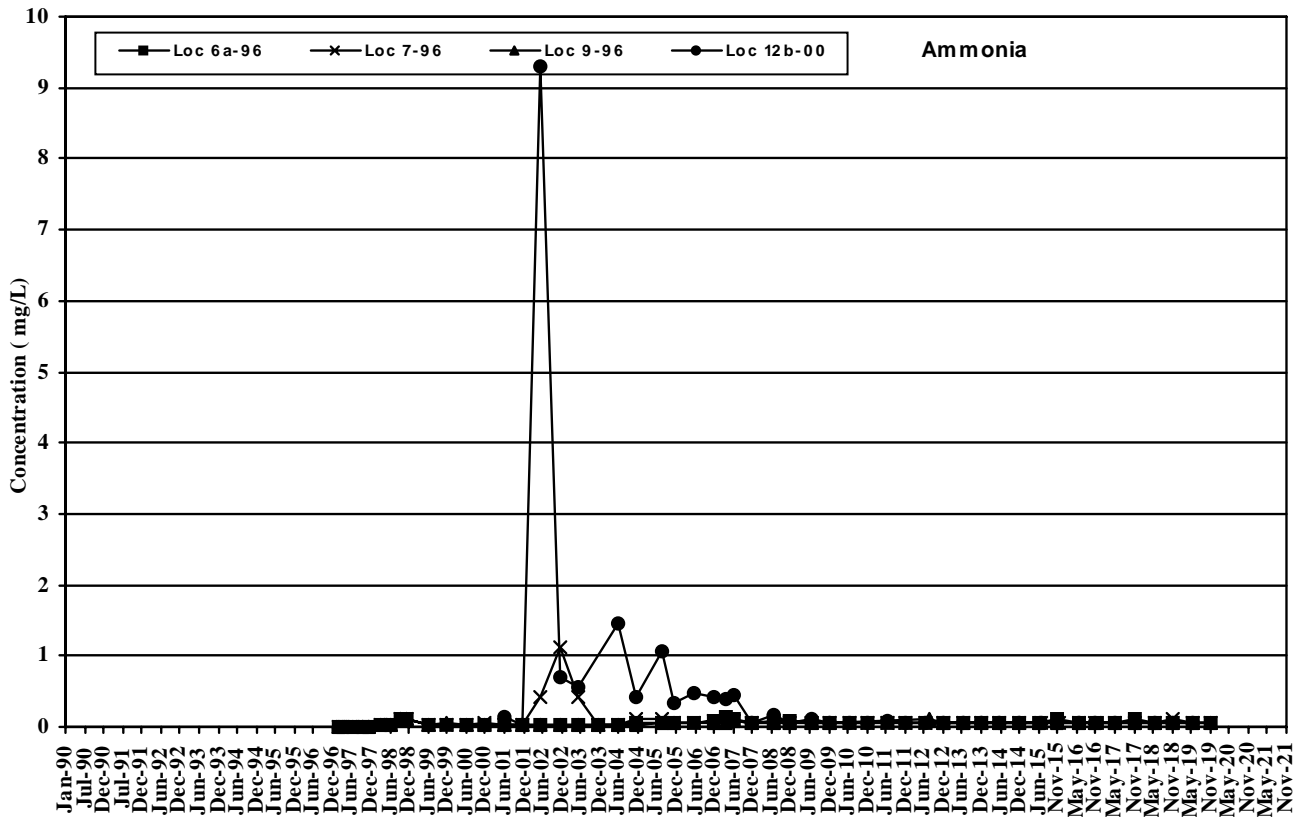
12 Alk-Ca Location WestBed



Guelph WRIC & Waste Transfer Station
Ground Water Chemistry Trends
Bedrock Locations East of Wet/Dry or on
Transfer Station Property

FIGURE
B12

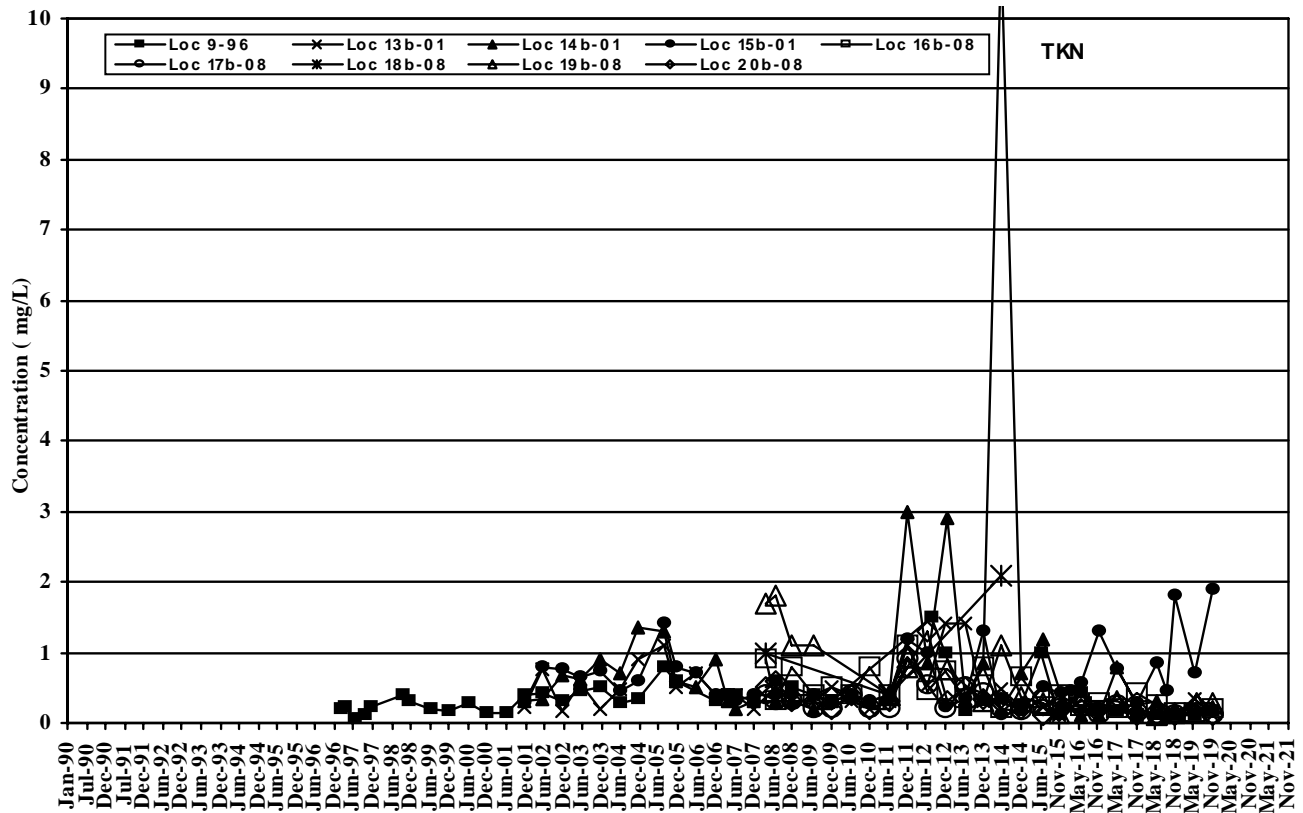
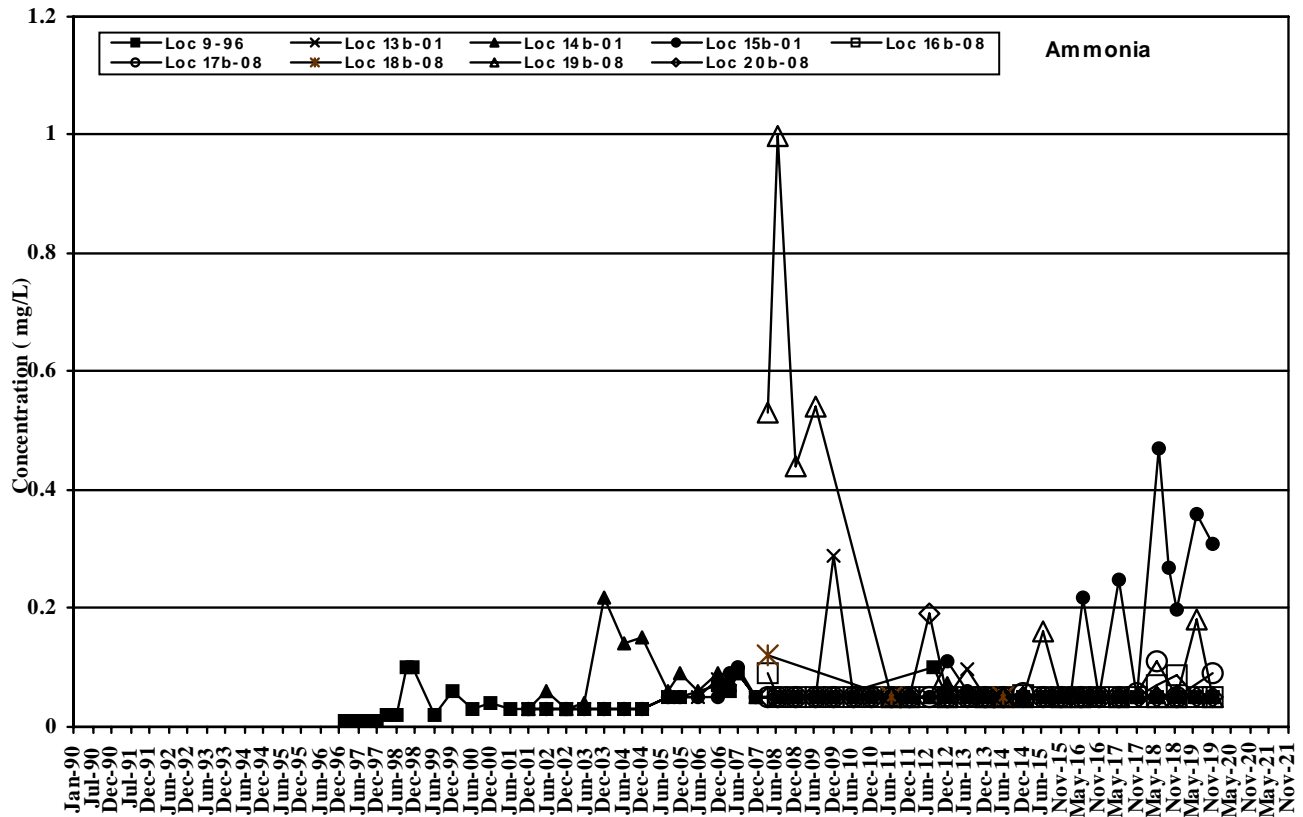
12 Alk-Ca Location EastBed



Guelph WRIC & Waste Transfer Station
Ground Water Chemistry Trends
Overburden Locations on Wet/Dry Facility

FIGURE
B13

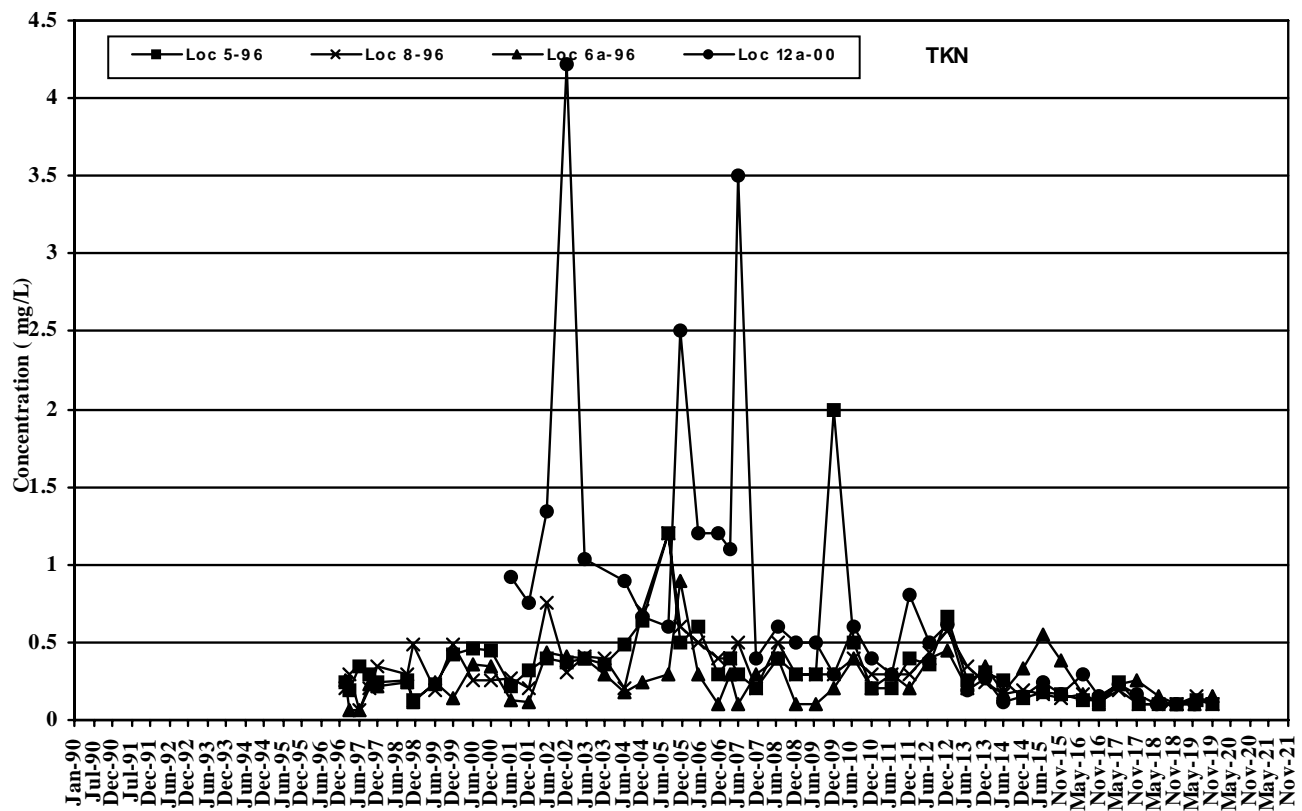
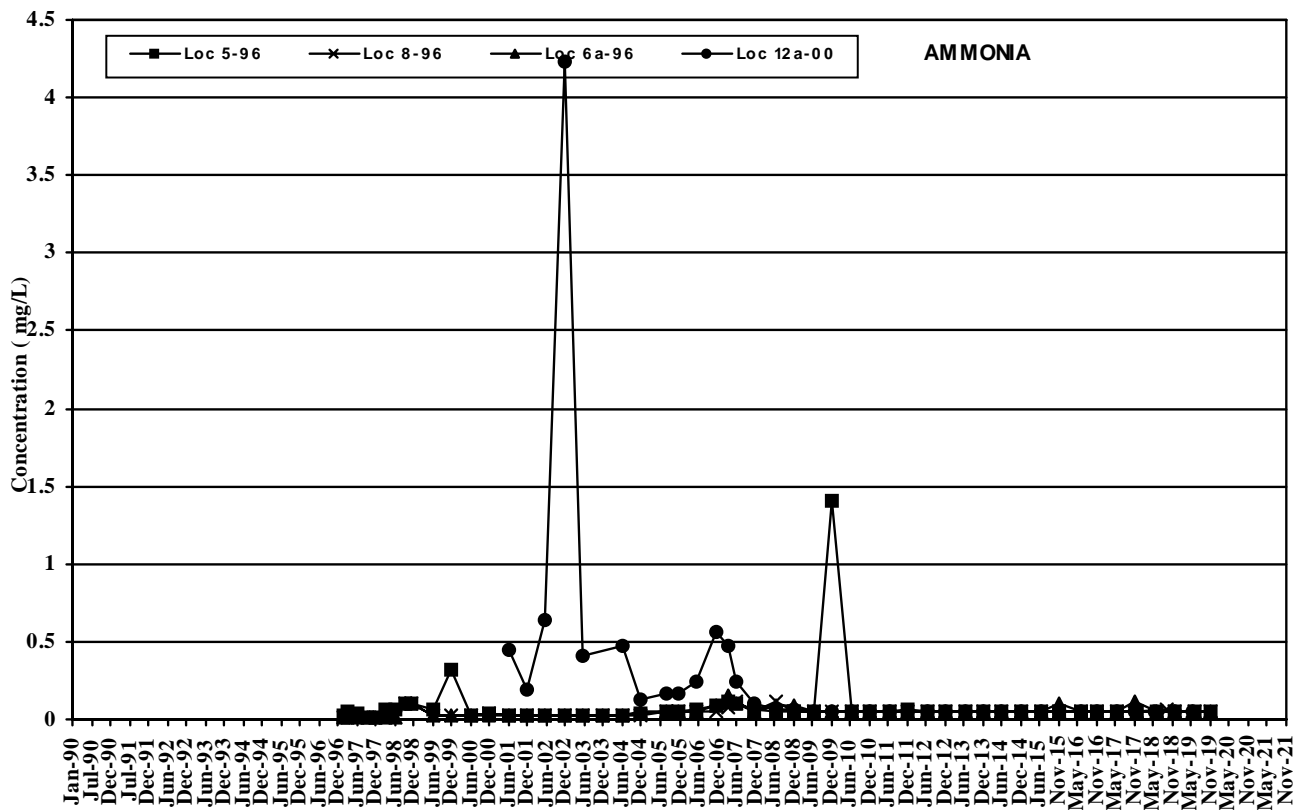
12 NH3-TKN Location WestOB



Guelph WRIC & Waste Transfer Station
Ground Water Chemistry Trends
Overburden Locations East of Wet/Dry or
Transfer Station Property

FIGURE
B14

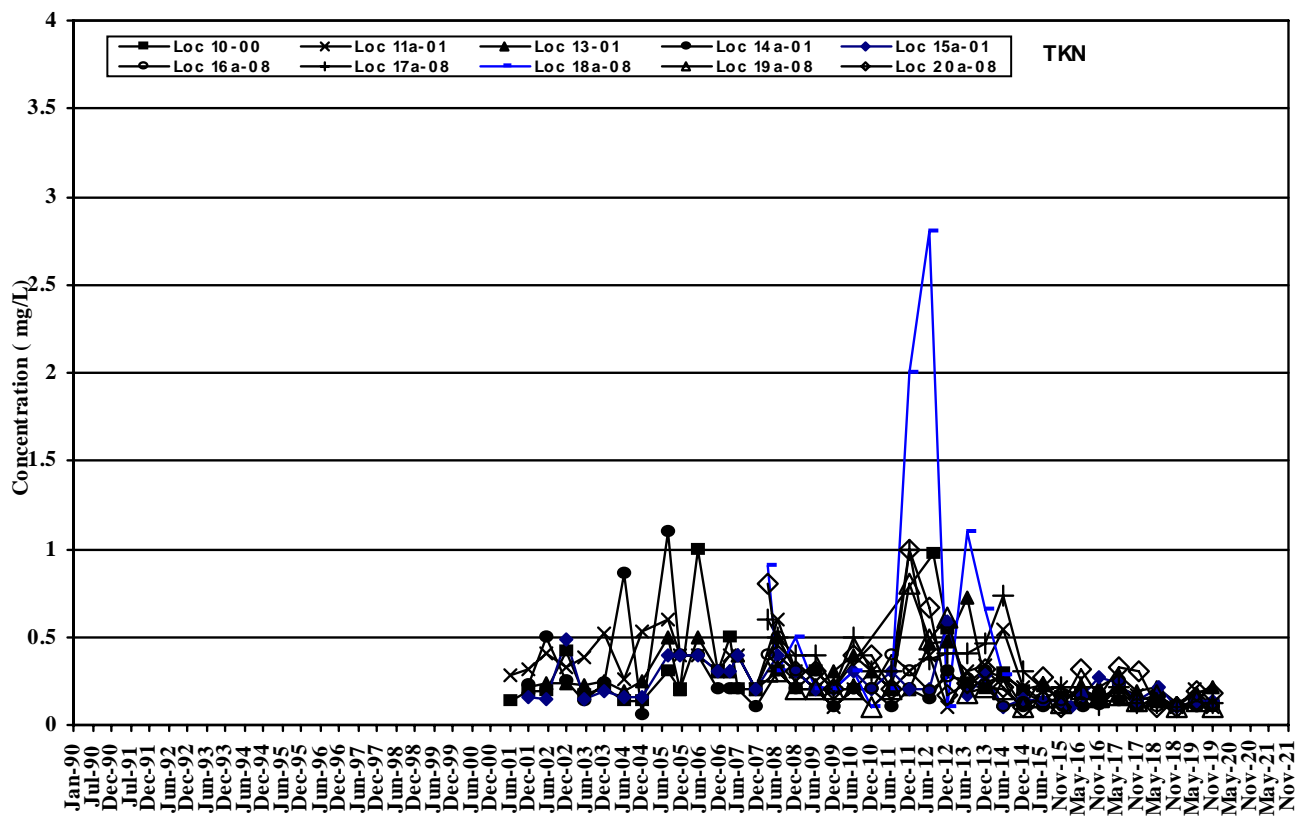
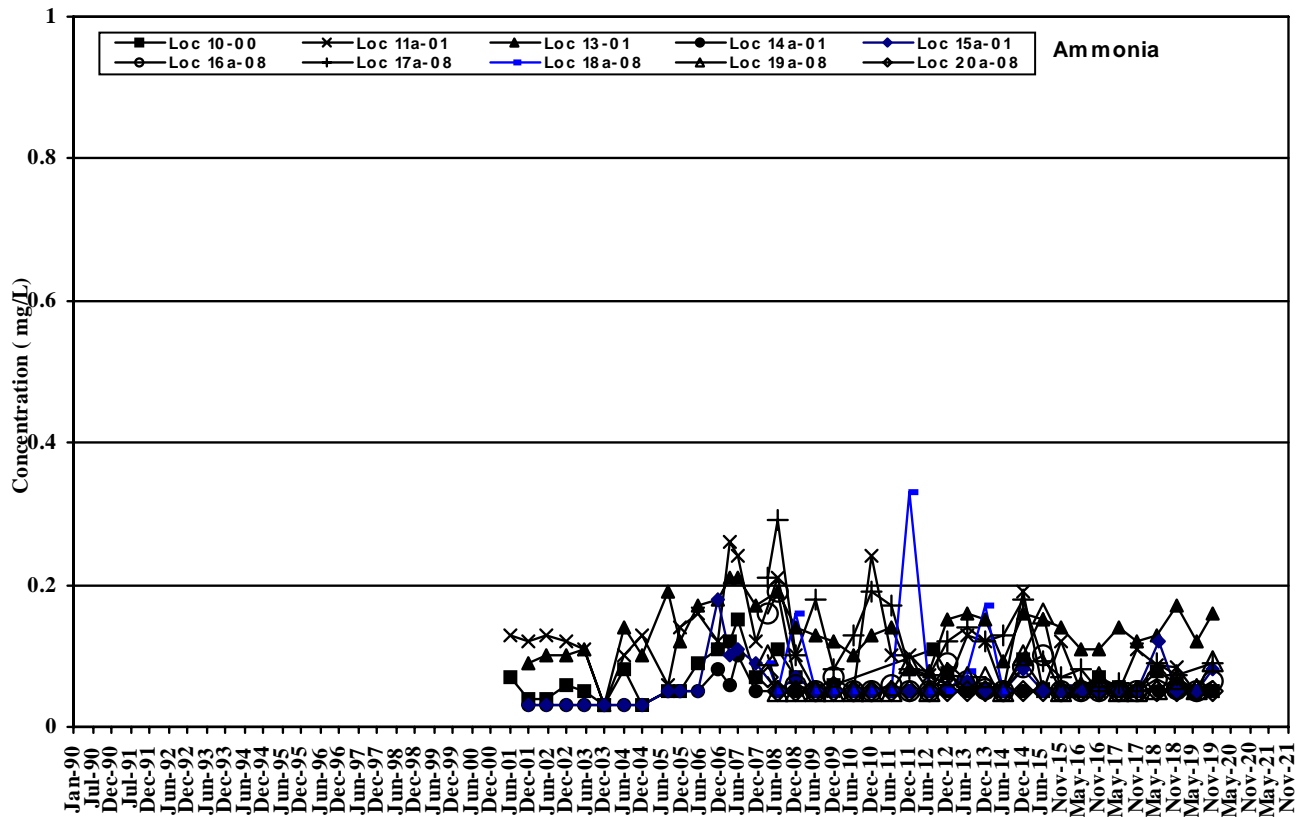
12 NH3-TKN Location EastOB



Guelph WRIC & Waste Transfer Station
Ground Water Chemistry Trends
Bedrock Locations West or on Wet/Dry Facility

FIGURE
B15

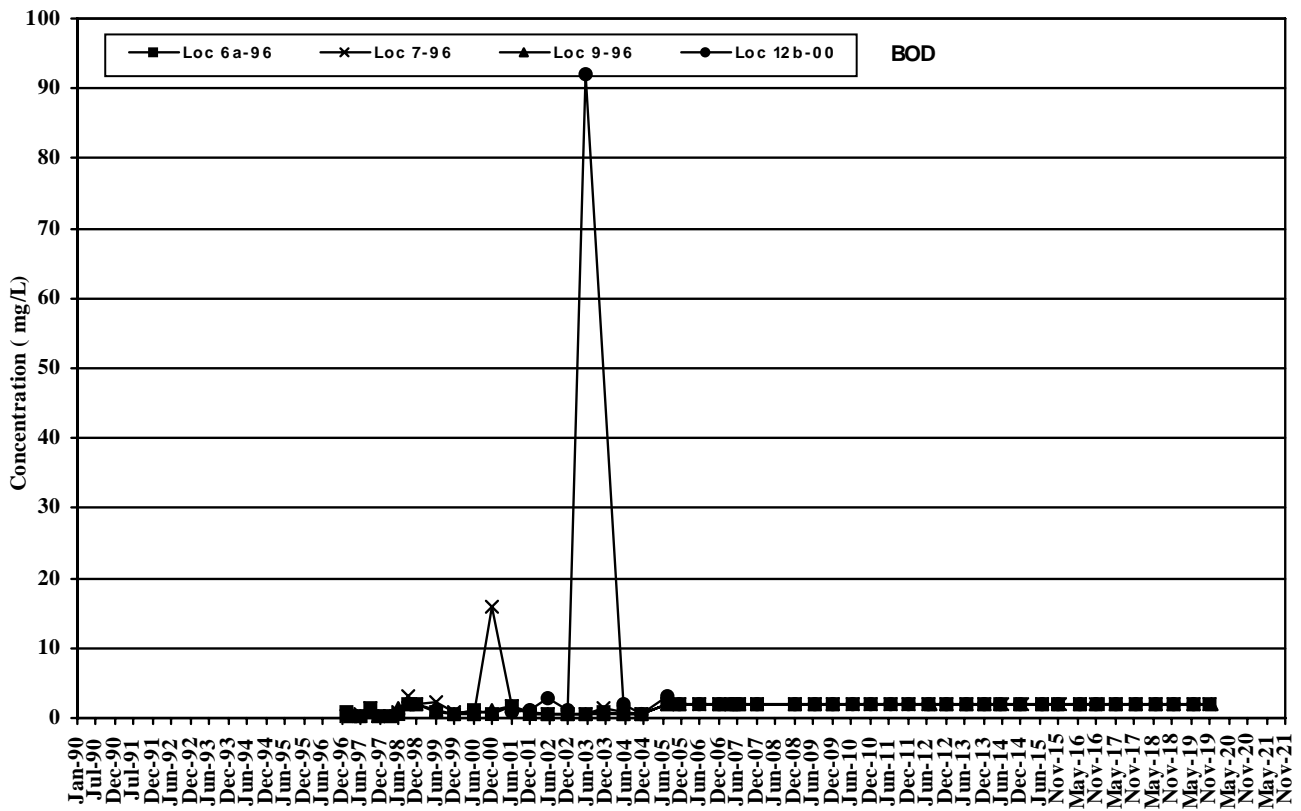
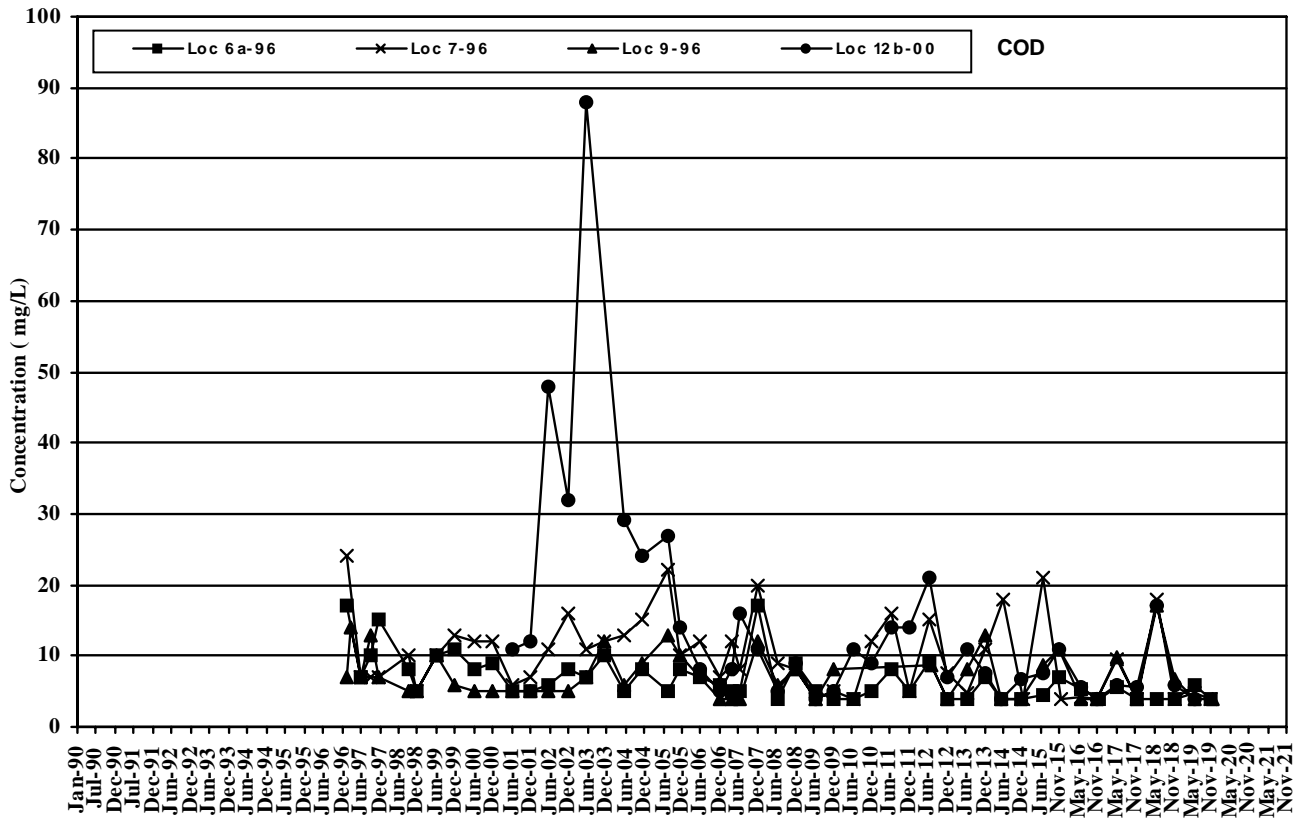
12 NH3-TKN Location WestBed



Guelph WRIC & Waste Transfer Station
Ground Water Chemistry Trends
Bedrock Locations East of Wet/Dry or on Transfer
Station Property

FIGURE
B16

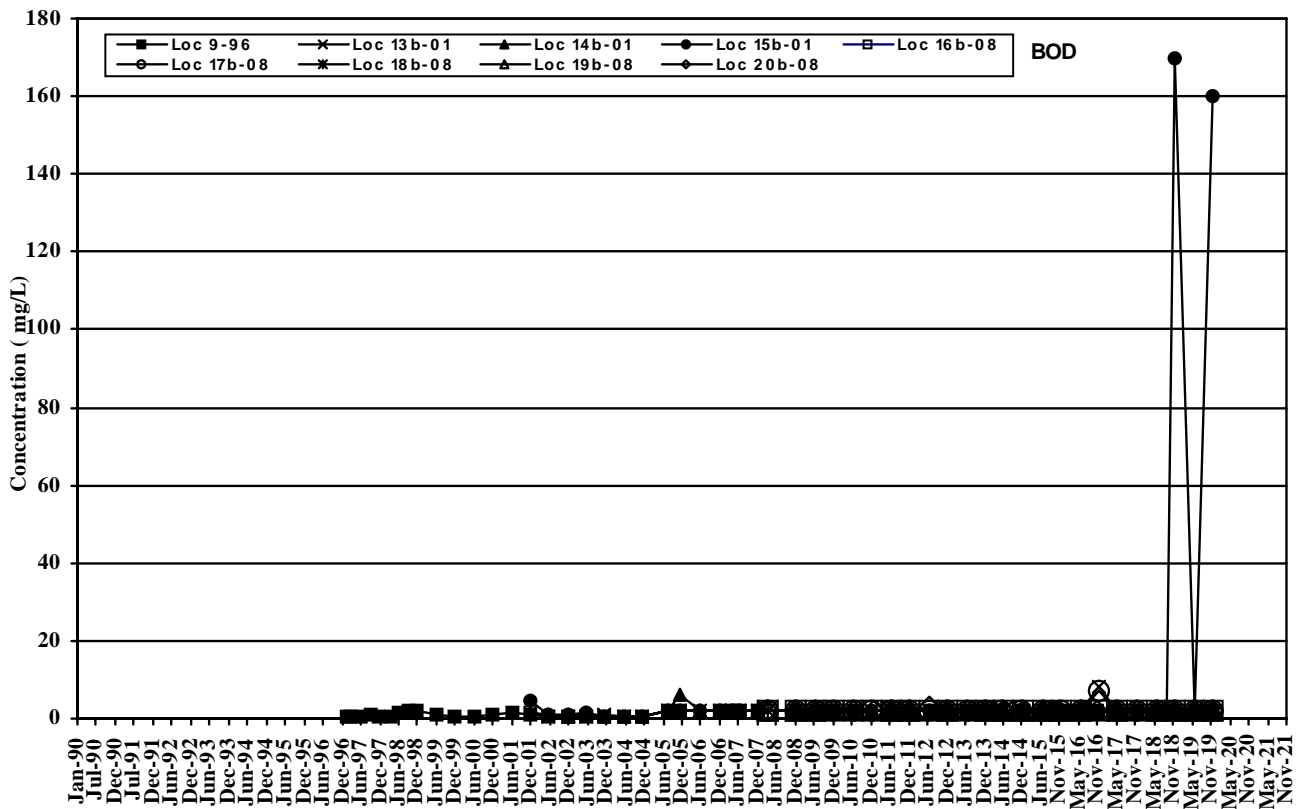
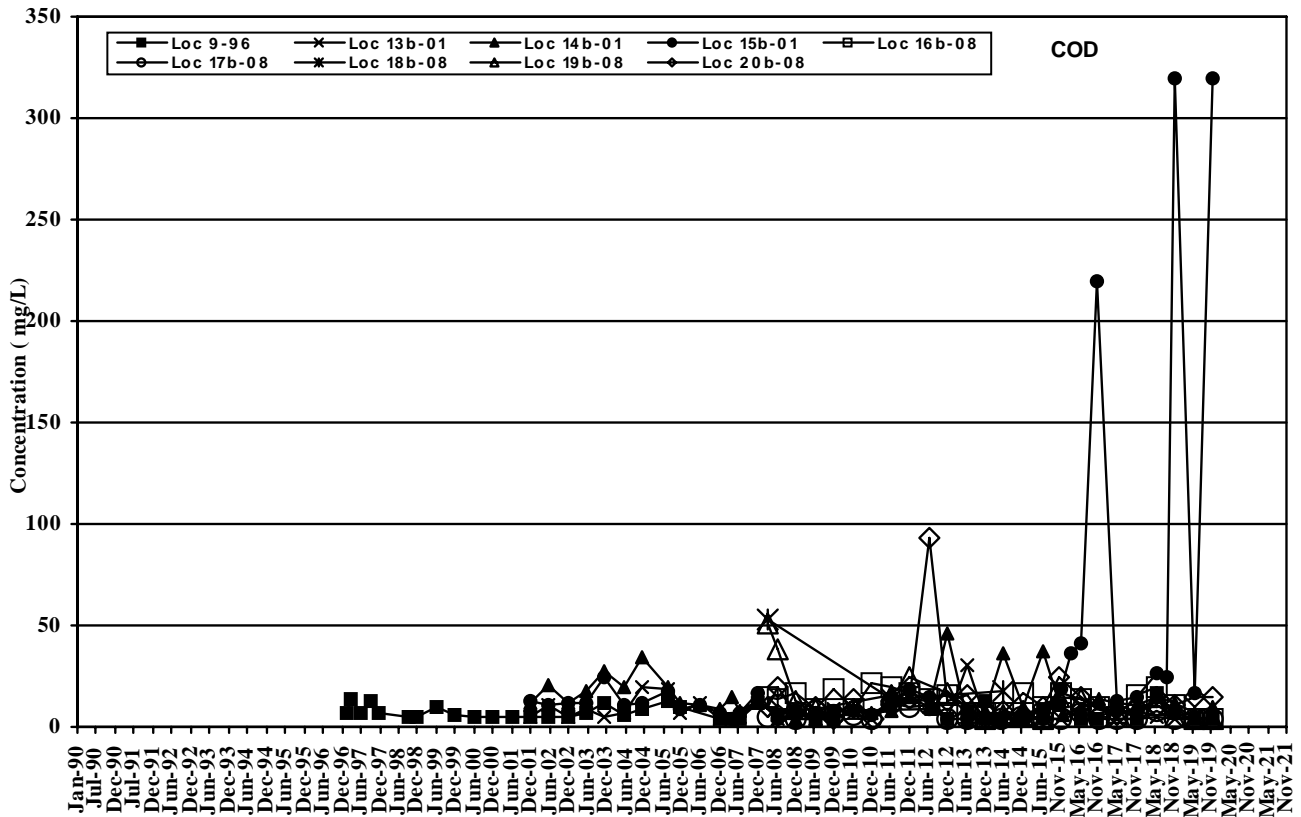
12 NH3-TKN Location EastBed



Guelph WRIC & Waste Transfer Station
Ground Water Chemistry Trends
Overburden Locations on Wet/Dry Facility

FIGURE
B17

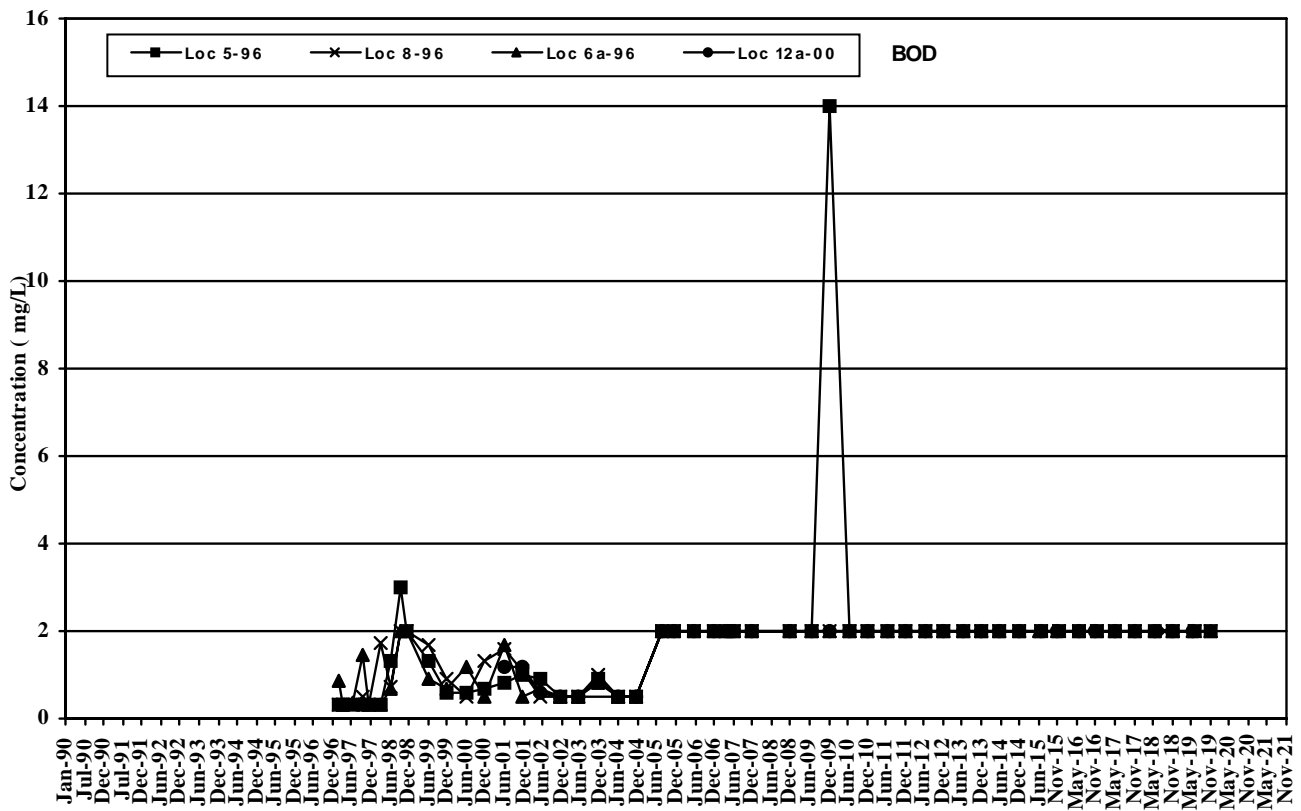
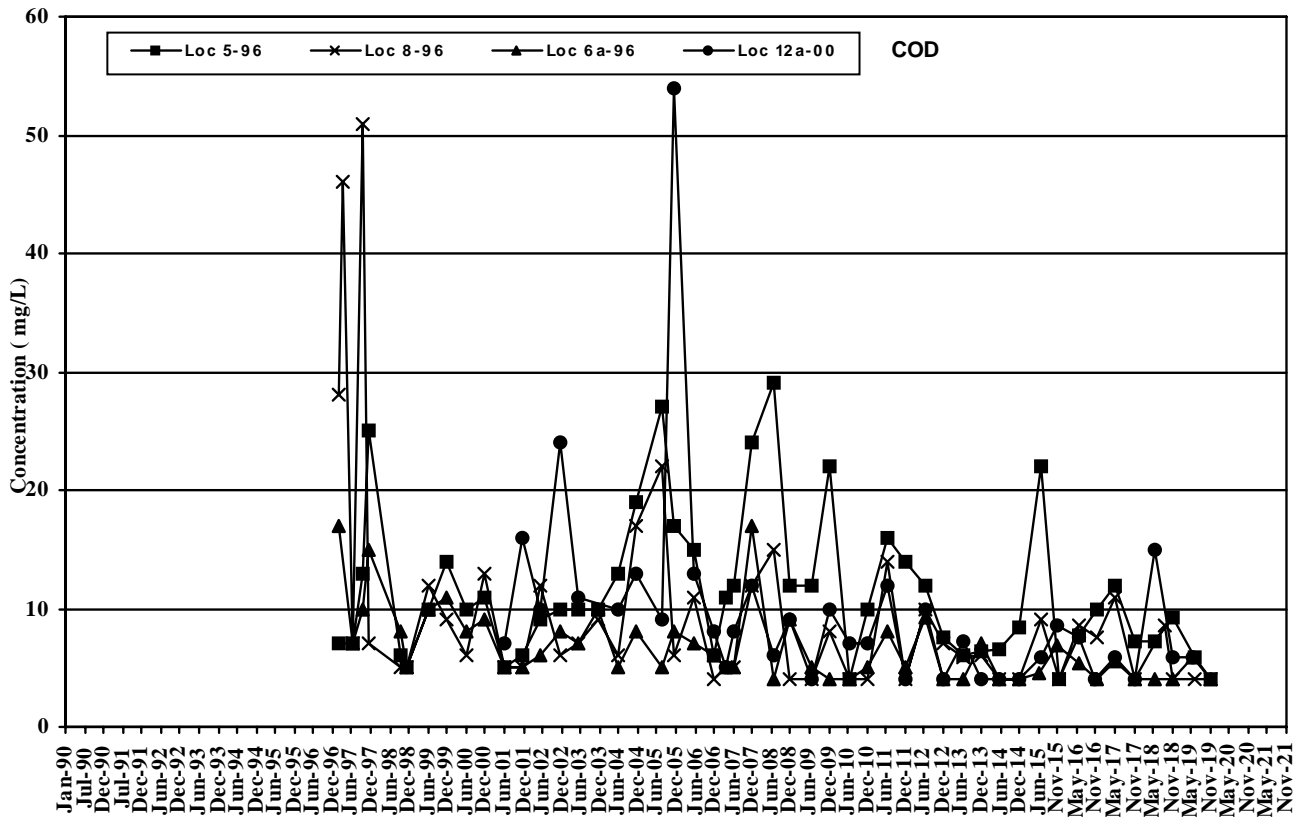
12 COD-BOD Location WestOB



Guelph WRIC & Waste Transfer Station
Ground Water Chemistry Trends
Overburden Locations East of Wet/Dry or
Transfer Station Property

FIGURE
B18

12 COD-BOD Location EastOB



Guelph WRIC & Waste Transfer Station
Ground Water Chemistry Trends
Bedrock Locations West or on Wet/Dry Facility

FIGURE
B19

12 COD-BOD Location WestBed

Appendix **C**

Surface Water Chemistry – Routine and Organics

Routine Surface Water Quality - General Analysis -Guelph WRIC & Waste Transfer Station

Date	Lab	pH	Conductivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	TSS mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO3-N mg/L	
SW 1		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02		
4/13/1996	ENT	7.6	310	60						392		123		< 0.5	59.4				0.02				
5/29/1996	ENT	7.8			4.74	5.32	< 10	22	1	0.04	0.22	21	14.1	7	42.2	29.8	32.4	0.51	0.06	0.2	0.08	<0.05	
7/3/1996	ENT						13		2.4	0.19	0.08	73		1									
8/22/1996	ENT	7.82			0.46	13.1	< 10	< 10	0.56	0.27	0.23	10	7.4	< 0.5	19.7	20.5	38.6	0.25	0.3	0.18	<0.0004	0.06	
9/18/1996	ENT						< 10		2	0.13	0.07	6		< 0.5									
10/16/1996	ENT						< 10		2	0.13	0.01	1		< 1									
11/20/1996	ENT						< 10		3	0.08	0.15	7		15									
12/11/1996	ENT	7.94			6.84	9.6	< 10	93	1.34	0.08	0.18	4	12.6	1	272	155	41.7	0.59	0.02	0.15	0.02		
4/8/1997	WBL	8.64	2840	118	8.09	18.3	9.24	170	2.73	< 0.01	0.206	19	18	< 0.72	732	434	49.7	1.05	<0.016	<0.028	0.034		
5/6/1997	WBL	8.29	1450	81	4.47	9.81	5.7	134	1.37	0.067	0.174	39	13.2	1.15	423	236	27.3	1.73	0.023	0.16	0.071		
6/26/1997	WBL	9.23	826	111	3.86	11.1	4.11	57	1.35	< 0.01	0.124	5	14.3	< 0.72	164	114	26.3	0.743	0.062	0.128	0.017		
7/31/1997	WBL	9.53	1460	123	4.79	13.1	2.82	88	3.51	0.119	0.234	4	15	0.99	394	245	24.2	0.873	0.054	0.234	0.015		
9/11/1997	WBL	8.73	527	94.1	4.47	12.3	2.17	71	1.48	0.017	0.072	< 6	14.7	< 0.72	89.6	76	25.4	0.56	0.095	0.099	0.02		
11/26/1997	WBL	7.6	960				3.12		1.72	0.084	0.139	542		< 0.72									
12/9/1997	WBL	7.79	970	132	7.02	12.5	1.94	59	1.6	0.014	0.095	3	13.9	< 0.72	198	140	45.7	0.381	0.023	0.081	0.014	0.03	
1/8/1998	WBL	7.65	545				6.3		1	0.2	0.31	357		7									
2/28/1998	Froze																						
3/31/1998	WBL	8.32	1480	121	3.48	6.75	2.53		1.52	0.023	0.107	5	12.7	< 0.72	443	250	35.5	0.542	0.051	0.107	0.007	<0.01	
4/30/1998	Dry																						
5/12/1998	WBL	7.55	1420				8.52		4.02	0.795	0.3	840		0.72									
6/24/1998	WBL	9.52	597	112	4.14	9.73	5.58		2.73	0.058	0.245	< 2	10.9	< 0.72	109	72.8	27.7	0.644	0.064	0.245	0.02	<0.01	
7/31/1998	Dry																						
8/31/1998	Dry																						
9/30/1998	Dry																						
10/31/1998	Dry																						
11/30/1998	Dry																						
12/31/1998	Dry																						
1/31/1999	Froze																						
2/28/1999	Froze																						
3/31/1999	Barr	8.01	1624	142	7.49	13	6.7	68	3.6	0.37	0.27	21	33	< 2	441	298	52.7	0.5	0.05	0.4	0.026		
4/30/1999	Dry																						
5/31/1999	Dry																						
6/29/1999	Barr	7.91	307	77	2.9	9	6.4	51	1.72	0.84	0.057	12	15		41.9	34.3	20.6	0.12		0.4	0.019		
7/31/1999	Dry																						
8/31/1999	Dry																						
9/30/1999	Dry																						
10/31/1999	Dry																						
11/30/1999	Dry																						
12/14/1999	Barr	8.01	716	168	16.7	18	19.4	49	2.77	1.05	0.11	40	46.9	< 1	57.4	42.5	65.5	0.01	0.04	0.2	0.018		
1/30/2000	Froze																						
2/28/2000	Froze																						
3/31/2000	Philip	7.37	2380	123	10.2	15	9.1	87	3.31	0.07	0.224	17	21	< 1	634	370	59.7	0.62	0.03		0.031		
4/27/2000	Philip	7.13	2595	140	29.8	43	16.5	117	115	104	0.423	23	35.8	1	123	85.7	146	0.36	0.06	0.5	0.041		
5/23/2000	Philip	7.46	1930	142	25.9	53	3.2	137	66.3	68.2	0.47	13	35.3	< 1	96.5	70.2	120	0.42	0.09	0.6	0.073		
6/30/2000	Philip	7.33	88	241	3.7	10	27	60	1.92	0.19	0.286	5	6.6	< 1	23.6	19	24.9	0.36	0.4	0.031			

Routine Surface Water Quality - General Analysis -Guelph WRIC & Waste Transfer Station

Date	Lab	pH	Conductivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	TSS mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO3-N mg/L
SW 1		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02	
7/30/2000	Dry																					
8/29/2000	Dry																					
9/28/2000	Philip-	7.81	374	97	4.32	12.4	12.8	57	2.5	0.08	0.194	128	15.5	< 1	51.8	40.1	30.5	0.16	0.029	0.23	0.035	
10/30/2000	Dry																					
11/28/2000	Philip-	7.63	778	90	7.41	16.8	6	57	2.54	0.08	0.5	29	24.4	< 1	193	109	73.7	0.96	0.022	0.7	0.112	
12/7/2000	Froze																					
1/31/2001	Froze																					
2/28/2001	Froze																					
3/31/2001	Froze																					
4/24/2001	Philip-	7.9	747	175	6.13	11	2.2	65	3.16	0.17	0.12	6	9.8	2	140	122	34.4	0.83		0.4	0.024	
5/28/2001	Philip-	7.29	333	119	3.93	9	8.3	77	2.4	0.11	0.288	10	13.2	< 1	39.4	46	49.4	0.58	0.03	0.4	0.048	
6/30/2001	Dry																					
7/25/2001	Philip-	7.3	322	105	4.82	15	8.1	143	5.3	0.3	0.765	21	21.7	< 1	30.3	29.7	56.9	0.96	0.06	1	0.103	
8/31/2001	Dry																					
9/27/2001	Philip-	7.5	383	128	5.48	15	3	57	1.64	0.07	0.318	2	19	< 1	33.8	31.7	30.5	0.09	0.03	0.3	0.019	
10/18/2001	Philip-	7.84	304	125	4.94	9	3.4	50	2.94	< 0.03	0.294	7	4.3	< 1	19.3	24.8	31.7	0.91	0.04	0.4	0.042	
11/30/2001	Philip-	7.48	104	39	1.72	4	1.3	24	0.87	0.03	0.3	11	1.5	< 1	4.5	6.8	9.38	0.54	<0.01	0.2	0.031	
12/4/2001	Philip-	7.57	153	61	3.04	6.3	3.1	26	0.68	< 0.03	0.128	1	2.7	< 1	6.5	8.8	19.2	0.31	0.01	0.4	0.043	
1/31/2002	Froze																					
2/28/2002	Froze																					
3/29/2002	Froze																					
4/29/2002	Philip-	7.52	398	77	2.9	5	5.6	58	1.88	0.06	0.456	11	7.3	< 1	69.3	57.4	30.8	0.57	0.02	0.5	0.361	
5/31/2002	Dry																					
6/5/2002	Philip-	7.8	228	55	2.46	4	5.2	75	2.19	0.14	0.438	16	5.6	< 1	28.9	26.4	18.1	0.87	0.02	0.6	0.099	
7/31/2002	Dry																					
8/30/2002	Dry																					
9/27/2002	Dry																					
10/31/2002	Dry																					
11/29/2002	Dry																					
12/20/2002	Dry																					
1/31/2003	Froze																					
2/28/2003	Froze																					
3/29/2003	Froze																					
4/30/2003	Dry																					
5/31/2003	Dry																					
6/5/2003	Philip-	6.99	240	68	2.89	4	6.1	51	6	0.16	0.934	118	6.1	< 1	26.1							
7/31/2003	N/A																					
8/30/2003	N/A																					
9/27/2003	Dry																					
10/31/2003	Dry																					
11/29/2003	Dry																					
12/1/2003	Philip-	7.21	256	52	3.16	4	4.2	24	0.63	< 0.03	0.146	12	6	< 1	49.7	28.9	18.8	0.54	<0.01	0.3	0.07	
1/31/2006	Dry																					
2/28/2006	Dry																					
3/9/2006	MAX	7.5	245	25	2.2	2	4	22	1.3	0.29	0.17	24	5	2	53	37	8.9	1.8	<0.02	0.2	0.09	

Routine Surface Water Quality - General Analysis -Guelph WRIC & Waste Transfer Station

Date	Lab	pH	Conductivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	TSS mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO3-N mg/L
SW 1		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02	
4/30/2006	Dry																					
5/16/2006	MAX	7.6	346	126	4.8	7.6	3	43	1.6	0.16	0.21	3	4	< 1	36	43	31	0.43	0.018		0.023	
6/30/2006	Dry																					
7/31/2006	Dry																					
8/31/2006	Dry																					
9/13/2006	N/A																					
10/31/2006	Dry																					
11/30/2006	Dry																					
12/31/2006	Dry																					
1/31/2007	Snow																					
2/28/2007	Snow																					
3/14/2007	MAX	7.3	238	22	2.4	5.3	3	25	1.3	0.53	0.26	4	7	< 1	49	33	8.7	0.16	<0.01		0.021	
3/29/2007	MAX	7.8	686	101	6.7	4.4	3	31	1.5	0.08	0.19	10	13	< 1	140	120	34	0.93	0.021		0.043	
4/30/2007	Dry																					
5/31/2007	Dry																					
6/30/2007	Dry																					
7/31/2007	Dry																					
8/31/2007	Dry																					
9/28/2007	Dry																					
10/31/2007	Dry																					
11/21/2007	MAX	7.9	239	69	4.4	8	3	33	1.3	0.09	0.41	8	10	< 1	24	24	15	0.56	0.011		0.035	
12/31/2007	Snow																					
1/8/2008	MAX	7.5	731	83	5.7	5.4	2	31	1.4	0.06	0.22	3	13	< 1	170	160	35	1.5	0.022		0.09	
2/28/2008	Snow																					
3/31/2008	Snow																					
4/10/2008	MAX	8.3	2260	225	20	9.5	< 2	22	0.9	< 0.05	0.06	2	29	< 1	520	350	100	0.2	0.02		0.03	
5/31/2008	Dry																					
6/24/2008	MAX	7.6	121	39	2.3	2.6	5	33	2.5	0.9	0.28	24	4	< 1	9	11	11	0.99	0.011		0.067	0.1
7/24/2008	MAX	7.6	98	47	2.1	2.6	5	22	0.6	< 0.05	0.19	5	< 1	< 1	3	2.7	14	0.2	0.01		0.023	<0.1
8/11/2008	MAX	7.3	157	61	2.2	2.2	3	19	0.8	0.15	0.19	4	2	< 1	10	11	16	0.2	0.02		0.017	<0.1
9/28/2008	Dry																					
10/31/2008	Dry																					
11/30/2008	Dry																					
12/31/2008	Snow																					
1/30/2009	Snow																					
2/12/2009	MAX	7.3	374	36	1.7	2.4	< 2	14	0.6	< 0.05	0.19	7	7	< 1	85	60	12	0.5	<0.01		0.035	
3/11/2009	MAX	6.4	253	47	1.7	2.6	3	19	0.7	< 0.05	0.13	< 10	9	< 1	43	36	12	0.3	<0.01		0.028	
4/28/2009	MAX	7	374	80	2.7	2.2	< 2	33	0.1	< 0.05	0.11	10	6	1	58	50	23	0.4	0.02		0.04	
5/27/2009	MAX	7.4	472	88	4	7.6	7	67	3.1	0.63	1.3	9	20	< 1	74	80	22	0.3	0.03		0.032	
6/30/2009	Dry																					
7/31/2009	Dry																					
8/31/2009	Dry																					
9/30/2009	Dry																					
10/30/2009	Dry																					
11/30/2009	Dry																					

Routine Surface Water Quality - General Analysis -Guelph WRIC & Waste Transfer Station

Date	Lab	pH	Conductivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	TSS mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO3-N mg/L
SW 1		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02	
12/30/2009	Dry																					
1/29/2010	Snow																					
2/26/2010	Snow																					
3/18/2010	MAX	7.7	268	91	4	3.2	3	23	0.8	< 0.05	0.13	2	5	< 1	27	21	28	<0.1	<0.01		0.015	
4/30/2010	Dry																					
5/31/2010	Dry																					
6/30/2010	Dry																					
7/30/2010	Dry																					
8/31/2010	Dry																					
9/30/2010	Dry																					
10/29/2010	Dry																					
12/2/2010	MAX	7.68	187	82	3.9	2.4	< 2	31	0.9	< 0.05	0.29	49	2	1	7	7	23	0.2	<0.01		0.025	
12/31/2010	Dry																					
1/28/2011	Froze																					
2/28/2011	Froze																					
3/31/2011	Snow/																					
4/8/2011	MAX	7.93	1060	178	9.3	2.6	< 2	32	0.8	< 0.05	0.07	2	4	< 1	200	140	63	<0.1	<0.01		0.013	
6/3/2011	MAX	8.1	463	209	9.1	2.3	< 2	44	1.2	0.13	0.15	7	< 1	< 1	22	26	71	0.8	0.02		0.012	
6/22/2011	MAX	7.8	593	270	9.8	1.3	6	53	2.1	< 0.05	0.38	30	< 1	< 1	30	33	88	2.8	0.02		0.007	
7/29/2011	Dry																					
8/31/2011	Dry																					
9/30/2011	Dry																					
10/20/2011	MAX	7.54	67	29	1.7	2.1	< 2	10	0.4	< 0.05	0.25	3	< 1	4	3	2.9	7.5	0.1	<0.01		0.01	
11/29/2011	MAX	7.19	70	29	1.6	2.6	< 2	10	0.3	< 0.05	0.18	6	< 1	< 1	3	2.4	8.5	0.2	<0.01		0.016	
12/15/2011	MAX	7.77	200	67	4.7	3.4	< 2	26	0.8	0.33	0.26	4	6	2	16	10	25	0.13	<0.01		0.014	
1/31/2012	Dry																					
2/29/2012	Dry																					
3/29/2012	Dry																					
4/30/2012	Dry																					
5/31/2012	Dry																					
6/29/2012	Dry																					
7/31/2012	Dry																					
8/31/2012	Dry																					
9/28/2012	Dry																					
10/31/2012	Dry																					
11/30/2012	Dry																					
12/21/2012	Dry																					
1/30/2013	MAX	6.7	990	23	1.9	3.8	3	25	1.4	0.23	0.2	7	12		230	150	9.4	0.23	<0.01		0.023	
2/28/2013	Dry																					
3/29/2013	Dry																					
4/18/2013	MAX	7.73	1500	74	7.6	5.3	< 2	37	0.9	0.12	0.021	2	8	3.3	390	280	51	<0.1	<0.01		0.023	
5/31/2013	Dry																					
6/28/2013	Dry																					
7/31/2013	Dry																					
8/7/2013	MAX	6.51	540	100	8.6	66	170	360	7.5	0.76	5.5	49	17	2.6	63	15	42	0.61	0.033		0.1	

Routine Surface Water Quality - General Analysis -Guelph WRIC & Waste Transfer Station

Date	Lab	pH	Conductivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	TSS mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO3-N mg/L
SW 1		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02	
9/30/2013	Dry																					
10/31/2013	MAX	7.27	110	44	2.3	2.3	< 2	21	0.55	< 0.05	0.18	2	4	1.9	3	3.6	15	0.22	0.012		0.022	
11/29/2013	Dry																					
12/31/2013	Dry																					
1/14/2014	MAX	7.49	2200	69	10	2.6	7	42	1.7	0.07	0.11	110	20	< 1	570	410	74	1	0.01		0.07	
1/31/2014	Ice Co																					
2/28/2014	Snow																					
3/28/2014	Ice Co																					
4/30/2014	Below																					
5/30/2014	Dry																					
6/30/2014	Dry																					
7/31/2014	Dry																					
8/29/2014	Dry																					
9/30/2014	Dry																					
10/31/2014	Dry																					
11/28/2014	Below																					
12/31/2014	Dry																					
1/31/2015	Snow																					
2/28/2015	Snow																					
3/28/2015	Snow																					
4/10/2015	MAX	7.96	700	260	24	1.4	< 2	< 4	0.29	0.077	< 0.02	< 1	12	< 1	59	32	85	<0.1	0.015		0.098	
5/30/2015	Dry																					
6/30/2015	Dry																					
7/31/2015	Dry																					
8/29/2015	Dry																					
9/30/2015	Dry																					
10/31/2015	Dry																					
11/28/2015	Dry																					
12/31/2015	Dry																					
1/29/2016	Snow																					
2/3/2016	MAX	6.95	370	66	4	1.8	< 2	14	0.42	< 0.05	0.1	10	2.4	< 1	76	44	23	0.13	<0.01		0.013	<0.1
3/17/2016	MAX	7.53	290	79	3.7	1.5	< 2	23	0.31	< 0.05	0.062	11	8.4	< 1	37	30	24	0.6	0.01		0.041	<0.1
4/26/2016	Below																					
5/17/2016	Dry																					
5/26/2016	Dry																					
6/28/2016	Dry																					
7/29/2016	Dry																					
8/17/2016	Dry																					
9/20/2016	Dry																					
10/19/2016	Dry																					
11/24/2016	Dry																					
12/30/2016	Snow																					
1/18/2017	Froze																					
2/23/2017	Dry																					
3/29/2017	Dry																					

Routine Surface Water Quality - General Analysis -Guelph WRIC & Waste Transfer Station

Date	Lab	pH	Conductivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	TSS mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO3-N mg/L
SW 1		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02	
4/27/2017	MAX	7.88	370	140	5.1	3.6	< 2	41	0.74	< 0.05	0.12	20	< 1	< 1	31	35	38	0.3	0.016		0.024	<0.1
5/25/2017	MAX	7.94	210	92	3.1	0.92	< 2	34	0.64	< 0.05	0.13	21	< 1	< 1	9.2	22	21	0.63	0.022		0.024	<0.1
6/22/2017	Dry																					
7/27/2017	Dry																					
8/18/2017	Dry																					
9/29/2017	Dry																					
10/26/2017	Dry																					
11/23/2017	Dry																					
12/20/2017	Dry																					
1/23/2018	MAX	7.18	770	34	3.6	3.7	2	19	0.35	< 0.05	0.21	28	13	3.5	180	130	18	0.68	<0.01		0.04	0.19
2/20/2018	MAX	7.35	310	27	1.4	1.9	4	19	0.31	0.079	0.13	18	7	5.1	72	51	8	0.49	<0.01		0.042	0.16
3/27/2018	No Sa																					
4/24/2018	No Sa																					
5/29/2018	No Sa																					
6/28/2018	No Sa																					
7/17/2018	No Sa																					
8/17/2018	No Sa																					
8/22/2018	No Sa																					
9/11/2018	No Sa																					
10/3/2018	No Sa																					
11/26/2018	No Sa																					
12/17/2018	No Sa																					
5/10/2019	MAX	7.97	380	130	3.8	2.9	4	28	0.5	< 0.05	0.19	10	< 1	< 1	39	42	29	0.59	0.011		0.013	<0.1
6/6/2019	MAX	7.59	140	55	2.1	1.1	< 2	22	0.33	0.063	0.16	18	< 1	< 1	10	14	15	1	0.013		0.03	<0.1

Routine Surface Water Quality - General Analysis -Guelph WRIC & Waste Transfer Station

Date	Lab	pH	Conductivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	TSS mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO3-N mg/L
EPTS-01		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02	
6/9/2004	N/A																					
6/9/2004	Philip-	8	583	236	20.8	< 1	1.3	7	0.27	0.07	0.003		19.4	< 1	52.3	24.9	93.5	0.09	0.02		0.427	4.8
6/9/2004	Philip-	8	583	236	20.8	1	1.3	7	0.27	0.07	0.003		19.4	1	52.3	24.9	93.5	0.09	0.02		0.427	4.8
6/9/2004	N/A					<								<								
11/30/2004	Philip-	8.11	665	244	22.4	2	< 0.5	8	0.18	< 0.03	0.003		21.3	< 1	60.3	23.6	83.4	<0.01	0.01		0.082	
8/3/2005	N/A																					
11/28/2005	Maxx	8.18	620	231	24		< 2	< 4	0.4	0.1	< 0.02		18	< 1	51	26	84	<0.05	0.015	<0.05	0.077	
6/1/2006	N/A																					
12/4/2006	MAX																					
3/30/2007	MAX	8.3	621	242	24	1.3	< 2	4	0.6	0.11	< 0.02		14	< 1	44	24	82	<0.02	0.015	<0.05	0.099	
6/14/2007	MAX	8.3	592	243	22	1.3	< 2	10	0.9	0.13	< 0.02		16	< 1	35	18	76	<0.02	0.014	<0.05	0.17	
8/16/2007	MAX	8.2	558	235	24	1.5	< 2	12	0.6	0.19	< 0.02		16	< 1	27	15	75	<0.02	0.014	<0.05	0.045	
12/5/2007	MAX	8.2	650	232	27	1.7	< 2	6	0.4	0.18	< 0.02		26	< 1	51	22	96	0.06	0.016	<0.1	0.1	4
5/2/2008	MAX	8.3	610	213	19	1.1	< 2	< 4	0.6	0.05	0.02		17	< 1	51	30	68	<0.02	<0.01	<0.1	0.068	2.9
6/25/2008	MAX	8.1	593	217	20	1.3	< 2	11	0.7	0.12	< 0.02		15	< 1	45	26	<0.02	<0.01	<0.1	0.052	2.9	
9/11/2008	MAX	8.2	574	228	20	1.4	< 2	11	0.6	< 0.05	< 0.02		16	< 1		21	75	<0.02	0.013	<0.1	0.067	3.1
12/9/2008	MAX	8	787	262	20	1.6	< 2	< 4	0.3	< 0.05	< 0.02		19	< 1	80	47	80	<0.02	0.017	<0.1	0.13	4.1
5/1/2009	MAX	7.8	582	231	21	1.3	< 2	< 4	0.5	< 0.05	< 0.02		13	< 1	44	22	75	<0.02	0.013	<0.1	0.065	2
6/25/2009	MAX	8.1	557	228	21	1.4	< 2	< 4	0.5	< 0.05	< 0.02		12	< 1	31	18	73	<0.02	0.017	<0.1	0.056	2.6
8/31/2009	MAX	7.8	1420	334	20	1.7	< 2	140	1.5	0.13	0.12		110	< 1	190	120	160	1	0.19	0.11	0.013	<0.1
12/15/2009	MAX	7.8	451	169	20	1.2	< 2	9	0.4	0.06	0.02		11	< 1	26	13	70	<0.02	0.011	<0.1	0.15	3.5
6/24/2010	MAX	8	618	235	21	1.3	< 2	< 4	0.6	0.07	0.02		15	1	40	24	73	<0.06	0.012	<0.1	0.053	2.9
12/17/2010	MAX	7.98	725	266	24	1.5	< 2	8	0.3	< 0.05	< 0.02		16	< 1	54	28	88	<0.02	0.023	<0.1	0.096	4.7
6/15/2011	MAX	8.07	617	238	19	1.6	< 2	17	0.5	< 0.05	< 0.02		12	< 1	45	35	70	<0.02	0.02	<0.1	0.073	1.4
12/19/2011	MAX	7.99	770	256	27	1.8	< 2	5	0.4	< 0.05	0.03		30	2	64	45	96	0.04	<0.01	<0.1	0.29	3.3
1/31/2012	NA																					
2/29/2012	NA																					
3/29/2012	NA																					
4/17/2012	MAX	8.08	670	250	23	1.4	< 2	13	0.55	< 0.05	0.025	1	14	< 1	45	31	86	<0.1	0.016		0.08	
5/31/2012	NA																					
6/22/2012	MAX	8.05	620	230	21	1.3	< 2	13	0.64	< 0.05	< 0.02	3	14	< 1	38	22	74	<0.1	0.016		0.055	
7/26/2012	MAX	8.19	590	230	22	1.4	3	12	0.66	0.1	< 0.02	1	14	< 1	34	18	73	<0.1	0.015		0.039	
8/31/2012	NA																					
9/20/2012	MAX	8.02	690	250	25	1.5	< 2	9.5	0.75	0.12	< 0.02	1	15	< 1	47	29	84	<0.1	0.017		0.057	
10/24/2012	MAX	8.09	700	250	24	1.6	< 2	15	0.5	0.2	< 0.02	2	16	< 1	49	30	87	<0.1	0.018		0.085	
11/30/2012	NA																					
12/18/2012	MAX	7.88	740	270	25	1.7	< 2	7.6	0.3	0.062	< 0.02	2	18	< 1	58	37	94	<0.1	<0.01		0.11	
1/30/2013	MAX	7.91	620	220	20	1.4	< 2	9.1	0.54	< 0.05	< 0.02	2	16	< 1	44	32	76	<0.1	0.012		0.2	
2/28/2013	NA																					
3/29/2013	NA																					
4/18/2013	MAX	8.1	650	210	19	1.2	< 2	18	0.64	< 0.05	< 0.02	< 1	13	< 1	64	50	73	<0.1	0.011		0.072	
5/28/2013	MAX	8.16	580	220	22	1.4	< 2	8.9	0.42	0.12	< 0.02	2	13	< 1	35	26	79	<0.1	<0.01		0.06	
6/21/2013	MAX	8.43	600	230	20	1.4	< 2	8.5	0.58	< 0.05	< 0.02		14	< 1	35	25	74	<0.02	0.013	<0.1	0.051	2.5
6/27/2013	MAX	8.03	630	240	22	1.4	< 2	10	0.43	0.11	< 0.02	3	13	< 1	39	27	78	<0.1	0.016		0.066	
7/25/2013	MAX	8.17	600	240	21	1.5	< 2	6.3	0.39	0.067	< 0.02	2	12	< 1	32	23	77	<0.1	0.017		0.059	

Routine Surface Water Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Conductivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	TSS mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO3-N mg/L
EPTS-01		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02	
8/7/2013	MAX	8.2	560	220	20	1.5	< 2	5.7	0.52	0.074	< 0.02	1	12	< 1	30	20	75	<0.1	0.017		0.058	
9/24/2013	MAX	8.15	640	260	20	1.5	< 2	10	0.93	0.12	< 0.02	2	14	< 1	37	23	74	<0.1	0.021		0.067	
10/31/2013	MAX	8.13	620	260	20	1.4	< 2	< 4	0.27	< 0.05	< 0.02	< 1	12	< 1	32	19	79	<0.1	0.015		0.083	
11/19/2013	MAX	8.05	650	270	23	1.7	< 2	8	0.5	0.086	< 0.02	< 1	13	< 1	34	23	85	<0.1	0.02		0.086	
12/5/2013	MAX	7.87	660	270	22	1.5	< 2	< 4	0.32	0.1	< 0.02	< 1	14	< 1	36	21	80	<0.1	0.012		0.099	
1/14/2014	MAX	7.98	720	250	24	1.7	< 2	4.6	0.24	< 0.05	< 0.02	< 1	14	< 1	61	37	93	<0.1	0.015		0.11	
2/20/2014	MAX	8.03	680	260	24	1.6	< 2	< 4	0.46	0.13	< 0.04	2	14	< 1	41	32	91	<0.1	0.017		0.1	
3/27/2014	MAX	8.17	695	250	25	1.5	< 2	6.2	0.43	< 0.05	< 0.04	< 1	12	< 1	58	25	92	<0.1	0.021		0.091	
4/23/2014	MAX	7.93	710	240	22	1.4	< 2	< 4	0.4	< 0.05	< 0.04	< 1	11	< 1	71	39	84	<0.1	<0.01		0.1	
5/27/2014	MAX	7.92	660	250	21	1.3	< 2	< 4	0.53	< 0.05	< 0.02	1	11	< 1	45	27	78	<0.1	0.013		0.068	
6/25/2014	MAX	8.14	610	250	22	1.4	< 2	< 4	0.63	0.06	< 0.02	2	12	< 1	37	25	80	<0.1	0.021		0.069	
7/29/2014	MAX	8.05	620	250	21	1.4	< 2	9.1	0.68	0.13	< 0.02	10	12	< 1	38	22	76	<0.1	0.015		0.061	
8/21/2014	MAX	8.11	650	260	26	1.6	< 2	7.2	0.75	< 0.05	< 0.02	1	13	< 1	41	29	92	<0.1	0.013		0.072	
9/23/2014	MAX	8.08	700	260	23	1.6	< 2	< 4	0.64	0.055	0.021	< 1	13	< 1	44	30	83	<0.1	0.017		0.063	
10/23/2014	MAX	8.06	670	270	23	1.6	< 2	7.6	0.39	0.075	0.024	< 1	12	< 1	36	23	90	<0.1	0.025		0.077	
11/26/2014	MAX	8.12	700	280	25	1.8	< 2	< 4	0.48	0.14	< 0.02	1	13	< 1	43	28	95	<0.1	0.018		0.1	
12/18/2014	MAX	8.08	680	270	25	1.7	< 2	< 4	0.21	< 0.05	< 0.02	< 1	13	< 1	36	22	93	<0.1	0.018		0.094	
1/21/2015	MAX	7.96	990	290	23	1.5	< 2	< 4	0.24	< 0.05	< 0.02	< 1	17	< 1	120	43	95	<0.1	0.017		0.12	
2/28/2015	Snow																					
3/17/2015	MAX	7.94	680	270	24	1.7	< 2	9.3	0.72	0.17	0.028	2	14	< 1	46	27	94	<0.1	0.019		0.093	3.14
4/10/2015	MAX	7.19	470	73	3.5	1.6	< 2	24	0.72	0.067	0.072	10	7	2.4	92	68	22	0.45	0.01		0.029	
5/20/2015	MAX	7.93	700	260	24	1.3	< 2	9.1	0.66	0.094	< 0.02	2	12	< 1	59	32	86	<0.1	0.015		0.067	2.51
6/30/2015	MAX	8.03	710	270	23	1.2	< 2	< 4	< 1	0.073	< 0.02	3	13	< 1	59	34	79	<0.1	0.018		0.063	2.77
7/14/2015	MAX	8	660	250	21	1.2	< 2	6.3	0.48	< 0.05	< 0.02	2	13	< 1	49	30	75	<0.1	0.016		0.051	2.54
8/27/2015	MAX	8.08	710	270	24	1.4	< 2	< 4	0.35	0.051	< 0.02	2	14	< 1	48	31	83	<0.1	0.025		0.068	2.74
9/4/2015	MAX	7.97	680	260	22	1.5	< 2	17	0.76	0.053	0.024	15	14	< 1	48	28	75	<0.1	0.019		0.067	2.74
10/22/2015	MAX	8.19	690	270	24	1.5	< 2	5.2	0.52	0.064	< 0.02	2	14	< 1	43	25	85	<0.1	0.016		0.071	3.2
11/25/2015	MAX	8	750	270	25	1.7	< 2	6	0.56	0.051	< 0.02	3	15	< 1	60	35	93	<0.1	0.016		0.096	3.64
12/15/2015	MAX	7.87	780	270	25	1.8	< 2	8.4	0.52	0.14	0.024	9	15	< 1	66	34	95	<0.1	0.014		0.15	3.24
1/29/2016	Snow																					
2/3/2016	MAX	7.77	790	290	25	1.7	< 2	5	0.37	0.065	< 0.02	< 1	15	< 1	68	39	95	<0.1	0.014		0.11	3.49
3/17/2016	MAX	7.99	780	270	22	1.4	< 2	10	0.21	< 0.05	< 0.02	< 1	16	< 1	69	37	81	<0.1	0.013		0.096	3.22
4/26/2016	MAX	8.11	640	240	19	1.1	< 2	7	< 0.1	0.076	< 0.02	< 1	12	< 1	45	34	70	<0.1	0.011		0.077	2.1
5/17/2016	MAX	8.09	630	240	21	1.2	< 2	5.8	0.25	< 0.05	< 0.02	1	13	< 1	42	30	74	<0.1	0.013		0.061	2.27
5/26/2016	MAX	8.15	580	240	21	1.3	< 2	12	0.16	0.093	< 0.02	3	11	< 1	33	24	73	<0.1	0.013		0.069	2
6/28/2016	MAX	8.02	640	260	21	1.3	< 2	11	0.4	< 0.05	< 0.02	2	13	< 1	37	26	75	<0.1	0.018		0.053	1.62
7/29/2016	MAX	8.26	570	220	23	1.5	2	21	0.21	< 0.05	< 0.02	7	13	< 1	38	25	66	<0.1	0.014		0.041	1.57
8/17/2016	MAX	8.08	610	240	21	1.4	< 2	16	0.44	< 0.05	0.007	2	14	< 1	38	24	69	<0.1	0.016		0.038	1.68
9/20/2016	MAX	8.17	640	270	23	1.5	< 2	9.6	0.32	< 0.05	< 0.02	1	14	< 1	37	23	87	<0.1	0.019		0.05	1.92
10/19/2016	MAX	8.11	680	280	22	1.7	< 2	11	0.65	0.081	0.021	2	15	< 1	43	25	80	<0.1	0.018		0.06	2.23
11/24/2016	MAX	8.27	690	280	24	1.6	< 2	< 4	0.23	0.058	< 0.02	7	16	< 1	42	23	90	<0.1	0.016		0.069	3.09
12/30/2016	Snow																					
1/18/2017	MAX	7.79	740	230	18	1.3	< 2	11	0.18	0.055	< 0.02	< 1	13	< 1	81	36	69	<0.1	0.013		0.086	2.74
2/23/2017	MAX	7.96	770	280	24	1.7	3	< 4	0.34	< 0.05	< 0.02	< 1	17	< 1	63	35	89	<0.1	0.015		0.11	3.33
3/29/2017	MAX	8.04	680	240	20	1.3	< 2	4.2	< 0.1	0.052	< 0.02	< 1	16	< 1	58	30	76	<0.1	0.01		0.076	3.37

Routine Surface Water Quality - General Analysis -Guelph WRIC & Waste Transfer Station

Date	Lab	pH	Conductivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	TSS mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO3-N mg/L
EPTS-01		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02	
4/27/2017	MAX	8.13	580	220	18	1.1	< 2	5.3	0.28	< 0.05	< 0.02	1	12	< 1	36	25	70	<0.1	0.012		0.068	2.39
5/25/2017	MAX	8.18	600	230	18	1.3	< 2	7.6	0.38	< 0.05	< 0.02	1	12	< 1	40	28	67	0.1	0.011		0.063	1.96
5/25/2017	MAX	8.18	600	230	18	1.3	2	7.6	0.38	0.05	0.02	1	12	1	40	28	67	<0.1	0.011		0.063	1.96
6/22/2017	MAX	8.23	560	230	20	1.5	< 2	12	0.51	0.081	< 0.02	1	12	< 1	30	22	69	<0.1	0.013		0.042	2.19
7/27/2017	MAX	8.08	580	250	20	1.6	2	7.6	0.29	< 0.05	< 0.02	2	12	< 1	33	22	72	<0.1	0.016		0.055	2.1
8/18/2017	MAX	7.96	610	260	20	1.6	< 2	9.1	0.27	< 0.05	< 0.02	2	3.9	< 1	19	23	73	<0.1	0.014		0.067	2.01
9/29/2017	Dry																					
10/26/2017	MAX	8.18	620	270	22	1.8	< 2	6.2	0.54	0.16	< 0.02	2	13	< 1	33	21	81	<0.1	0.018		0.072	1.6
11/23/2017	MAX	8.29	650	280	22	1.5	< 2	< 4	0.11	0.053	< 0.02	< 1	14	< 1	37	22	79	0.28	0.014		0.072	2.45
12/20/2017	MAX	7.9	650	270	22	1.6	< 2	< 4	< 0.1	0.083	< 0.02	5	15	< 1	35	19	80	<0.1	0.015		0.11	2.54
1/23/2018	MAX	7.88	620	250	15	1.6	< 2	< 4	0.22	0.18	0.023	10	14	1.8	38	17	58	<0.1	0.014		0.19	2.5
2/20/2018	MAX	7.49	190	53	4.6	3.1	4	22	0.57	0.21	0.09	10	< 10	6.1	23	13	16	0.56	<0.01		0.053	0.54
3/27/2018	MAX	8.26	700	260	21	1.4	< 2	7.1	0.17	< 0.05	0.022	1	14	< 1	60	28	77	<0.1	0.013		0.07	2.61
4/24/2018	MAX	8.15	770	260	22	1.3	< 2	9.1	0.59	0.051	< 0.02	< 1	11	< 1	62	42	85	<0.1	<0.01		0.1	3.67
5/29/2018	MAX	8.34	680	250	25	1.7	3	16	0.16	0.099	< 0.04	4	15	< 1	49	35	83	<0.1	0.012		0.11	1.92
6/28/2018	MAX	8.04	670	260	19	1.2	< 2	< 4	< 0.1	0.081	0.052	2	14	< 1	43	24	70	<0.1	0.012		0.086	1.73
7/17/2018	MAX	8.04	630	250	21	1.5	< 2	10	0.13	0.14	< 0.02	3	12	< 1	42	29	75	<0.1	0.014		0.048	1.65
8/17/2018	MAX	8.03	600	250	22	1.5	< 2	10	< 0.1	0.081	< 0.02	2	13	< 1	35	22	80	<0.1	0.012		0.053	1.44
8/22/2018	MAX	8.12	630	260	21	1.4	< 2	6.6	0.25	0.19	< 0.02	4	13	< 1	39	24	76	<0.1	0.014		0.061	1.53
9/11/2018	MAX	8.14	600	250	22	1.5	< 2	16	0.42	< 0.05	< 0.02	3	14	< 1	35	21	77	<0.1	0.014		0.057	1.61
10/3/2018	MAX	8.2	600	260	20	1.5	< 2	7.4	0.39	0.11	< 0.02	< 1	14	< 1	32	18	80	<0.1	0.016		0.062	1.76
11/26/2018	MAX	7.91	690	270	20	1.5	< 2	7.3	0.24	0.24	0.045	7	15	< 1	46	26	78	<0.1	0.015		0.1	2.64
12/17/2018	MAX	7.96	720	270	23	1.7	16	11	0.2	0.14	< 0.02	1	16	< 1	48	30	89	<0.1	0.016		0.11	2.94
4/16/2019	MAX	8.31	620	210	18	1.1	< 2	7.6	< 0.1	< 0.05	< 0.02	< 1	14	< 1	46	26	71	<0.1	<0.01		0.059	3
5/10/2019	MAX	8	610	220	20	1.2	< 2	< 4	0.11	< 0.05	< 0.02	1	12	< 1	42	28	72	<0.1	0.012		0.094	3.25
6/6/2019	MAX	8.06	550	230	18	1.6	< 2	12	0.39	< 0.05	< 0.02	1	10	< 1	33	21	67	<0.1	0.014		0.082	1.86
7/18/2019	MAX	8.23	560	230	18	1.8	< 2	12	0.26	< 0.05	< 0.02	3	11	5.2	30	19	68	<0.1	0.014		0.053	1.92
8/27/2019	MAX	8.16	580	240	20	1.8	< 2	6.6	0.33	0.084	< 0.02	2	12	< 1	31	19	74	<0.1	0.015		0.045	1.62
9/24/2019	MAX	8.09	600	250	21	1.7	< 2	6.6	0.42	0.1	< 0.02	2	12	< 1	33	20	77	<0.1	0.014		0.052	1.47
10/29/2019	MAX	8.17	640	260	21	1.7	< 2	8.9	0.35	0.097	< 0.02	2	13	< 1	37	23	81	<0.1	0.013		0.074	2.15
11/27/2019	MAX	8.1	680	270	21	1.7	< 2	7.4	0.24	0.09	< 0.02	< 1	14	< 1	42	26	83	<0.1	0.014		0.094	3

Routine Surface Water Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Conductivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	TSS mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO3-N mg/L
TP1-Out		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02	
1/31/2006	Dry																					
2/28/2006	Dry																					
3/9/2006	MAX	7.6	1390	69	3.9	6	10	52	2.4	0.66	0.29	25	27	1	332	220	37	0.92	<0.02	0.4	0.07	
4/30/2006	Dry																					
5/16/2006	MAX	7.8	222	85	3.4	2.7	< 2	31	1.2	0.07	0.13	3	6	< 1	15	23	23	0.47	0.018		0.019	
6/30/2006	Dry																					
7/31/2006	Dry																					
8/31/2006	Dry																					
9/13/2006	MAX	7.6	135	50	2.2	3.8	4	17	0.9	0.06	0.28	1	8	< 1	5	5.4	16	<0.05	0.032		0.021	
10/31/2006	Dry																					
11/30/2006	Dry																					
12/31/2006	Dry																					
1/31/2007	Snow																					
2/28/2007	Snow																					
3/14/2007	MAX	7.6	972	70	4	5.7	4	28	1.7	0.66	0.3	3	11	< 1	220	180	26	0.2	0.018		0.028	
3/29/2007	MAX	8.2	951	170	9.8	5.8	4	38	2.1	< 0.05	0.12	4	23	< 2	180	170	61	0.48	0.052		0.021	
4/30/2007	Dry																					
5/31/2007	Dry																					
6/30/2007	Dry																					
7/31/2007	Dry																					
8/31/2007	Dry																					
9/12/2007	MAX	7.7	659	107	0.8	45	14	140	3	0.13	0.75	15	48	4	100	53	48	7.2	0.1		0.023	
10/2/2007	MAX	7.9	695	229	9.6	24	7	120	4	0.19	0.26	10	24	2	73	47	72	0.96	0.08		0.022	
11/21/2007	MAX	7.8	191	55	3.1	4.1	5	5	1	0.1	0.22	19	15	< 1	14	15	22	0.77	0.022		0.045	
12/31/2007	Snow																					
1/8/2008	MAX	7.7	867	107	4	2.9	2	22	1.5	< 0.05	0.12	9	24	< 1	190	150	32	0.43	0.013		0.037	
2/28/2008	Snow																					
3/31/2008	Snow																					
4/10/2008	MAX	8.2	535	126	4.3	2.3	< 2	36	1.1	< 0.05	0.14	3	6	1	84	76	32	0.7	0.02		0.011	
5/22/2008	MAX	8.1	584	155	5.9	2.5	3	41	1.5	< 0.05	0.12	17	14	< 1	80	80	41	0.7	0.04		0.008	<0.1
6/24/2008	MAX	7.8	245	87	2.9	1.7	4	37	1.5	0.24	0.23	6	4	1	19	20	22	0.69	0.028		0.019	<1
7/24/2008	MAX	8	333	128	4.8	5.8	4	43	1.3	0.11	0.15	5	< 1	< 1	27	24	35	1.2	0.03		0.006	<0.1
8/11/2008	MAX	7.5	323	118	4.7	2.1	2	24	0.6	0.4	0.059	3	2	< 1	24	24	32	0.5	0.02		0.007	<0.1
9/17/2008	MAX	7.9	427	165	7.1	5.2	< 2	26	1.2	< 0.05	0.091	4	8	< 1	33	40	54	0.5	0.03		0.014	0.1
10/16/2008	MAX	7.9	389	130	3.9	4.7	< 2	63	1.1	0.28	0.11	< 1	34	2	23	23	52	<0.1	0.04		0.007	0.2
11/26/2008	MAX	8.1	4740	243	16	4.2	< 2	36	0.8	0.06	0.056	2	34	< 1	1300	820	160	0.2	0.03		0.055	<0.1
12/31/2008	Snow																					
1/30/2009	Snow																					
2/12/2009	MAX	7.6	772	86	5.2	2.2	< 2	21	0.7	< 0.05	0.11	11	9	< 1	180	110	33	1	<0.01		0.046	
3/11/2009	MAX	6.7	526	95	4.5	2.9	3	27	1	< 0.05	0.13	10	13	< 1	99	78	29	1	0.01		0.045	
4/28/2009	MAX	6.7	404	64	3	1.8	8	53	1.6	0.24	0.25	32	21	2	72	57	22	1.5	0.02		0.062	
5/27/2009	MAX	7	282	52	2.9	4.6	13	71	2.6	0.35	0.5	48	33	4	32	34	21	1.6	0.06		0.08	
6/17/2009	MAX	7	462	133	4.2	6.2	6	53	1.6	0.25	0.13	4	42	< 1	37	42	47	0.6	0.11		0.011	
7/23/2009	MAX	7.1	214	62	3.3	3.4	6	68	2.7	< 0.05	0.5	32	19	< 1	11	16	24	1.2	0.05		0.076	
8/28/2009	Dry																					

Routine Surface Water Quality - General Analysis -Guelph WRIC & Waste Transfer Station

Date	Lab	pH	Conductivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	TSS mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO3-N mg/L
TP1-Out		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02	
9/29/2009	MAX	7.3	228	78	2.7	3.2	3	28	1	0.05	0.19	6	20	< 1	14	15	26	0.1	0.02		0.015	
10/29/2009	MAX	7.8	586	161	6.7	7.7	< 2	35	1.1	0.08	0.14	8	28	< 1	65	48	59	0.3	0.03		0.034	
11/19/2009	MAX	8	627	190	7.7	7.4	< 2	27	1	0.14	0.11	1	18	< 1	70	55	69	0.2	0.03		0.014	
12/9/2009	MAX	7.9	531	167	6.9	4	< 2	21	0.8	0.11	0.06	2	14	< 1	55	48	53	0.2	0.01		0.009	
1/29/2010	Snow																					
2/26/2010	Snow																					
3/18/2010	MAX	7.9	723	224	12	6.4	4	34	1.8	0.15	0.16	7	5	< 1	92	73	64	0.8	0.01		0.019	
4/7/2010	MAX	7.7	599	140	6.5	5.1	6	58	1.8	< 0.05	0.29	9	32	< 1	88	72	53	1.4	0.03		0.02	
5/31/2010	Dry																					
6/22/2010	N/A																					
7/30/2010	MAX	7.8	365	135	4.6	3.1	3	42	1.5	0.57	0.17	9	20	< 1	20	19	48	0.7	0.04		0.007	
8/31/2010	MAX	8.2	379	140	4.1	4.5	3	25	1	0.08	0.13	< 1	20	< 1	21	23	52	<0.1	0.04		<0.005	
9/30/2010	MAX	7.9	443	146	6.4	6.8	< 2	45	1.4	0.19	0.18	< 10	14	< 1	38	32	47	0.5	0.02		0.008	
11/5/2010	MAX	8.17	569	188	8.1	5.9	< 2	41	1.6	0.43	0.15	7	15	< 1	51	51	63	0.7	0.02		0.031	
12/2/2010	MAX	8	544	177	7.9	3	< 2	22	0.6	< 0.05	0.05	3	16	< 1	49	57	50	0.4	0.01		0.019	
12/31/2010	Froze																					
1/28/2011	Froze																					
2/28/2011	Froze																					
3/31/2011	Snow/																					
4/8/2011	MAX	7.97	996	195	10	3.6	< 2	33	1.1	< 0.05	0.1	5	21	< 1	190	130	67	0.4	0.02		0.016	
6/3/2011	MAX	7.65	1030	390	29	7.4	< 2	26	1.7	0.52	0.2	9	36	3	66	63	140	1.4	0.04		0.071	
6/22/2011	MAX	8.06	343	150	5.5	1.5	< 2	39	1.4	0.23	0.13	< 10	< 1	< 1	16	21	45	0.6	0.03		<0.005	
7/29/2011	Dry																					
8/25/2011	MAX	7.48	394	98	5.3	14	3	49	2.3	0.09	0.3	5	40	< 1	33	22	41	<0.1	0.03		0.015	
9/27/2011	MAX	7.96	316	109	5.9	6.9	< 2	42	1.5	0.15	0.24	2	27	7	15	14	39	0.2	0.04		0.013	
10/20/2011	MAX	7.95	225	87	3.6	1.9	< 2	17	0.5	< 0.05	0.09	6	8	3	13	14	26	0.2	<0.01		0.013	
11/29/2011	MAX	7.37	137	50	2.5	1.7	5	35	0.9	< 0.05	0.25	28	10	3	5	7.4	19	1	<0.01		0.059	
12/15/2011	MAX	7.78	423	70	2.4	1.6	3	25	0.6	< 0.05	0.14	5	10	3	75	56	28	0.33	0.014		0.067	
1/31/2012	Dry																					
2/29/2012	Dry																					
3/29/2012	MAX	8	920	170	8.8	3.7	2	41	0.91	0.085	0.15	6	6	< 1	170	130	60	1.1	0.02		0.013	
4/17/2012	MAX	8.1	970	180	8	4.2	< 2	40	1.9	0.09	0.1	5	7	< 1	170	130	65	1.2	0.018		0.0082	
5/31/2012	Dry																					
6/22/2012	MAX	8.04	400	140	4.5	3.8	< 2	43	1	0.16	0.11	4	16	< 1	26	32	48	0.67	0.057		0.0086	
7/26/2012	MAX	8.26	410	140	3.3	5.4	2	27	1.4	0.14	0.079	2	17	< 1	28	36	46	<0.1	0.052		0.0089	
8/31/2012	Dry																					
9/20/2012	MAX	7.67	400	140	6.7	3	< 2	35	1.1	< 0.05	0.075	2	11	3.1	32	26	47	0.29	0.024		<0.005	
10/24/2012	MAX	7.68	490	180	9	2.8	< 2	30	0.64	0.15	0.035	4	12	< 1	38	36	58	0.23	0.019		0.0083	
11/30/2012	Dry																					
12/18/2012	MAX	7.23	740	160	6.9	2	3	21	0.94	< 0.05	0.043	3	23	< 1	120	87	54	<0.1	0.011		0.025	
1/30/2013	MAX	7.05	1600	61	4.8	2.6	7	57	1.8	0.13	0.28	58	17	< 1	400	300	34	1.7	0.013		0.11	
2/28/2013	Dry																					
3/29/2013	Dry																					
4/18/2013	MAX	7.85	1100	94	4.5	1.8	3	31	0.87	0.055	0.056	5	16	2.3	240	190	36	0.49	0.024		0.015	
5/28/2013	MAX	8.26	1000	150	6	3.9	4	59	2.7	0.1	0.82	49	19	< 1	180	150	57	8.5	0.019		0.015	

Routine Surface Water Quality - General Analysis -Guelph WRIC & Waste Transfer Station

AECOM

Date	Lab	pH	Conductivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	TSS mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO3-N mg/L
TP1-Out		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02	
6/27/2013	MAX	8.02	370	120	4	1.9	< 2	20	0.71	0.093	< 0.02	2	10	< 1	30	31	42	0.31	0.032		<0.005	
7/25/2013	MAX	7.96	230	82	3.4	3	< 2	18	0.82	0.17	0.075	1	11	< 1	14	12	33	0.26	0.037		<0.005	
8/7/2013	MAX	7.68	470	140	7.2	12	14	55	1.9	0.055	0.39	11	< 1	1	58	32	46	1.2	0.028		0.011	
9/24/2013	MAX	7.95	510	180	8.8	3.1	< 2	32	1.2	0.094	0.077	2	9	< 1	43	35	54	0.16	0.024		0.007	
10/31/2013	MAX	7.32	150	52	2.2	2.4	3	17	0.72	< 0.05	0.19	5	8	2.3	10	8.8	17	0.26	0.017		0.025	
11/19/2013	MAX	7.82	440	160	8.9	3.9	< 2	25	0.67	< 0.05	0.038	2	15	< 1	30	28	52	0.12	0.022		0.011	
12/5/2013	MAX	7.81	380	130	6.5	2.9	< 2	15	0.71	0.28	0.049	2	18	2.7	30	25	44	0.66	0.012		0.01	
1/14/2014	MAX	7.78	1400	120	8.6	2.8	< 2	15	1.1	< 0.05	0.022	9	14	< 1	310	230	59	0.33	<0.01		0.015	
2/28/2014	Snow																					
3/28/2014	Snow																					
4/23/2014	MAX	7.93	1500	230	15	3.8	< 2	29	0.94	< 0.05	< 0.02	2	5	< 1	300	170	99	0.39	0.012		0.0054	
5/27/2014	MAX	7.99	770	160	7.9	2.2	4	33	1.5	0.14	0.076	6	19	2	130	95	54	0.83	0.043		<0.005	
6/25/2014	MAX	7.46	260	56	3.3	9.1	5	47	1.6	0.28	0.71	8	24	1.9	30	25	19	0.22	0.052		0.015	
7/29/2014	MAX	7.77	270	88	4	2.8	2	30	1.2	0.071	0.089	3	7	< 1	25	22	26	0.12	0.022		0.014	
8/21/2014	MAX	7.73	210	72	3.3	2.5	2	26	0.57	0.088	0.091	1	17	1.1	13	11	25	0.14	0.028		0.012	
9/23/2014	MAX	7.88	370	120	6.4	2.1	< 2	27	0.63	0.066	0.05	1	6	2.1	33	27	40	0.16	0.022		0.0074	
10/23/2014	MAX	7.9	570	180	8	3.9	< 2	31	0.72	0.067	0.072	3	17	1.8	61	45	61	0.39	0.036		0.0058	
11/26/2014	MAX	8.05	870	200	10	2.9	< 2	25	0.89	< 0.05	0.074	15	10	4.5	140	100	61	0.71	0.015		0.024	
12/18/2014	MAX	7.92	570	170	8.9	2.7	< 2	24	0.73	< 0.05	0.052	4	< 1	3.5	74	58	57	0.55	0.013		0.008	
1/31/2015	Ice Co																					
2/28/2015	Ice Co																					
3/17/2015	MAX	7.67	890	96	4.4	3.3	3	26	0.73	0.06	0.062	5	8	6.5	200	130	32	0.27	0.014		0.016	<0.1
4/10/2015	MAX	7.76	1000	180	11	3.1	< 2	20	0.88	< 0.05	0.07	3	8	1.6	180	120	67	0.28	0.019		0.0085	
5/20/2015	MAX	8.16	1200	210	13	5	< 2	30	0.92	< 0.05	0.033	3	2	< 1	260	160	72	0.29	0.018		<0.005	<0.1
6/30/2015	MAX	7.8	660	200	7.6	1.8	7	34	1.1	0.089	0.073	3	1	< 1	88	68	52	0.26	0.026		0.0061	<0.1
7/14/2015	MAX	7.72	420	130	5.3	2.2	< 2	23	0.86	0.1	0.056	1	25	< 1	39	34	39	0.25	0.032		<0.005	0.18
8/27/2015	MAX	7.96	480	150	6.2	3.4	4	23	0.87	0.2	0.072	2	12	< 1	45	40	49	0.49	0.034		<0.005	0.98
9/4/2015	MAX	8	470	150	5.5	3.6	< 2	26	0.82	0.094	0.058	< 1	12	< 1	45	37	47	0.37	0.033		<0.005	1.12
10/22/2015	MAX	8.06	310	100	5.4	3.9	< 2	21	0.45	< 0.05	0.048	1	26	< 1	19	15	37	0.16	0.028		0.0052	<0.1
11/25/2015	MAX	7.73	650	160	8.9	9.1	< 2	34	0.61	< 0.05	0.15	3	42	< 1	76	52	64	0.27	0.026		0.012	<0.1
12/15/2015	MAX	7.53	930	140	10	8.1	8	66	1.4	< 0.05	0.25	35	120	19	120	83	87	2.1	0.096		0.072	<0.1
1/29/2016	Snow																					
2/3/2016	MAX	7.24	1100	86	4.4	2	< 2	25	0.32	< 0.05	0.09	11	28	< 1	240	180	36	0.75	0.022		0.046	<0.1
3/17/2016	MAX	7.69	590	100	4.2	2.2	2	33	0.41	< 0.05	0.11	29	37	< 1	91	63	41	2	0.041		0.075	<0.1
4/26/2016	MAX	7.73	420	58	2.4	1.4	< 2	22	0.37	< 0.05	0.093	18	28	< 1	68	53	25	0.98	0.029		0.042	0.11
5/17/2016	MAX	7.79	870	140	7.2	3.2	3	51	0.89	< 0.05	0.16	8	83	< 1	130	97	70	1.6	0.055		0.013	<0.1
5/26/2016	MAX	7.27	470	63	5.3	4.3	8	100	1.6	0.67	0.24	40	69	3.8	47	42	50	2	0.068		0.1	0.53
6/28/2016	MAX	8.23	510	140	4.8	2.1	< 2	34	0.6	< 0.05	0.039	2	40	< 1	41	40	56	0.15	0.058		<0.005	0.26
7/29/2016	MAX	7.77	320	69	3.1	3.5	3	29	0.7	0.067	0.11	1	61	< 1	15	13	44	0.29	0.045		0.0055	<0.1
8/17/2016	MAX	7.35	370	120	4.4	7.3	18	100	1.3	< 0.05	0.71	9	32	11	22	16	51	1.5	0.044		0.009	<0.1
9/20/2016	MAX	7.96	450	130	5.2	11	< 2	34	0.87	0.16	0.11	8	60	< 1	22	14	72	0.63	0.071		<0.005	0.16
10/19/2016	MAX	8.03	970	170	12	8.2	< 2	37	1	< 0.05	0.052	1	320	< 1	26	21	160	0.49	0.075		0.0055	0.39
11/24/2016	MAX	7.81	540	110	6.7	7.2	12	75	0.79	< 0.05	0.14	8	60	2.3	29	24	65	0.55	0.058		0.037	<0.1
12/30/2016	Snow																					
1/18/2017	MAX	7.91	2300	220	14	3.1	3	30	0.69	0.13	0.062	5	44	< 1	530	330	82	0.47	0.019		0.018	0.16

Routine Surface Water Quality - General Analysis -Guelph WRIC & Waste Transfer Station

Date	Lab	pH	Conductivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	TSS mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO3-N mg/L
TP1-Out		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02	
2/23/2017	MAX	7.86	610	100	4.3	1.5	3	6.9	0.32	< 0.05	0.04	< 1	9.5	< 1	110	75	36	<0.1	0.011		<0.005	<0.1
3/29/2017	MAX	7.96	1100	180	6.9	2.6	< 2	26	0.56	< 0.05	0.042	1	32	< 1	190	130	68	0.23	0.027		0.0058	<0.1
4/27/2017	MAX	8.01	720	200	7.7	1.5	3	49	0.96	< 0.05	0.24	15	15	< 1	96	74	63	1.3	0.036		0.0095	<0.1
5/25/2017	MAX	7.54	270	54	2.1	1.8	3	27	0.7	< 0.05	0.079	9	55	2	13	12	38	0.49	0.028		0.032	0.1
5/25/2017	MAX	7.54	270	54	2.1	1.8	3	27	0.7	< 0.05	0.079	9	55	2	13	12	38	0.49	0.028		0.032	<0.1
6/22/2017	MAX	7.79	750	160	9.6	0.97	8	83	1.3	0.09	0.12	8	210	7.1	23	24	130	1.2	0.056		0.0079	<0.1
7/27/2017	MAX	7.8	680	81	6.4	2.1	2	24	0.41	0.056	0.043	2	240	1.9	14	13	120	0.38	0.038		<0.005	0.32
8/18/2017	MAX	7.4	270	70	2.7	1.8	< 2	24	0.37	< 0.05	0.084	4	37	1.9	4.5	5.7	48	0.36	0.033		0.015	<0.1
9/29/2017	Dry																					
10/26/2017	MAX	7.9	480	140	5.8	4.8	< 2	25	0.68	< 0.05	0.079	3	81	< 1	16	12	81	0.64	0.049		0.0087	<0.1
11/23/2017	MAX	8.12	600	190	7.4	2.9	< 2	20	0.33	< 0.05	0.031	1	55	< 1	40	33	73	0.17	0.024		0.0066	<0.1
12/20/2017	MAX	7.73	870	220	9.1	3.7	< 2	25	0.54	< 0.05	0.068	14	34	< 1	120	71	86	0.72	0.017		0.013	<0.1
1/23/2018	MAX	7.78	1000	95	5.3	1.7	3	14	0.32	0.072	0.077	6	22	1.7	230	160	35	0.35	0.032		0.025	0.13
2/20/2018	MAX	7.58	460	45	3.6	1.9	4	17	0.41	0.13	0.2	50	19	7.7	96	70	22	2	0.018		0.098	0.11
3/27/2018	MAX	8.17	3300	280	14	6.7	< 2	35	0.42	< 0.05	0.067	15	36	< 1	850	540	130	1.5	0.022		0.0058	<0.1
4/24/2018	MAX	8.09	940	210	9.5	2.5	2	33	0.71	< 0.05	0.087	3	13	< 1	150	100	74	0.85	0.016		0.011	<0.1
5/29/2018	MAX	8.11	710	250	14	3.1	7	76	0.83	0.078	0.16	15	< 1	2.2	75	51	84	2.7	0.035		0.0066	<0.1
6/28/2018	MAX	7.75	350	130	4.2	1.5	< 2	26	0.77	0.1	0.14	9	24	< 1	16	14	47	1.5	0.032		0.0088	<0.1
7/17/2018	MAX	7.32	680	76	5.9	7.9	10	67	0.96	0.094	0.35	8	17	1.8	4.8	16	110	0.36	0.044		0.024	<0.1
8/17/2018	MAX	7.45	530	74	5.3	3.7	6	57	0.68	0.066	0.11	4	160	1.1	16	12	91	0.26	0.052		0.026	<0.1
8/22/2018	MAX	7.71	320	100	3.2	1.4	< 2	23	0.42	0.067	0.065	3	47	< 1	8.2	8.4	49	0.49	0.027		0.012	<0.1
9/11/2018	MAX	7.6	510	110	5.2	2.8	< 2	36	0.67	0.1	0.075	2	100	< 1	28	19	73	0.14	0.04		0.01	<0.1
10/3/2018	MAX	7.85	340	100	4.3	2.8	< 2	22	0.6	0.069	0.086	4	40	< 1	19	14	47	0.27	0.034		0.018	<0.1
11/26/2018	MAX	7.83	620	160	7.2	4.7	< 2	24	0.41	0.14	0.075	5	40	< 1	72	41	63	0.12	0.019		0.016	<0.1
12/17/2018	MAX	7.6	2700	280	18	11	23	81	0.77	0.084	0.14	7	63	1.7	630	410	130	1.4	0.028		0.037	<0.1
4/16/2019	MAX	7.89	710	70	4.7	3.6	3	31	0.97	0.15	0.12	14	110	6.2	96	64	66	0.51	0.043		0.042	0.19
5/10/2019	MAX	7.92	420	86	3.6	2.9	3	18	0.38	< 0.05	0.071	4	50	< 1	39	30	47	0.2	0.025		0.008	<0.1
6/6/2019	MAX	7.55	310	93	3.3	3.7	4	32	0.85	< 0.05	0.18	8	29	1	22	17	40	0.96	0.044		0.024	<0.1
7/18/2019	MAX	7.89	400	110	4.3	1.8	< 2	28	0.81	< 0.05	0.11	3	50	< 1	25	19	52	0.42	0.042		0.02	<0.1
8/27/2019	MAX	8.04	510	180	6.9	11	6	75	1.5	0.28	0.5	2	19	1	36	25	66	2.1	0.051		0.0071	<0.1
9/24/2019	MAX	8	450	160	5.5	4.3	< 2	18	0.64	0.091	0.09	2	37	< 1	21	17	68	0.38	0.032		<0.005	0.13
10/29/2019	MAX	7.95	470	140	5.8	3.6	< 2	22	0.55	< 0.05	0.06	2	48	< 1	26	21	65	0.24	0.025		0.012	<0.1
11/27/2019	MAX	7.8	1600	230	14	16	29	150	1.1	< 0.05	0.29	17	32	3.4	250	200	96	2.3	0.033		0.051	<0.1

**Surface Water ORGANIC ANALYSIS (ATG MISA Groups 19 and 20) - Guelph
WRIC/Waste Transfer Station - 2019**

Parameter	EPTS-01 18-Jul-19
<u>MISA Group 19</u>	
Acenaphthene:	< 0.2
5-Nitroacenaphthene:	< 1
Acenaphthylene:	0.26
Anthracene:	< 0.2
Benzo(a)anthracene:	< 0.2
Benzo(a)Pyrene:	< 0.2
Benzo(b)Fluoranthene:	< 0.2
Benzo(g,h,i)perylene:	< 0.2
Benzo(k)Fluoranthene:	< 0.2
Biphenyl:	< 0.5
Camphene:	< 1
1-Chloronaphthalene:	< 1
2-Chloronaphthalene:	< 0.5
Chrysene:	< 0.2
Dibenzo(a,h)Anthracene:	< 0.2
Fluoranthene:	< 0.2
Fluorene:	< 0.2
Indeno(1,2,3-cd)Pyrene:	< 0.2
Indole:	< 1
1-Methylnaphthalene:	< 0.2
2-Methylnaphthalene:	< 0.2
Naphthalene:	0.48
Perylene:	< 0.2
Phenanthrene:	< 0.2
Pyrene:	< 0.2
Benzyl Butyl Phthalate:	< 0.5
bis(2-ethylhexyl)Phthalate:	2
Di-N-butylPhthalate:	< 2
Di-N-octylPhthalate:	< 0.8
4-Bromophenyl phenyl Ethe	< 0.3
4-Chlorophenyl Phenyl Ethe	< 0.5
bis(2-chloroisopropyl)Ether:	< 0.5
bis(2-Chloroethyl)Ether:	< 0.5
Diphenyl ether:	< 0.3
2,4-Dinitrotoluene:	< 0.5
2,6-Dinitrotoluene:	< 0.5
bis(2-chloroethoxy)Methan	< 0.5
Nitrosodiphenylamine /Diphenylamine:	< 1
N-Nitrosodi-N-propylamine:	< 0.5
<u>MISA Group 20</u>	
2,3,4,5-Tetrachlorophenol:	
2,3,4,6-Tetrachlorophenol:	
2,3,5,6-Tetrachlorophenol:	
2,3,4-Trichlorophenol:	< 0.5
2,3,5-Trichlorophenol:	< 0.5
2,4,5-Trichlorophenol:	< 0.5
2,4,6-Trichlorophenol:	< 0.5
2,4-Dinitrophenol:	< 2
2,4-Dimethylphenol:	< 0.5
2,4-Dichlorophenol:	< 0.3
2,6-Dichlorophenol:	< 0.5
4,6-Dinitro-o-Cresol:	
2-Chlorophenol:	< 0.3
4-Chloro-3-methylphenol:	< 0.5
4-Nitrophenol:	< 1.4
o-Cresol:	< 0.5
m-,p-Cresol:	< 0.5
Pentachlorophenol:	< 1
Phenol:	< 0.5

**Surface Water ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 -Guelph
WRIC/Waste Transfer Station - 2019**

Parameter	EPTS-01 18-Jul-19
<u>MISA Group 16</u>	
1,1,1,2-Tetrachloroethane:	< 0.5
1,1,1-Trichloroethane:	< 0.25
1,1,2,2-Tetrachloroethane:	< 0.5
1,1,2-Trichloroethane:	< 0.5
1,1-Dichloroethane:	< 0.25
1,1-Dichloroethylene:	< 0.25
1,2-Dichlorobenzene:	< 0.5
1,2-Dibromoethane:*	< 0.5
1,2-Dichloroethane:	< 0.5
1,2-Dichloropropane:	< 0.25
1,3-Dichlorobenzene:	< 0.5
1,4-Dichlorobenzene:	< 0.5
Bromodichloromethane:	< 0.25
Bromoform:	< 0.5
Bromomethane:	< 1.3
Carbon Tetrachloride:	< 0.25
Chlorobenzene:	< 0.25
Chloroform:	1
Chloromethane:	< 1.3
Cis-1,2-Dichloroethylene:	< 0.25
Cis-1,3-Dichloropropylene:	< 0.5
Dibromochloromethane:	< 0.5
Methylene Chloride:	< 1.3
Tetrachloroethylene:	< 0.25
trans-1,2-Dichloroethylene:	< 0.25
Trans-1,3-Dichloropropylene:	< 0.5
Trichloroethylene:	< 0.25
Trichlorofluoromethane:	< 0.5
Vinyl chloride:	< 0.5
<u>MISA Group 17</u>	
Benzene:	< 0.25
Ethylbenzene:	< 0.25
Styrene:	< 0.5
Toluene:	< 0.5
o-Xylene:	< 0.25
m-Xylene and p-Xylene:	< 0.25
<u>MISA Group 18</u>	
Acrolein:	< 25
Acrylonitrile:	< 13

Appendix **D**

2019 Laboratory Reports
(CD in report pocket)

Appendix **E**

Certificate of Approval – WRIC and Transfer Station


 AMENDED PROVISIONAL CERTIFICATE OF APPROVAL
 WASTE DISPOSAL SITE

NUMBER A170128

Issue Date: February 10, 2011

The Corporation of the City of Guelph
 1 Carden St
 Guelph, Ontario
 N1H 3A1

Site Location: 110 Dunlop Drive
 Guelph City, County of Wellington
 N1H 6N1

You have applied in accordance with Section 27 of the Environmental Protection Act for approval of:

the establishment and operation of a Waste Disposal Site (Transfer and Processing) consisting of a 29.54 hectare of property for the purposes of composting, multi-material recovery, and waste transfer to serve the municipalities and businesses of the Province of Ontario and *Municipal Hazardous and Special Waste Transfer Station* serving the County of Wellington and City of Guelph,

to be used for:

a) the use and operation of an Organic Waste Processing Facility composting of the following categories of waste (*Note: Use of the site for additional categories of wastes requires a new application and amendments to the Provisional Certificate of Approval*); organic non-hazardous waste from residential, industrial, commercial and institutional sources limited to a maximum Site indoor storage capacity of 8,500 tonnes;

b) the use and operation of a *Material Recovery Facility* for processing, transfer and temporary storage of the following categories of waste (*Note: Use of the Site for additional categories of wastes requires a new application and amendments to the Provisional Certificate of Approval*); municipal waste including food and beverage cans, cardboard, glass, newspaper, plastic, waste electrical and electronic equipment and other such materials as would be collected by means of the source separated *dry waste* collection system limited to a maximum indoor storage capacity of 3850 tonnes and having an outdoor storage area for recyclable waste and *leaf and yard waste* that is located to the west of the Organic Waste Processing Facility;

c) the use and operation of a Municipal Hazardous and Special Waste facility for the transfer and temporary storage of the following categories of waste (*Note: Use of the Site for additional categories of wastes requires a new application and amendments to the Provisional Certificate of Approval*); *Municipal Hazardous and Special Waste* limited to the following waste classes; 112, 121, 145, 146, 148, 212, 213, 221, 242, 251, 252, 261, 263, 269, 312, and 331 as outlined in the New Ontario Waste Classes January 1986 limited to a maximum Site storage capacity of 15 tonnes; and

d) the use and operation of a Waste Disposal Site (Transfer) for non-hazardous solid industrial waste (*Note: Use of the Site for additional categories of wastes requires a new application and amendments to the Provisional Certificate of Approval*); from industrial, commercial and institutional sources, commercial waste and domestic waste, with an indoor storage maximum capacity of 795 tonnes and outdoor storage areas for *leaf and yard waste* and for recyclable waste.

For the purpose of this Certificate of Approval and the terms and conditions specified below, the following definitions apply:

(a) "Act" means the *Environmental Protection Act*, R.S.O. 1990, C.E-19, as amended;

(b) "Air Pollution Control Equipment" means the air pollution control equipment to abate emissions to the atmosphere

CONTENT COPY OF ORIGINAL

originating from the *Processing Building*;

(c) "**Amendment Materials**" means the materials derived from plants or animals, including materials consisting of other compounds of carbon, all readily biodegradable, and limited to materials listed in Condition 54.(2) of this Certificate;

(d) "**birds**" means pigeons, gulls, terns, crows, hawks, ducks, geese or any other birds that create a hazard to aircraft;

(e) "**brush**" means tree limbs, natural Christmas trees or other woody materials;

(f) "**Certificate**" means this entire provisional Certificate of Approval document, issued in accordance with section 39 of the *Act*, and includes any schedules to it, the application and the supporting documentation listed in schedule "A";

(g) "**Certificate of Approval (Air/Noise)**" means the Certificate of Approval issued under section 9 of the *EPA* for this Composting Site;

(h) "**City**" means the Corporation of the City of Guelph;

(i) "**Clean Wood**" means wood that is not painted wood, treated wood or laminated wood. *Clean Wood does not include wood waste or waste wood*;

(j) "**Competent Person**" or "**Competent People**" means a person or people who has/have training and knowledge of the following:

- i. relevant waste management legislation, regulations and guidelines;
- ii. major environmental concerns pertaining to the waste to be handled;
- iii. contents of the *Facility's Design and Operating Report*;
- iv. the terms, conditions and operating requirements of the *Certificate*;
- v. the applicable Fire Code and how it applies to proper storage and handling of waste that may be reactive, oxidizing, explosive or flammable;
- vi. the *WRIC Environmental Emergency Plan*, including exit locations and evacuation routing, and location of relevant equipment available for emergency situations;
- vii. procedures for recording and responding to public complaints;
- viii. record keeping procedures as outlined in Conditions 51 and 63 of this *Certificate*;
- ix. occupational health and safety concerns pertaining to the wastes to be processed;
- x. specific written procedures for the control of nuisance conditions;
- xi. operation and management of the *Site*, in accordance with the specific job requirements of each individual operator;
- xii. procedures for the identification and refusal of unacceptable wastes;
- xiii. proper handling of waste, and
- xiv. proper procedures for the storage of waste and proper maintenance of the *Site*;

(k) "**Compost**" means the material produced by an aerobic Composting of the Organic Waste and which has been tested to show compliance with the Compost quality criteria listed in Schedule B of this *Certificate* and can be used as a soil additive or for other similar uses. Compost is not considered a waste;

(l) "**Composting**" means an aerobic biological process, conducted under controlled engineered conditions designed to decompose and stabilize organic matter; simple exposure of organic matter under non-engineered conditions resulting in uncontrolled decay is not considered Composting;

(m) "**Composting Residual Waste**" means waste resulting from the Organic Waste processing activities at the *Composting Site* and the waste that cannot be Composted and that is destined for final disposal;

(n) "**Composting Site**" means the Organic Waste Composting Site, which is a part of the waste disposal site located at 110 Dunlop Drive in the City of Guelph, approved in this *Certificate* and as described and referred to in Items #32 to #47 of the attached Schedule "A";

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- (o) "**Current Design and Operations Report**" or "**Current Design and Operations Reports**" means the Design and Operations Report or the Design and Operations Reports that is/are referenced in Items 49, 50, and/or 51 of Schedule "A" of this *Certificate* or the most recent Design and Operations Report that the Owner has submitted to the Ministry in accordance with Condition 68(4) of this *Certificate*;
- (p) "**Director**" means any Ministry employee appointed in writing by the Minister pursuant to section 5 of the *Act* as a Director for the purposes of Part V of the *Act*;
- (q) "**District Manager**" means the District Manager of the of the Guelph District Office of the Ministry;
- (r) "**District Office**" means the local office of the Ministry in which the Site is geographically located;
- (s) "**dry waste**" means those waste materials not identified in the wet and household hazardous waste streams;
- (t) "**Engineer's Report**" means a report prepared under the direction of and signed by an Independent Professional Engineer that sets out the *Operating Envelope*;
- (u) "**Finished Compost**" means the Organic Waste that has been Composted and fully cured and is considered ready for sampling and testing for compliance with the *Compost* quality criteria. Finished Compost is considered a waste until testing for the *Compost* quality criteria is completed and compliance with the criteria is demonstrated;
- (v) "**Immature Compost**" means the Organic Waste which has been Composted in the aerate *Composting* tunnels and screened within the confines of the *Processing Building*. Composted Organic Waste is considered an Immature Compost until it has been fully cured and is ready for compliance testing for *Compost* quality criteria. Immature Compost is considered a waste;
- (w) "**incident**" means an abnormal event which causes a spill, emission, emergency situation or other occurrences which may have an adverse effect on the environment, cause a nuisance or endanger public health and safety;
- (x) "**Independent Professional Engineer**" means a Professional Engineer licensed to Practice in the Province of Ontario and who is not an employee of the Owner;
- (y) "**Infrastructure**" means the structural elements that are used at the waste disposal site approved by this *Certificate* including buildings, structures, grounds and utilities;
- (z) "**leaf and yard waste**" means waste consisting of leaves, grass clippings and other plant materials but not tree limbs or other woody materials;
- (aa) "**Material Recovery Facility**" or "**MRF**" means the facility where *dry waste* is received, processed and stored, and includes the material recovery building and an outside storage area;
- (bb) "**Ministry**" means the Ontario Ministry of the Environment and includes all officials, employees or other persons acting on its behalf;
- (cc) "**Modifications**" means a change to the waste disposal site identified in the Engineer's Report and approved by this *Certificate* including changes to how the *Site* is used, operated, altered or enlarged;
- (dd) "**Municipality**" means The Corporation of the City of Guelph, and includes its officers, employees, agents and contractors;

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- (ee) "**Municipal Hazardous and Special Waste**" and the acronym "**MHSW**" means hazardous waste or special waste generated by households located in the geographic boundaries of the City of Guelph and County of Wellington that fall within waste numbers 112, 121, 145, 146, 148, 212, 213, 221, 242, 251, 252, 261, 263, 269, 312, and 331 as outlined in the New Ontario Waste Classes, January 1996. as defined in Ontario Regulation 347; and also includes wet cell batteries and small dry cell batteries, household cleaners and detergents, aerosols, waxes and polishes, fluorescent tubes and energy efficient light bulbs and mercury switches and thermostats;
- (ff) "**Municipal Hazardous and Special Waste Transfer Station**" or "**MHSW Waste Transfer Station**" means the location where the *MHSW* waste is received, bulked, packed, stored and transferred to recyclers and/or to final disposal;
- (gg) "**NMA**" means *Nutrient Management Act*, 2002, S.O. 2002, c. 4, as amended from time to time;
- (hh) "**Ontario Regulation 347** and *O. Reg. 347*" means Ontario Regulation 347, R.R.O. 1990, General - Waste Management, made under the *Act*, as amended from time to time;
- (ii) "**Ontario Regulation 362**" means Ontario Regulation 362 - R.R.O. 1990, Waste Management PCBs, or as amended, made under the *Act*;
- (jj) "**Ontario Regulation 903**" means Ontario Regulation 903 – R.R.O. 1990, Wells, amended to Ontario Regulation 128/03, made under the *OWRA*;
- (kk) "**Operating Envelope**" means the limits on the pre-approved *Modifications* that the *Owner* may make to the *Site* without further amendment to the *Certificate*;
- (ll) "**Organic Waste**" means solid non-hazardous waste derived from plants or animals, including wastes consisting of other compounds of carbon, all readily biodegradable, and limited to wastes listed in Condition 54 of this *Certificate*;
- (mm) "**Owner**" means any person that is responsible for the establishment and operation of the *Site* being approved by this *Certificate*, and includes The Corporation of the City of Guelph, its successors and assigns;
- (nn) "**OWRA**" means the *Ontario Water Resources Act*, R.S.O. 1990, c. O.40, as amended;
- (oo) "**PA**" means the *Pesticides Act*, R.S.O. 1990, c. P-11, as amended from time to time;
- (pp) "**PCB**", "**PCB waste**" and "**PCBs**" means any monochlorinated or polychlorinated biphenyl or any mixture of them or mixture that contains one or more of them;
- (qq) "**Processing Building**" means the building at the *Composting Site* where the *Organic Waste* is received, pre-processed, Composted, screened and cured;
- (rr) "**Provincial Officer**" means any person designated in writing by the Minister as a provincial officer pursuant to Section 5 of the *OWRA* or Section 5 of the *EPA* or Section 17 of the *PA* or Section 4 of the *NMA* or Section 8 of *SDWA*;
- (ss) "**Public Liaison Committee**" and "**ToR PLC**" and "**PLC**" :means the committee referred to in Conditions 29, and 30 that is established to monitor the construction and operation of any activity at the *Site*;
- (tt) "**putrescible waste**" means solid waste that contains organic matter capable of being decomposed by microorganisms;

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- (uu) "**Rejected Waste**" means the load of incoming waste received at the *Composting Site* and deemed by *Owner* to contain waste that does not meet the incoming *Organic Waste* quality criteria set out in this *Certificate* or that cannot be Composted;
- (vv) "**residual waste**" means waste resulting from the operations at the *Site* and directed for disposal;
- (ww) "**residual waste (Processing Building)**" means waste resulting from the Organic Waste processing activities at the *Composting Site* and the waste that cannot be Composted and that is destined for final disposal;
- (xx) "**Re-Start-up**" means resumption of the *Organic Waste* processing activities at the *Composting Site* following suspension of operations or a long duration power failure at the *Composting Site*;
- (yy) "**small generators**" means small sources of waste of unknown origin that the City manages as a result of improper or illegal disposal of waste within the City of Guelph and is/are less than 500 kg of solid, non-hazardous waste per load or/and a combined total of less than 100 litres per month of hazardous wastes listed in Ontario Regulation 347 Schedule 1 or Schedule 2B and characteristic waste, or/and less than 1 kg per month of hazardous waste listed in Ontario Regulation 347 Schedule 2A, or/and less than 500 litres per month or 6000 litres per year of liquid industrial waste. Where the small generators generate both hazardous and liquid industrial waste, the sum total of the two shall not exceed 6000 litres per year;
- (zz) "**SDWA**" means *Safe Drinking Water Act*, 2002, S.O. 2002, c. 32, as amended from time to time;
- (aaa) "**Site**" means the 29.54 hectare Waste Disposal Site (Processing and Transfer) for the purposes of receipt, storage, processing and transfer of waste by *Composting*, waste transfer, and multi-material recovery, to serve the municipalities and businesses of the Province of Ontario and *Municipal Hazardous and Special Transfer Waste Station*, serving the County of Wellington and City of Guelph located on Lot 4 and 5 Concession 1, Division C, Guelph, Ontario as shown on Reference Plan 61R-5574;
- (bbb) "**Start-up Date**" means the date on which the *Organic Waste* is first received at the *Composting Site*;
- (ccc) "**Trained Personnel**" means an employee who in addition to being a *Competent Person* is trained in accordance with the requirements of Condition 60 and knowledgeable through instruction and/or practice;
- (ddd) "**Waste Transfer Station**" means the part of the *Site* that is used to receive, process and transfer non-hazardous solid waste including municipal, industrial, commercial and institutional wastes, *leaf and yard waste* and source separated recyclables;
- (eee) "**waste wood**" means waste that is a wood or a wood product that has been treated with adhesives or preservatives or painted and includes manufactured wood such as medium density fibreboard;
- (fff) "**wet waste**" means organic waste material consisting of food scraps and other non-hazardous waste with similar characteristics collected as part of the *Municipality's* residential curbside collection program;
- (ggg) "**wood waste**" means waste that is wood or a wood product that is not contaminated with chromated copper arsenate, ammoniacal copper arsenic pentachlorophenol, creosote or other wood preservative, is not part of an upholstered article, does not have an affixed or adhered rigid surface and from which hardware or fittings have been removed;
- (hhh) "**WRIC**" means the City of Guelph Waste Resource Innovation Centre located at 80/110

Dunlop Drive, Guelph; and

(iii) "**WRIC Environmental Emergency Plan**" means the plan that is required by Condition 45 for the Waste Resource Innovation centre facility located at 80/110 Dunlop Drive, Guelph.

You are hereby notified that this approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. The issuance of, and compliance with, this *Certificate* does not:

(1) relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement including, but not limited to:

- (a) obtaining *Site* plan approval from the local municipal authority;
- (b) obtaining all necessary building permits from the local municipal authority Building Services Division;
- (c) obtaining approval from the Chief Fire Prevention Officer, local municipal authority; or

(2) limit in any way the authority of the Ministry to require certain steps be taken or to require the *Owner* and Operator to furnish any further information related to compliance with this *Certificate*.

A. INTERPRETATION

2. The requirements of this *Certificate* are severable. If any requirement of this *Certificate*, or application of any requirement of this *Certificate*, to any circumstances is held invalid, the application of such requirement to other circumstances and the remainder of this *Certificate* shall not be affected thereby.

3. Where there is a conflict between a provision of any document, including the application referred to in this *Certificate* and the conditions of this *Certificate*, the conditions in this *Certificate* shall take precedence.

4. Where there is a conflict between the application and a provision in any documents listed in Schedule "A", the application shall take precedence, unless it is clear that the purpose of the document was to amend the application and that the *Ministry* approved the amendment.

5. Where there is a conflict between any two documents listed in Schedule "A", other than the application, the document bearing the most recent date shall take precedence.

B. CHANGE IN OWNERSHIP

6. (a) The *City* shall notify the *Director*, in writing, of any of the following changes within, thirty (30) days of the change occurring;

- (i) change of *Owner*/operator of the *Site* or both;
- (ii) change of address of the *City*'s office or address of the new owner; and
- (iii) any changes in the legal name of the *Certificate* holder, or any change of business name or style where applicable;

(b) Notification shall include a copy of the most current "Initial Notice" or "Notice of Change" filed under the Corporations Information Act, R.S.O. 1990, as amended from time to time, or if that act is not applicable, a copy of the most recent registration under the Business Names Act, R.S.O. 1990, as amended from time to time; and

(c) In the event of any change in ownership of the *Site*, the *Owner* shall notify in writing the succeeding owner of the existence of this *Certificate*, and a copy of such notice shall be forwarded to the *Director*.

C) RECORDS and MINISTRY ACCESS

7. (a) The *City* shall make all records, diagrams and reports, available upon request for inspection by a Provincial Officer;

and

(b) The *City* shall maintain, at all times, up-to-date *Site* plans, plant drawings, operation plans, contingency plans, emergency measures and any other similar type information at the facility for as long as the facility is operational and shall retain this information for five (5) years following closure of the facility.

8. The *Municipality* shall allow *Ministry* personnel, or a *Ministry* authorized representative(s), upon presentation of credentials, to carry out any and all inspections authorized by Section 156, 157 or 158 of the *Act*, Section 15, 16, 17 of the Ontario Water Resources Act, R.S.O. 1990, or Section 19, 20 of the Pesticides Act, R.S.O. 1990, as amended from time to time, of any place to which this *Certificate* relates; and, without restricting the generality of the foregoing to:

- (i) enter upon any premises where the records required by the Conditions of this *Certificate* are kept;
- (ii) have access to and copy, at any reasonable time, any records required by the Conditions of this *Certificate*;
- (iii) inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations required by the Conditions of this *Certificate*; and
- (iv) sample and monitor at reasonable times for the purposes of assuring compliance with the Conditions of this *Certificate*.

9. (a) The *Municipality* shall, forthwith upon request of the *Director*, *District Manager*, or Provincial Officer (as defined in the *Act*), furnish any information requested by such persons with respect to compliance with this *Certificate*, including but not limited to, any records required to be kept under this *Certificate*; and

(b) In the event the *Municipality* provides the *Ministry* with information, records, documentation or notification in accordance with this *Certificate* (for the purposes of this Condition referred to as "Information");

- (i) the receipt of Information by the *Ministry*;
- (ii) the acceptance by the *Ministry* of the Information completeness or accuracy; or
- (iii) the failure of the *Ministry* to prosecute the *Municipality*, or require the *Municipality* to take any action under this *Certificate* or any statute or regulation in relation to the Information;

shall not be construed as an approval, excuse or justification by the *Ministry* of any act or omission of the *Municipality* relating to the Information, amounting to non-compliance with this *Certificate* or any statute or regulation.

10. Any information relating to this *Certificate* and contained in *Ministry* files may be made available to the public in accordance with the provisions of the Freedom of Information and Privacy Protection Act, R.S.O. 1990, C.F-31.

11. All records and monitoring data required by the Conditions of this *Certificate* must be kept on the *Site* for a minimum period of at least five (5) years.

D. SITE OPERATIONS

General

12. a) Except as otherwise provided by these Terms and Conditions, this *Site* shall be designed, developed, used, maintained and operated in accordance with the Applications for Provisional Certificate of Approval for a Waste Disposal Site dated October 22, 2009 and January 11, 2010 and signed by Bill Shields, Supervisor of Governance and Compliance, City of Guelph and associated plans and specifications, and the other supporting documentation listed in the attached Schedule "A" of this *Certificate*; and

b) Within ninety (90) days from the first receipt of *Organic Waste* at the *Composting Site*, a set of as-built drawings showing the *Composting Site*, as constructed, shall be prepared and kept at the *Composting Site*.

13. Only vehicles operating under the City's current Waste Management System Certificate of Approval No. A170150 are

permitted to bring waste to this *Site* during Sunday operating hours.

14. (i) The *Site* shall be operated and maintained in an environmentally safe manner which ensures the health and safety of all persons and minimizes visual impacts, surface water ponding, dust, odours, vectors, litter, vibration, noise and hazard to aircraft; and

(ii) If at any time problems such as dust, odours, vectors, litter, vibration, noise, hazard to aircraft or other nuisances are generated at the *Site*, resulting in complaints received by this *Ministry* and validated by a Provincial Officer, then the *City* shall upon request of the *Ministry*, take appropriate remedial action immediately. Appropriate measures may include temporary stoppage of all operations until the problem has been rectified and measures have been undertaken to prevent future occurrence.

Receiving Waste

15. a) *Residual waste*, transported from the *Site*, shall not exceed an average of one thousand (1000) tonnes per day averaged over a calendar year. If the *residual waste* approaches an average of one thousand (1000) tonnes per day, the *City* shall take measures immediately to reduce the receipt of the waste that causes the *residual waste* to approach the average of one thousand (1000) tonnes per day. *Residual waste* shall be disposed of at a waste disposal site approved by the *Ministry* to accept such waste;

b) The maximum amount of *residual waste* that may be transported from the *Site* is 1200 tonnes per day; and

c) In the event that *residual waste* and/or processed waste cannot be transferred from the *Site*, the *Owner* shall cease accepting any additional waste at the *Site*.

16. All in-coming and outgoing wastes to and from the *Site* shall be screened and inspected by *Competent Person* or *Trained Personnel* as detailed in the *Current Design and Operations Reports*, prior to being received, transferred and shipped to ensure wastes are being managed and disposed of in accordance with the *Act* and *O. Reg. 347*.

Waste Storage

17. Waste shall be stored at the *Site* in accordance with the *Current Design and Operations Reports* and at a minimum the *Owner* shall ensure that:

(1) i) all activities related to unloading waste, in-process waste and *residual waste* shall be conducted indoors at all times; and

ii) Condition 17. (1) i) does not apply to materials destined for recycling markets; and

iii) Condition 17.(1)(i) does not apply to materials received at the Public Drop-Off area.

(2) all *putrescible waste* shall be removed from the tipping floor of the *Waste Transfer Station* and the *MRF* at the end of each operating day and the tipping floor cleaned as necessary. Any *putrescible waste* that is not removed from the *Site* at the end of the operating day shall be stored indoors in a tarped or enclosed container;

(3) all containers used for the outside storage of non-putrescible processed waste that is destined for recycling markets shall be maintained in a leakproof condition and shall be tarped or enclosed unless material is being added or removed;

(4) The following are the maximum storage amounts that are allowed at the *Site*:

(a) *Waste Transfer Station* - 795 tonnes inside the *Waste Transfer Station* building;

(b) *MRF*- 3850 tonnes inside *MRF* building;

(c) Organic Waste Processing Facility- 8,500 tonnes inside building;

(d) Outdoor storage of the following:

i) *leaf and yard waste*- 4000 tonnes;

ii) a maximum of 3050 tonnes of non-putrescible recyclable wastes stored in dedicated bunkers or covered bins on an asphalt paved pad of approximate area of 6100 square metres pads located to the south of the transfer station and an asphalt paved pad of approximate area 2,100 square metres to the west of the Organic Processing Facility for the storage of such

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recyclable materials as waste electronics, tires, scrap metal, corrugated cardboard and reusable materials;

iii) outdoor storage for a maximum of twelve (12) hours of two loaded transfer trailers from *Waste Transfer Station*;

iv) outdoor storage of *waste wood*, *wood waste* and *Amendment Materials* that are referred to in Condition 54 (9) of this *Certificate* in amounts that are needed for the processing of *Organic Waste* at the *Organic Waste Processing Facility*;

v) Any outdoor storage of recyclable waste shall not create a nuisance or hazard;

(e) wastes that are in bins in the Public Drop-Off area that is identified in Appendix A-1 of the Design and Operations Report that is identified in item 51 of Schedule "A"; and

(f) *MHSW Waste Transfer Station*-15 tonnes;

(5) The maximum storage times are as follows:

(a) *Waste Transfer Station* - i) *Organic Waste*- except as provided in (in building) Condition 17 (5) (a) ii), 24-hours storage time at the *Waste Transfer Station* until the *Start-up Date*;

ii) due to exceptional circumstances or an emergency, the *Owner* may request to the *District Manager* that maximum 24-hour storage allowed by Condition 17 (5)(a) i) be extended to up to 72-hours and the *District Manager* has the authority to grant written concurrence to such a request;

iii) after the *Start-up Date*, *Organic Waste*, *Residual Waste* and/or *rejected waste* may be stored at the *Waste Transfer Station* in accordance with Condition 56 (2)(h), 56(3)(c), and/or 56(4)(b);

iv) after the *Start-up Date*, due to exceptional circumstances or an emergency that results in the cessation of further processing at the *Composting Site*, on a one time basis for each such cessation of further processing, the *Owner* may remove the unprocessed organic waste from the *Composting Site* and transfer it in a covered container, on a priority basis, to the *Waste Transfer Station* and have it removed from the *Waste Transfer Station* on the same day that the transfer of unprocessed *Organic Waste* occurred on;

v) all other waste - 72-hours;

vi) due to exceptional circumstances or an emergency, the *Owner* may request to the *District Manager* that maximum 72-hour storage allowed by Condition 17 (5)(a) v) be extended to up to seven (7) days and the *District Manager* has the authority to grant written concurrence to such a request; and

vii) notwithstanding Conditions 17 i), ii), iii), iv), v) and vi), if the *District Manager* determines that the storage of odorous waste at the *Waste Transfer Station* is causing significant odour issues, the odorous waste at the *Waste Transfer Station* shall be immediately removed from the *Site*;

(b) *MRF* i) 5 days for generation of *residual waste* from date of (in building) generation; and

ii) 120 days for all other waste;

(c) *Organic Waste* i) as outlined in Condition 54 (8)(a)

Processing Facility of this *Certificate*, *Organic Waste* shall

be incorporated into active *Composting* process within 36-hours of receipt;

ii) as outlined in condition 54 (8)(e) of this *Certificate*, *residual waste (Processing Building)*

-maximum of 14 days storage time from generation date;

(d) Outdoor storage of waste - i) 12 hours for a maximum of two loaded and

transfer trailers from the *Waste Transfer Station*; and

ii) seven (7) days storage time for all other waste stored outside;

(e) Outdoor storage of materials referred to in Conditions 54 (9) and 17 (4)d.(iv) - the reasonable amount of time required for operational needs at the *Organic Waste Processing Facility* for the outdoor storage of *waste wood, wood waste* and *Amendment Materials*; and

(f) *MHSW* - 90 days storage time; and

(6) No storage or transfer areas, other than those approved under this *Certificate* shall be used for waste storage or transferring.

Dirt, Dust and Airborne Emissions

18. (a) The *City* shall ensure that dust and/or other material that may become a contaminant, generated by activities on the *Site*, is minimized in a manner that ensures there are no off-*Site* impacts of such emissions. The *City* shall implement control measures as outlined in the approved Operation and Management Plan to comply with this Condition;

(b) The *City* shall ensure that vehicles entering the *Site* do not drag into the *Site*, dirt and/or other material that may become a contaminant or a nuisance. The *City* shall ensure that vehicles leaving the *Site* do not drag out of the buildings or off the *Site* waste, dirt and/or other material that may become a contaminant or a nuisance; and

(c) All parking areas, on-*Site* roads that are used for transportation of wastes, recyclable material and/or processed material including *Compost*, and storage areas shall be paved and shall be cleaned as necessary to prevent dust and litter from blowing off the *Site*.

Litter

19. (a) Litter shall be picked up daily from the *Site* and from roads and ditches within one (1) kilometer of the *Site*;

(b) All collected and stored litter shall be in closed or covered containers;

(c) Litter collected through the litter control program shall be transferred off-*Site* or processed within four (4) days of collection; and

(d) The *City* shall undertake all reasonable measures at the *Site* to ensure that there is no unauthorized dumping of waste on the *Site*.

Rodents and Vermin

20. (a) The *City* shall implement the approved litter control to minimize and control the occurrence of vectors, rodents and vermin; and

(b) If necessary, the *City* shall retain the services of a pest management company to monitor and controls vectors, rodents and vermin.

Odour

21. a) The Odour Monitoring Program that is required by Condition 58 (13) of this *Certificate* also shall be designed to detect and identify any odours originating from the operation of the *Waste Transfer Station* and the *MRF*;

b) *Organic Waste* received at the public drop-off bins shall remain covered at all times other than loading and shall be emptied indoors daily; and

c) If *putrescible waste* is received at the *Material Recovery Facility*, it shall remain covered at all times other than during loading and unloading.

Noise

22. (a) All off-road equipment used at the *Site* shall be operated in such a manner that sound levels from such equipment do not exceed 85 decibels at 15 metres measurement distance;

- (b) All off-road equipment shall be operated and maintained in accordance with the procedures specified in Publication NPC-115 of the *Ministry's* Model Municipal Noise Control By-law;
- (c) All stationary equipment shall be operated and maintained in accordance with the procedures specified in Publication NPC-105 of the *Ministry's* Model Municipal Noise Control By-law; and
- (d) Notwithstanding Conditions 22, (a), (b) and (c), if at any time noise and vibration nuisances are generated at the *Site*, resulting in complaints received by this *Ministry* and validated by a Provincial Officer, the *City* shall take remedial action immediately.

Hazard to Aircraft

23. (a) The *City* shall ensure that the activities related to the operation of the *Site* do not create a hazard to aircraft;
- (b) The *City* shall ensure that there is no net increase in bird populations at the *Site* above the baseline levels established by the baseline study that has been conducted by the *Owner*;
- (c) If the population of *birds* in the vicinity of the facility increases above the baseline levels, the *City* shall immediately undertake additional bird deterrent measures, to bring the bird population in accordance with baseline levels;
- (d) The *City* shall ensure that the number of thermals created by the *Site* is kept to the minimum and that the number of *birds* soaring in these thermals shall not exceed ten (10) at any given time;
- (e) The *City* shall ensure that the amount of dust, steam, smoke or other airborne vapour discharged from the facility is kept to the minimum and shall not restrict visibility on or near the Guelph Air Park;
- (f) The *City* shall continue to implement a bird control management plan, as required, to ensure the *Site* is not an attraction to *birds*. The bird control management plan shall include but not be limited to additional bird deterrent measures in addition to the measure outlined in Item 6 of Schedule "A"; and
- (g) Upon receipt of a written notification that Transport Canada or such other governmental agency of equivalent jurisdiction over airport operations has served notice or a similar written warning to shut down or curtail airport operations at the Guelph Air Park due to hazard to aircraft as a result of *birds* in the vicinity of the airport, which may or may not be a direct result of the *Site* operations, the *City* shall undertake the following measures immediately:
- (i) cease acceptance of all waste at the *Site*, except *MHSW*, unless in the opinion of the *District Manager*, the reason for the hazard to aircraft as a result of *birds* is known, and is not a direct or indirect result of *Site* operations;
 - (ii) if the reason for the hazard to aircraft as a result of *birds* is known and is a direct or indirect result of *Site* operations, take all reasonable measures to investigate the problem, institute remedial/mitigative measures immediately, devise a long-term action plan to avoid any such future occurrences at the airport and submit a comprehensive report of such plans to the *Director*, and the appropriate agency that has served the notification to shutdown or curtail airport operations;
 - (iii) if the reason for the hazard to aircraft as a result of *birds* is not known, the *City* shall undertake a comprehensive study, acceptable to the *Director* and the agency that served notification to shutdown or curtail operations to determine if such hazard to aircraft was a direct or indirect result of the *Site* operations and to propose measures to prevent any similar or related occurrences that may create a hazard to aircraft;
 - (iv) the *City* shall submit the reports required by Condition 23 (g) (ii) and (iii) to the *Director* for approval and to the agency that served notification to shutdown or curtail airport operations. Upon the *Director's* approval, the *City* shall implement remedial/mitigative/contingency measures, as required;
 - (v) The *City* shall not accept any waste at the *Site* unless a qualified professional consultant has submitted a report stating that the hazard to aircraft as a result of *birds* has been resolved, or is not the direct or indirect result of *Site* operations, and the *Director* has authorized that the *Site* can again begin to accept waste;
 - (vi) notwithstanding Condition 23 (g) (ii), (iii), (iv) and (v), the *City* may continue to process any waste materials inside the *Organic Waste Processing Facility* and the *Material Recovery Facility* that were present at the *Site* prior to the *City* ceasing to accept waste at the *Site* pursuant to Condition 23 (g) (i). The *City* shall continue to ensure that all *Site* activities do not create a hazard to aircraft safety;
 - (vii) During the period of shutdown the *City* shall implement its contingency plan for disposal of waste at approved alternative location(s); and
 - (viii) Condition 23(g) (i) to (vii) does not relieve the *City* from implementing all necessary contingency/mitigative measures

to ensure that *Site* activities do not create a hazard to aircraft.

Traffic

24. The *City* shall make adjustments to traffic flow patterns, including but not limited to the use of traffic lights as required, to minimize any adverse traffic impacts resulting from the facility traffic patterns.

Operating Hours

25. (a) All control measures at the *Site*, including but not limited to, dust, odours, vectors, litter, noise and hazard to aircraft shall take place 24-hours a day, seven (7) days a week;

Composting Site

(b) The allowed hours of operation of the *Composting Site* operation are covered by Condition 56 (1);

MHSW Transfer Station, MRF, and Public Drop-off area

(c) Waste and recyclable materials destined for the *MHSW*, the *MRF*, and/or the Public Drop-off area may be received at the *Site* only from 7:00a.m. to 11:00p.m. from Monday to Friday, and from 8:00a.m. to 4:00p.m. on Saturday;

(d) Waste and/or recyclable materials may be transferred from the *Site* only during the following hours:

- (i) Monday to Friday 7:00a.m. to 6:00 p.m.; and
- (ii) Saturday 8:00 a.m. to 4:00 p.m.;

(e) Outdoor processing of waste and/or recyclables associated with the *MHSW Transfer Station*, the *MRF* and/or the Public Drop-off area may occur only in the following hours:

- (i) Monday to Friday 7:00 a.m. to 11:00 p.m.; and
- (ii) Saturday 8:00 a.m. to 4:00 p.m.;

(f) Indoor processing at the *MRF* and/or the *MHSW* may take place from Monday 12:00 a.m. to Saturday 11:59 p.m. In extraordinary circumstances, indoor processing may take place beyond these hours to eliminate any backlog of material requiring processing;

(g) Due to exceptional circumstances or an emergency, the *Owner* may request to the *District Manager* that the hours of operation of the *MHSW Transfer Station*, the *MRF* and/or the Public Drop-off area be extended and the *District Manager* has the authority to grant written concurrence to such a request;

Waste Transfer Station

(h) Subject to Condition 13, waste destined for the Waste Transfer Station may be received at the *Site* only from Monday to Sunday from 7:00a.m. to 7:00p.m.;

(i) Notwithstanding the hours of operation for waste receipt at the *Waste Transfer Station* referenced in Condition 25 (g), the *Site's* activities and movement of waste within the *Site* related to the *Waste Transfer Station*, including outgoing shipments, may occur only during the hours of 7:00a.m. to 11:00p.m Monday to Saturday; and

(j) Due to exceptional circumstances or an emergency, the *Owner* may request to the *District Manager* that the hours of operation of the *Waste Transfer Station* be extended and the *District Manager* has the authority to grant written concurrence to such a request.

Competent People and Trained Personnel

26. a) The *Municipality* shall ensure through proper training programs and personnel records that all personnel directly involved with activities relating to the operation, maintenance and inspection of the *Site* are *Competent People* and that all personnel directly involved with the activities of the *Organic Waste Processing Facility* are *Trained Personnel* and that they are given refresher training on the components of a *Competent Person* or *Trained Personnel* as applicable, at least once every three years; and

b) The *Municipality* shall keep a record that is in electronic or written format that is easily accessible for inspection by a *Provincial Officer* of all employees who are *Competent People* and *Trained Personnel*.

27. The *Municipality* shall ensure that *Competent People* or *Trained Personnel* are available at all times during the hours of operation of this *Site*. No loading, unloading, or sorting of recyclables or any waste material shall occur unless a *Competent Person* or *Trained Personnel* supervises the loading, unloading, or sorting operation.

28. All in-coming and outgoing wastes shall be screened and inspected by *Competent People* or *Trained Personnel* as detailed in the *Current Design and Operations Reports*, prior to being received, transferred and shipped to ensure wastes are being managed and disposed of in accordance with the Act and *O. Reg. 347*.

Public Liaison Committee

29. (1) The *Owner* shall invite the following groups to provide input and/or comments into preparation of the Terms of Reference for the *Public Liaison Committee (ToR PLC)*:

- (a) home owners within 2,000 metres of the *Composting Site*;
- (b) any interested non-governmental organization (NGOs); and
- (c) any interested person(s) or group(s);

(2) (a) The *Owner* shall consider all input and/or comments submitted by the groups listed above during preparation of the *ToR PLC*; and

- (b) A minimum of ninety (90) days prior to the receipt of the *Organic Waste* at the *Composting Site*, the *Owner* shall prepare and submit to the *District Manager* the *ToR PLC*, including documentation demonstrating consideration of all public input and/or comments received, for written concurrence of the *District Manager*;

(3) The *ToR PLC* shall be amended from time to time according to appropriate amending procedures identified within the content of the *ToR PLC*. Any amendment to the *ToR PLC* must be agreed to by the *District Manager* prior to its implementation;

(4) Within sixty (60) days from the *District Manager*'s concurrence to the *ToR PLC*, the *Owner* shall take all reasonable steps to establish a *Public Liaison Committee (PLC)* which shall serve as a forum for dissemination, consultation, review and exchange of information regarding the operation of the *Composting Site*, including environmental monitoring, maintenance, complaint resolution, and new approvals or amendments to existing approvals related to the operation of this *Composting Site*;

(5) The *Owner* shall invite representation from the following groups to participate on the *PLC*:

- (a) home owners within 2,000 metres of the *Composting Site*;
- (b) any interested NGOs; and
- (c) any interested person(s) or group(s);

(6) The number of representatives from each group shall be as specified in the *ToR PLC* approved by the *District Manager*;

(7) No later than ninety (90) days from the *District Manager*'s concurrence to the *ToR PLC*, the *Owner* shall submit to the *District Manager* a written report that details steps to be taken by the *Owner* to establish, maintain and participate in a *PLC*. This report shall include the identification of each of the representatives that have been invited to participate in the *PLC*;

(8) A copy of the Annual Report that is required by Conditions 52 shall be provided to the *Public Liaison Committee* at the first scheduled meeting following March 31st; and

(9) The *City* shall allow reasonable access to the *Site* for any member of the *Public Liaison Committee*;

30. The *City* shall make available to the *Public Liaison Committee*, all records and reports required by this *Certificate* for the purposes of monitoring the ongoing operations of the *Site*.

E. STORMWATER AND WASTEWATER MANAGEMENT:

31. The *Municipality* shall manage all discharges from this *Site* including stormwater run-off, including the stormwater

collected and contained in the Stormwater Collection Ponds, in accordance with Municipal and Private Sewage Works Certificate of Approval number 5015-856HHG and appropriate Municipal, Provincial and or Federal Legislation, Regulations and By-laws.

F. MONITORING PROGRAM

Groundwater Monitoring

32. Groundwater shall be sampled on a semi-annual basis (spring and fall).

33. The analyses of samples collected in accordance with Condition 32 shall seek to identify chloride, nitrate and a suite of compounds characteristic of waste at the *Site*. Sampling frequency and parameters for analysis may be adjusted upon the approval of the *District Manager*, as groundwater information become available.

34. All monitoring wells which form part of any monitoring program shall be protected from damage. Any groundwater monitoring wells that are damaged shall be repaired or replaced forthwith or properly abandoned in accordance with *Ontario Regulation 903*.

Surface Water Monitoring

35. (a) The *City* shall annually review and update the existing surface water sampling program, designed to detect and quantify any impacts originating from the *Site*;

(b) A surface water sampling program shall be implemented to ensure early detection of contaminants in the event that such contaminants escape the *Site*. Surface water shall be sampled monthly for the following conventional parameters: biochemical oxygen demand (BOD), suspended solids (SS), ammonia, nitrogen, Total Kjeldahl Nitrogen (TKN), total phosphorus and phenolics. For all other parameters, surface water shall be sampled on a semi-annual basis (spring and fall). The analysis shall seek to identify chloride, nitrate and a suite of organic and inorganic compounds characteristic of waste generated at the *Site*;

(c) Sampling frequency and parameter for analysis may be adjusted upon the approval of the *District Manager*, as surface water information become available;

(d) Surface water shall be sampled at the discharge location of the final surface water detention pond;

(e) The *City* shall ensure that all stormwater which comes in contact with waste material is treated or discharged into the sanitary sewer; and

(f) The *City* shall annually review and update the detailed maintenance schedules for the infiltration trenches and stormwater detention ponds.

Reporting on monitoring.

36. The *Municipality* shall include the results from the approved program covering the previous calendar year, with the interpretation of the monitoring results prepared by a qualified hydrogeologist, engineer or scientist in the Annual Report referenced in Condition 52. Following a review of the analytical results or, of any of the reports required by this Condition, the *District Manager* or, the *Director* may alter the frequencies and locations of sampling and parameters for analysis required by this Condition if he/she considers it necessary for proper assessment of the quality of the groundwater or, if he/she is requested to do so by the *Municipality* and considers it acceptable by the evidence of information in support of the request.

G. SITE SECURITY

37. (a) The *City* shall ensure that a *Competent Person* is available at all times during the hours of operation at this *Site*. No loading or unloading of waste, *Compost* and/or recyclable material, including the public drop-off bins, shall occur unless a *Competent Person* supervises the loading or unloading operation. No public drop-off shall be allowed beyond the normal

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operating hours of the facility. No processing shall occur unless a *Competent Person* supervises the processing;

(b) Not less than once each calendar year, the *City* shall ensure that a fire inspection is carried out to determine if adequate fire prevention and protection measures are in place for the facility;

(c) The *City* shall ensure that the *Site* is adequately lit at all times;

(d) The *City* shall ensure that the existing signs posted on the *Site*, which identify the name of the facility and an emergency and/or *incident* reporting telephone number, continue to be adequately maintained;

(e) The *City* shall ensure that the existing 1.6 metre high fence with lockable gates is adequately maintained in order to continue to preserve the security of the *Site*; and

(f) The *City* shall ensure that the *Site* is secured beyond the normal operating hours of the facility to prevent unauthorized entry.

H. WASTE TRANSFER STATION

38. a) Except as noted in Condition 38 b) and c) of this *Certificate*, the *Waste Transfer Station* may accept non-hazardous solid industrial waste from industrial, commercial and institutional sources, commercial waste and domestic waste;

b) asbestos waste may not be accepted at the *Waste Transfer Station*; and

c) *Organic Waste* may only be accepted at the *Waste Transfer Station* in accordance with Condition 17.(5)(a).

39. a) Except as noted in Condition 17.(5)(a) ii, iii, iv) and vi) in accordance with Condition 17.(5)(a)i), the maximum storage time at the *Waste Transfer Station* building for allowed *Organic Waste* is 24-hours; and

b) The maximum storage capacity in the building at the *Waste Transfer Station* is 795 tonnes in the *Waste Transfer Station* building.

I. MATERIAL RECOVERY FACILITY

40. (a) The *City* shall ensure that only municipal waste recyclable material, generated within the Province of Ontario is received at this *Site*;

(b) The maximum storage capacity at the *MRF* is 3,850 tonnes;

(c) All materials to be processed at the *Material Recovery Facility* shall be unloaded and processed indoors except commingled recyclables which may also, as required, be unloaded into the outdoor storage bunker assigned to this material, or in the *Organic Waste Processing Facility* when not in use for *Composting*;

(d) The *City* shall ensure all storage containers are maintained in good condition;

(e) The *City* shall limit any outside storage to processed or source-separated non-putrescible dry materials, dropped off by either commercial or residential vehicles, including but not necessarily limited to tires, rubble, electronic waste, source separated roofing shingles, mattresses, textiles, white goods, construction and demolition wastes, commingled recyclables, *wood waste*, *waste wood*, glass, scrap metal, and drywall;

(f) The *Owner* may apply to the *District Manager* for the outdoor storage in concrete bunkers or in storage containers of additional non-hazardous solid waste(s) that is/are not provided for in Condition 40 (e) and the *District Manager* may provide written concurrence to the *Owner* for the storage of non-hazardous solid waste(s) that is/are not provided for in Condition 40 (e);

(g) Outside storage shall be on an asphalt pad, or equivalent impermeable surface, within designated concrete bunkers, or in closed storage containers in a manner and in amounts which does not create a nuisance or hazard;

(h) The *City* shall implement litter controls including, but not limited to, covering waste with netting and limiting the receipt

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or movement of materials on windy days. Litter pick-up shall occur daily and after the movement of waste either into the *Material Recovery Facility* for processing or after loading vehicles for off-*Site* transfer at a minimum;

- (i) The outdoor storage of any wastes that may attract *birds*, vectors, rodents and/or vermin is prohibited;
- (j) The *City* shall ensure that the addition, removal and processing of all wastes and/or recyclable material occurs only in the presence of a *Competent Person*;
- (k) The *Material Recovery Facility* doors for vehicular traffic shall normally be kept closed and shall only be opened for entry or departure of vehicles if there is an attraction to *birds*;
- (l) All *dry waste* shall be processed and shipped off-*Site* within 120 days of receipt; and
- (m) *Residual waste* not suitable for further processing at the *Site* shall be moved off-*Site* within five (5) days of generation.

J. MUNICIPAL HAZARDOUS AND SPECIAL WASTE TRANSFER STATION

41. In this section, "processed waste" means wastes that have been bulked together in a common container or packaged for disposal.

42. (a) The operation of this *MHSW Transfer Station* is limited to the collection and transfer of waste classes 112, 121, 145, 146, 148, 212, 213, 221, 242, 251, 252, 261, 263, 269, 312, and 331 and also includes wet cell batteries and small dry cell batteries, household cleaners and detergents, aerosols, waxes and polishes, fluorescent tubes and energy efficient light bulbs, mercury switches and thermostats; as outlined in the New Ontario Waste Classes, January 1996, and waste allowed by Condition 43(b); and

(b) The maximum amount of *MHSW* and waste allowed by Condition 43(b) that may be stored at the *Site* is 15 tonnes.

43. (a) The *City* shall ensure that only *MHSW* generated by residents living within the City of Guelph and the County of Wellington is received. No industrial, commercial and/or institutional hazardous waste shall be received at this facility;

(b) Subject to the limitations outlined in Condition 42 of this Certificate, the City of Guelph may accept for collection and transfer at the *MHSW Transfer Station*, *MHSW* or other waste acquired by the City from *small generators* as a result of the management of incidents of improper or illegal dumping in the City of Guelph, none of which shall exceed the quantities outlined in the definition of *small generators* that is defined in the definitions section of this Certificate;

(c) The *City* shall ensure that a *Competent Person* is on duty at all times during the operation of the *MHSW Transfer Station* to provide proper supervision of activities;

(d) The *City* shall ensure that adequate fire fighting equipment is available at the *MHSW Transfer Station* location at all times and that on-*Site* staff are trained in the use of such equipment;

(e) The *City* shall ensure that the local police and fire departments are informed of the operation at the *MHSW Transfer Station* at all times and are kept up-to-date on the types and quantities of waste that the facility handles;

(f) Not less than once per calendar year, the *City* shall ensure that a fire and explosion prevention inspection is carried out by a qualified person who is either a representative from the City of Guelph Fire Department, a Professional Engineer or who has specialized training in fire and explosion hazards;

(g) The *City* shall ensure that the management and disposal of waste at the *MHSW Transfer Station* is done in accordance with Ontario Regulation 347;

(h) i) The *MHSW Transfer Station* shall be inspected by a *Competent Person*

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on each operating day basis to ensure the proper storage and handling of *MHSW* waste and that the integrity of waste containers is intact;

ii) A daily record of the inspections required by Condition 43(g)i shall be maintained by the *Owner*;

iii) At a minimum, the record shall indicate the date and time of the inspection, the name of the *Competent Person* who did the inspection, a description of any unusual observations, such as spills, made during the inspection, description of any action taken to correct an *incident* that was identified and any recommendations for preventing a recurrence of a similar *incident*; and

iv) the records required by Condition 43(g)ii shall be made readily available for an inspection by a *Provincial Officer*;

(i) No *MHSW* waste shall be stored on-*Site* longer than ninety (90) days from the date it was received;

(j) All storage of waste shall be in accordance with the *Ministry's* "Guidelines for Environmental Protection Measures at Chemical and Waste Storage Facilities," May 2007, and its amendments;

(k) The *City* shall have a *Competent Person* annually review and update the existing waste screening measures for all incoming waste, to ensure only wastes approved by this *Certificate* are received at this facility;

(l) Any updated report on the waste screening measures shall be submitted to the *District Manager*; and

(m) The *City* shall ensure that no *PCB waste* are accepted at the *Site*. Oil and oil-based paints which have been manufactured prior to 1972, paints and thinners having an oily appearance, rubber based paints (concrete paints/stains), adhesives, urethane elastomers manufactured prior to 1977, pesticides manufactured prior to 1977, any of these materials whose manufacturing date cannot be determined and any container having contained these materials may contain *PCBs*. The *City* shall undertake a waste screening procedure for *PCBs* that includes, but is not limited to the following:

(i) The *City* shall ensure that an approved *PCB* storage site is available to take and store any confirmed *PCB waste* that is inadvertently received at the *Site*;

(ii) The *City* shall ensure a waste tracking system is established to properly identify the source of any confirmed *PCB waste*;

(iii) Any *PCB* suspect material shall be segregated and shall not be mixed or bulked. All *PCB* suspect material shall be sampled and analyzed for *PCB* content. Each individual suspect container or a representative proportional composite of not more than ten (10) individual suspect containers shall be sampled and analyzed;

(iv) Any material that may be mixed or bulked shall be sampled and analyzed for *PCB* content. Each individual bulk container or drum shall be sampled and analyzed; and

(v) Any material that has measure levels greater than fifty (50) parts per million is considered to be *PCB waste* as defined in *Ontario Regulation 362*. *PCB waste* shall be removed from the *Site* to an approved *PCB* storage site in accordance with written instructions from a *Director* as defined in *Ontario Regulation 362*, or a Waste Management System Certificate of Approval which specifies the manner in which *PCB waste* may be stored, handled, collected, transported or disposed of.

44. The *City* may offer materials in Ontario Waste Classes 145 (paint), 331 (aerosols), 213 (car products) and 148 (cleaning products) to the public.

K. WRIC ENVIRONMENTAL EMERGENCY PLAN

45. (a) Within thirty (30) days of commencing the receipt of Organic Waste at the *Composting Site*, the *Owner* shall update its "Solid Waste Resources Emergency and Contingency Plan" that is contained in the *Owner's* Design and Operations Reports that are referenced by Items 49, 50 and 51 of Schedule "A" by submitting to the *District Manager* a *WRIC Environmental Emergency Plan* for the entire *Site*. The *WRIC Environmental Emergency Plan* for the entire *Site* shall be prepared in consultation with the local Municipality and the City of Guelph Fire Department;

(b) The *WRIC Environmental Emergency Plan* shall identify measures for the preparation for, the prevention of, the response to and the recovery from environmental emergencies at the *Site* including but not limited to:

- (i) a spill, process upset, emission of odours, fire, explosion or any other emergency situation, and disruption at the *Site* such as power failure and/or equipment failure;
- (ii) specific clean-up methods for wastes expected to be generated from an emergency situation;
- (iii) fire and explosion prevention planning and fire protection systems;
- (iv) a list of equipment and clean-up materials available for dealing with the projected emergency situation;
- (v) measures to be taken to prevent incompatible chemicals at the *MHSW* Transfer Station from coming into contact;

- (vi) Environmental Emergency Planning measures for the *Composting Site* that are required by Condition 61 of this Certificate;
- (vii) measure to be undertaken in the event hazard to aircraft problems develop or there is a net increase in *birds* at the *Site*;
- (viii) measures to be undertaken in the event any unauthorized non-hazardous or hazardous waste or unidentifiable waste appears at the *Site*;
- (ix) measures to be undertaken in the event of groundwater and/or surface water contamination;
- (x) notification protocol with names and telephone numbers of persons to be contacted, including persons responsible for the *Site*, the *Ministry's District Office* and Spills Action Centre, the local Fire Department, the local Municipality, the local Medical Officer of Health, and the Ministry of Labour, and the names and telephone numbers of waste management companies available for emergency response; and
- (xi) a complaints procedure that has a minimum the information that is outlined in Condition 46;

(c) No waste shall be received at the *Composting Site* for storage or processing until the *District Manager* provides a written concurrence for the emergency response and contingency planning measures for the issues in the *WRIC Environmental Emergency Plan* that deals with the *Composting Site*;

(d) The city shall keep up-to-date copies of its *WRIC Environmental Emergency Plan* at central locations at the *Composting Site*, the *Waste Transfer Station*, the *MRF* and the *MHSW Waste Transfer Station*;

(e) The *WRIC Environmental Emergency Plan* shall be reviewed on an annual basis and updated, if necessary by the *Owner*. Any revised version of the *WRIC Environmental Emergency Plan* shall be submitted within fifteen (15) days of the revision for comments and concurrence to the local Municipality, the Fire Department and to the *District Manager*; and

(f) After five (5) years from the date of issue of this *Certificate*, the *Owner* may apply in writing to the *District Manager* for agreement of the removal of the requirement in Condition 45(e) that requires *District Manager* concurrence. Also, the *District Manager* may provide written notice to the *Owner* that they are exempted from the noted provision in Condition 45(e).

Complaints Procedure

46. If at any time, the *Municipality* receives complaints regarding the operation of the *Site*, the *Municipality* shall respond to these complaints according to the following procedure:

(a) The *Municipality* shall record each complaint on a formal complaint form entered in a sequentially numbered log book. The information recorded shall include the nature of the complaint, circumstances of the complaint including weather conditions, the name, address and the telephone number of the complainant and the time and date of the complaint;

(b) The *Municipality*, upon notification of the complaint shall initiate appropriate steps to determine all possible causes of the complaint, proceed to take the necessary actions to eliminate the cause of the complaint and forward a formal reply to the complainant; and

(c) The *Municipality* shall immediately orally notify the *Ministry* of the complaint, followed with the submission of a written report within one (1) week, of the complaint detailing what actions, if any, were taken to identify and remediate the cause of the complaint and what remedial action, if any, would be taken.

47. The *Municipality* shall take immediate measures to clean-up all spills, related discharges and process upsets of wastes which result from the operation of the *Site*. All spills and upsets shall be immediately reported to the *Ministry's* Spills Action Centre at (416) 325-3000 or 1-800-268-6060 and shall be recorded in a written log or an electronic file format, referred to in Condition 51 of this *Certificate*, as to the nature of the spill or upset, and the action taken for clean-up, correction and prevention of future occurrences.

L. INSPECTION

48. The *Municipality* shall have a *Competent Person* or *Trained Personnel* conduct regular daily and weekly inspections of the equipment and facilities as outlined in the Design and Operations Reports of this *Certificate* and as is required by Condition 57 of the *Certificate* to ensure that all equipment and facilities at the *Site* are maintained in good working order at all times. Any deficiencies detected during these regular inspections must be promptly corrected. A written record must be maintained at the *Site*, which includes the following:

- (a) name and signature of *Trained Personnel* conducting the inspection;
- (b) date and time of the inspection;
- (c) list of equipment inspected and all deficiencies observed;
- (d) a detailed description of the maintenance activity;
- (e) date and time of maintenance activity; and
- (f) recommendations for remedial action and actions undertaken.

49. The *Municipality*, in addition to inspections and documentation requirements carried out in Condition 48, shall conduct on each operating day, a physical inspection of the following areas to ensure the *Site* is secure or operating properly and that no off-*Site* impacts such as vermin, vectors, odour, noise, dust, litter, or other possible contaminants resulting from the operation of the Facility:

- (a) Oil/water separator;
- (b) holding tanks and associated containment areas;
- (c) drainage swales, culverts and catch basins and stormwater management pond; and
- (d) security fence, barriers and property line.

50. The *City* shall remedy any malfunction and/or deficiency which these inspections reveal.

M. RECORD KEEPING

51. (a) The *City* shall maintain written records of daily *Site* inspections at the *Site*. This record shall be in the form of a *Site* Inspection daily log(s) and shall include as a minimum:

- (i) the requirement outlined in Condition 63 of the *Certificate*;
- (ii) date and time of inspection;
- (iii) name, title and signature of a *Competent Person* or *Trained Personnel* supervising the inspection;
- (iv) a listing of all equipment, fencing, gates etc inspected and any deficiencies observed;
- (v) any maintenance conducted as a result of these inspections;
- (vi) recommendations for remedial action and date remedial action, if necessary, was completed;
- (vii) indication whether odours are detectable;
- (viii) indication of any litter collected;
- (ix) indication of any *incidents*; and
- (x) indication of *birds*;

(b) The *City* shall maintain daily written records of the waste and/or recyclable material received and processed at the *Waste Transfer Station*, the *Material Recovery Facility*, the *Municipal Hazardous and Special Waste Facility* and the *Organic Waste and Composting Site*. This record shall include as a minimum:

- (i) date, quantity and source of waste and/or recyclable material received;

- (ii) date and quantity of waste and/or recyclable material processed;
- (iii) date, quantity and the destination of material transferred off-*Site*; and
- (iv) date, quantity and destination of any *rejected waste* from the *Organic Processing Facility*;

(c) The log for the *Organic Waste* and *Composting Site* shall be in accordance with Condition 63;

(d) analytical results, when required of all in-coming and outgoing wastes and materials; and

(e) results of inspections and reports required under Conditions 48, 49 and 50, including the name and signature of the person conducting the inspection and completing the report.

N. ANNUAL REPORT

52. The *City* shall submit an annual report on the operation of the *Site* for the previous calendar year to the *District Manager* by March 31st of each year. This report will include the information required as follows:

- (a) the information required by Condition 63 (8) of the *Certificate* dealing with the *Composting Site*;
- (b) a monthly summary of the waste and/or recyclable materials received at the *Site*, including quantity, source and *Ontario Regulation 347* waste classes;
- (c) a monthly summary of the wastes and/or recyclable materials processed at the *Site* including quantity and *Ontario Regulation 347* waste classes;
- (d) a monthly summary of the waste and/or recyclable materials transferred off-*Site* including quantity, destination and *Ontario Regulation 347* waste classes;
- (e) an annual summary of the analytical results for the groundwater, and surface water monitoring program including an interpretation of the results and any remedial/mitigative action undertaken;
- (f) an annual summary of any deficiencies, items of non-compliance or process aberrations that occurred and remedial/mitigative action taken to correct them;
- (g) a summary of any changes to the *Engineer's Report* and/or the Design and Operations Report that have been approved by the *Director* since the last annual report;
- (h) a summary of any changes to the Design and Operations Report Design and the WRIC Environmental Emergency Plan that were made in accordance with Condition 68(1) of this *Certificate*;
- (i) a summary of any changes to the Design and Operations Report that have been approved by the *Director* since the last annual report;
- (j) update on activities of the *PLC*; and
- (k) all measurement units shall be reported in consistent metric units.

O. CLOSURE PLAN:

53. (a) The *Municipality* shall submit, for approval by the *Director*, a written Closure Plan for the *Site* four (4) months prior to the closure of the *Site*. This plan must include as a minimum, a description of the work that will be done to facilitate closure of the *Site* and a schedule for completion of that work;

(b) The closure plan shall include the requirement of Condition 65 of this *Certificate*; and

(c) Within ten (10) days after closure of the *Site*, the *Municipality* shall notify the *Director* in writing that the *Site* has been closed in accordance with the approved Closure Plan.

P. ORGANIC WASTE AND COMPOSTING SITE

54. Service Area, Approved Waste Types, Rates & Storage

(1) The *Composting Site* may only accept solid non-hazardous residential, commercial, institutional or industrial *Organic Waste* from the Provinces of Ontario, limited to the following *Organic Waste*:

- (a) Source-Separated *Organic Waste* limited to the following:

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- (i) food wastes: fruit, vegetable and general table scraps, meat and fish/shellfish products, dairy products, eggs and egg shells, herbs, nuts and seeds, sugar and spices, confectionery products, sauces, bones, pet food, bread, grains, rice, pasta, flour, coffee grounds and tea bags;
- (ii) solidified cooking oils and cooked or raw grease and fats from residential sources only;
- (iii) paper fibres: soiled paper towels, tissues, paper plates, coffee filters, soiled paper food packaging items such as boxboard, cardboard, newspaper, and other paper fibre packaging materials;
- (iv) fresh flowers, houseplants and their soil, hair, pet fur, feathers and sawdust, wood shavings;
- (v) ashes from residential sources only;
- (vi) pet waste that is not collected or encased in a bag; and
- (vii) pet litter box or bedding wastes, including the intermingled pet waste;

(b) *Organic Waste* from the industrial, commercial and institutional sources that produce or collect food wastes;

(c) *Leaf and Yard Waste*; and

(d) *Compost* overs as described in the supporting documentation listed in the attached Schedule "A".

(2) The *Composting Site* may accept the following *Amendment Materials*:

- (a) straw and hay; and
- (b) *brush*, *Clean Wood* and Clean Wood products.

(3) The *Composting Site* may accept the *wood waste* and the *waste wood*, as defined in this *Certificate*, for processing to undertake size reduction on the paved outdoor pad referred to as the Amendment, Recyclables, and Leaf and Yard Staging Area, described in documentation listed in the attached Schedule "A", for the purpose of subsequent transfer from the *Composting Site*.

(4) (a) The *Owner* shall not accept at the *Composting Site* any cooked or raw grease and fats from industrial, commercial and institutional sources;

(b) The *Owner* shall not accept at the *Composting Site* animal carcasses, used sanitary products and human body waste;

(c) The *Owner* shall not receive pet waste from commercial, institutional or industrial sources;

(d) The *Owner* shall not accept at the *Composting Site* any *Organic Waste* that is collected through a waste collection program that allows use of bags, except the waste that is generated in and collected by the City of Guelph and in accordance with Table 1 entitled "Proposed Phase-out of Plastic Bag Usage in Organics Collection" included in Item #40 of the attached Schedule "A";

(e) The *Owner* shall ensure that the *Organic Waste* collected in bags in accordance with restrictions specified above, is given priority in the processing and transfer to the *Composting* tunnels;

(f) The *Owner* shall ensure that the *Organic Waste* collected in bags in accordance with restrictions specified above, is transported directly from the collection route to the *Composting Site*, without any intermediate transfer step; and

(g) The *Owner* shall not accept at the *Composting Site* any waste that is classified as hazardous waste or liquid industrial waste in accordance with *O. Reg. 347*.

(5) The *Owner* is only approved to receive *Organic Waste* in quantities that are not to exceed:

- (a) a maximum of 450 tonnes on a daily basis; and
- (b) a maximum of 60,000 tonnes per year.

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(6) The *Owner* is approved to store a maximum of 8,500 tonnes of waste at the *Composting Site* at any one time.

(7) All waste and *Amendment Materials* storage at the *Composting Site* is subject to the following limitations:

(a) all unprocessed *Organic Waste* and the *Immature Compost* in various stages of curing and the *Finished Compost* shall be stored within the confines of the *Processing Building*;

(b) the *leaf and yard waste*, the *waste wood*, the *wood waste* and the *Amendment Materials* may be stored outdoors on the paved pad referred to as the *Amendment, Recyclables, and Leaf and Yard Staging Area*, described in documentation listed in the attached Schedule "A";

(c) all *Compost* shall be stored within the confines of the *Processing Building*;

(d) all solid *residual waste (Processing Building)* shall be stored within the confines of the *Processing Building*; and

(e) all solid *putrescible waste* generated through activities not relating to the handling and processing of *Organic Waste* (ie. office, lunch room, etc.) may be stored within the confines of the *Processing Building* and it shall be removed from the *Composting Site* as required in accordance with *O. Reg 347* and the *EPA*.

(8) *Organic Waste* storage duration at the *Composting Site* is limited to the following:

(a) The *Owner* shall ensure that the *Organic Waste*, excluding the *leaf and yard waste*, received at the *Composting Site* is incorporated into active *Composting* process no later than thirty six (36) hours from the time of its receipt;

(b) The *Owner* shall ensure that the *Organic Waste* collected in bags in accordance with restrictions specified in this *Certificate*, is given priority in the processing and transfer to the *Composting* tunnels;

(c) The *Owner* shall ensure that the *leaf and yard waste* storage duration shall not exceed seven (7) calendar days from the time of its receipt;

(d) Notwithstanding provisions of Conditions 54.(8)(a) and (c), above, the *Owner* shall transfer all *Organic Waste* processed in the *Processing Building* into the *Composting* tunnels at the end of the operating day each Friday; and

(e) The *Owner* shall not store the *residual waste (Processing Building)*, at the Site in excess of fourteen (14) days from the date of its generation, or as directed by the *District Manager*.

(9) (a) The *Owner* shall ensure that all outside storage of the *leaf and yard waste*, the *wood waste*, the *waste wood* and the *Amendment Materials* is undertaken in a manner that does not cause an adverse effect or a hazard to the environment or any person; and

(b) If in the opinion of the *District Manager*, the outside storage of the *leaf and yard waste*, the *wood waste*, the *waste wood* and the *Amendment Materials* results in odour complaint(s), the *Owner*, in consultation with the *District Manager* shall undertake appropriate steps, including reducing waste storage duration or the storage method, so that odour complaint(s) are eliminated.

(10) No outside waste storage of material from or for the *Organic Waste Processing Facility* other than the *leaf and yard waste*, the *waste wood*, the *wood waste* and the *Amendment Materials*, is approved under this *Certificate*."

(11) The *Owner* shall ensure that all *wood waste* and *waste wood* that has undergone size reduction at the *Amendment, Recyclables, and Leaf and Yard Staging Area* is segregated from the shredded *leaf and yard waste* and the *Amendment Materials* to prevent contamination of *Organic Waste* and *Amendment Materials* intended for the *Composting Process*.

(12) In the event that *Organic Waste* cannot be processed at the *Composting Site* in accordance with the requirements of this *Certificate*, the *Owner* shall cease accepting additional *Organic Waste* and shall remove all unprocessed *Organic Waste*

from the *Composting Site* in accordance with the procedures outlined in the *WRIC Environmental Emergency Plan*.

(13) All waste removed from the *Composting Site* shall be transferred to a waste disposal site for which a Provisional Certificate of Approval has been issued by the *Ministry* and the site is approved to receive this type and quantity of waste.

55. *Composting Site Security*

(1) The *Owner* shall ensure that all unloading and loading of waste and all *Organic Waste* processing activities at the *Composting Site* are at all times undertaken by *Trained Personnel*.

(2) The *Owner* shall ensure that the *Composting Site* is operated in a safe and secure manner, and that all waste is properly handled, packaged or contained and stored so as not to pose any threat to the general public and the *Composting Site* personnel.

56. *Composting Site Operations*

(1) The *Composting Site* is approved to operate within the following operating hours, subject to limitations of the local municipal by-laws:

Receipt and Removal of Waste from the Composting Site

(a) The *Owner* may only receive *Organic Waste* at the *Composting Site* and ship waste from the *Composting Site* between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday and between the hours of 8:00 a.m. and 4:00 p.m. on Saturday;

Shipment of Compost from the Composting Site

(b) The *Owner* may only ship *Compost* from the *Composting Site* between the hours of 7:00 a.m. and 6:00 p.m. Monday through Friday and between the hours of 8:00 a.m. and 4:00 p.m. on Saturday;

Processing Within the Processing Building

(c) The *Owner* may process the *Organic Waste* within the confines of the *Processing Building* twenty four (24) hours per day, seven (7) days per week;

Emergency Receipt of Waste

(d) The *Owner* may receive the *Organic Waste* at the *Composting Site* outside of the operating hours specified in sub-condition (a), above, on an emergency basis only;

(e) Within twenty four (24) hours from the emergency receipt of the *Organic Waste*, the *Owner* shall notify, in writing, the *District Manager* during regular business hours or verbally the Spills Action Centre, that the *Organic Waste* was received outside of the approved hours; and

(f) If in the opinion of the *District Manager*, the emergency receipt of the *Organic Waste* results in complaints, following the written notification from the *District Manager*, the *Owner* shall not receive the *Organic Waste* outside of the approved hours, until such time as the deficiencies causing complaints are rectified to the *District Manager's* satisfaction.

(2) **Incoming Waste/Amendment Materials receipt:**

(a) The *Owner* shall ensure that all unloading of the incoming *Organic Waste* at the *Composting Site*, takes place entirely within the confines of the *Processing Building*;

(b) Notwithstanding provisions of Condition 56.(2)(a), the *Owner* may unload the *leaf and yard waste*, the *wood waste*, the *waste wood* and the *Amendment Materials* outdoors on the paved pad referred to as the Amendment, Recyclables, and Leaf and Yard Staging Area, described in documentation listed in the attached Schedule "A";

(c) The *Owner* shall ensure that all loads of the incoming *Organic Waste*, excluding the *leaf and yard waste*, are accompanied by documentation containing the results of the required waste characterization as required by Condition 58.(2) or the identification of a pre-approved generator of waste as required by Conditions 58.(3)(b)

and 58.(3)(c);

(d) *Trained Personnel* shall inspect the required documentation prior to acceptance of the incoming *Organic Waste* at the *Composting Site*;

(e) The *Organic Waste* that has not been characterized in accordance with this *Certificate* or that is not accompanied by the required documentation shall not be accepted at the *Composting Site*;

(f) *Trained Personnel* shall visually inspect all incoming *Organic Waste* to ensure that only approved waste type is accepted at the *Composting Site*;

(g) The *Owner* shall only accept the incoming *Organic Waste* that is delivered in vehicles that have been approved by the *Ministry*, as required; and

(h) In the event that *Organic Waste* cannot be processed at the *Processing Building*, the portion of *Organic Waste* originating from the geographical area of the City of Guelph may be accepted at the *Waste Transfer Station* and may be stored for a maximum of 24-hours.

(3) Rejected Waste (Organic Composting Facility) handling:

(a) In the event that *Rejected Waste* is inadvertently accepted at the *Composting Site*, the *Owner* shall ensure that all *Rejected Waste*:

- (i) is stored in a way that ensures that no adverse effects result from such storage;
- (ii) is segregated from all other *Organic Waste*;
- (iii) is handled and removed from the *Composting Site* in accordance with *O.Reg. 347* and the *EPA*; and
- (iv) is removed from the *Composting Site* within three (3) days of its receipt or as acceptable to the *District Manager*;

(b) In the event that *Rejected Waste* is inadvertently accepted at the *Composting Site*, a record shall be made in the daily log book or in an electronic file of the reason why the waste was rejected and of the origin of the waste, if known; and

(c) i) *Rejected Waste* may be transferred to the *Waste Transfer Station* in a covered container; and

ii) In the event that *Rejected Waste* is transferred to the *Waste Transfer Station*, it shall be handled on a priority basis and removed from the *Waste Transfer Station* on the same day that the transfer of *Rejected Waste* occurred on.

(4) residual waste (Processing Building) handling:

(a) Subject to Condition 56 (4) (b), the *Owner* shall ensure that storage of all solid *residual waste (Processing Building)* resulting from processing of the *Organic Waste* at the *Composting Site* is undertaken within the confines of the *Processing Building*;

(b) i) *residual waste (Processing Building)* may be transferred to the *Waste Transfer Station* in a covered container; and

ii) In the event that *residual waste (Processing Building)* is transferred to the *Waste Transfer Station*, it shall be handled on a priority basis and removed from the *Waste Transfer Station* on the same day that the transfer of *residual waste (Processing Building)* occurred on.

(5) Waste Processing:

(a) The *Owner* shall ensure that all *Organic Waste* preprocessing, other than the activities approved under

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Condition 56.(5)(c)(i), all *Organic Waste Composting*, all *Immature Compost* screening and curing and all *Finished Compost* screening are undertaken within the confines of the *Processing Building*;

(b) The *Owner* shall segregate the *Immature Compost* at various stages of curing until all *Compost* quality criteria specified in this *Certificate* are tested for and met; and

(c) (i) *Brush, Clean Wood* and clean wood products, *wood waste* and *waste wood* may undergo size reduction by shredding, grinding and/or chipping using *Ministry* approved equipment on the outdoor paved pad referred to as the Amendment, Recyclables, and Leaf and Yard Staging Area, described in documentation listed in the attached Schedule "A"; and

(ii) The *Owner* shall take precautions to ensure that size reduction activities do not cause a nuisance or impact including by limiting the hours of operation and/or refraining from carrying out size reduction during days with unfavourable meteorological conditions.

(6) Odour Control:

(a) The *Owner* shall maintain a negative air pressure atmosphere within the *Processing Building*, as compared to the ambient atmospheric pressure, at all times;

(b) The *Owner* shall ensure that the outside loading bay doors into the *Processing Building* are kept fully closed at all times except to permit the entry or exit of maintenance and waste and *Compost* transportation vehicles;

(c) The *Owner* shall ensure that the outside loading bay doors of the Receiving Area of the *Processing Building* are equipped with the air curtains, as described in the documentation of the attached Schedule "A", and that these air curtains are installed and maintained in accordance with the recommendations of the equipment manufacturer;

(d) The *Owner* shall ensure that, at all times, the air from the *Processing Building* is exhausted through an appropriate *Air Pollution Control Equipment* approved by the *Ministry* in the *Certificate of Approval (Air/Noise)*;

(e) If in the opinion of the *District Manager*, the fugitive air emissions originating from the *Processing Building* result in odour complaint(s), the *Owner* shall implement modifications to the *Processing Building* as proposed in the *WRIC Environmental Emergency Plan*, within the time frame acceptable to the *District Manager*;

(f) The *Owner* shall ensure that no equipment handling *Organic Waste* or their storage containers are kept outside, unless they have been washed to prevent odours; and

(g) (i) Prior to the receipt of *Organic Waste* at the *Composting Site*, the *Owner* shall undertake an appropriate test to confirm the integrity of the *Processing Building* containment;

(ii) This test shall be undertaken in accordance with the test protocol prepared in the consultation with and approved by the *District Manager*; and

(iii) This test shall be repeated as directed or agreed by the *District Manager*.

57. Equipment and *Composting Site* Inspections & Maintenance

(1) Prior to receipt of any *Organic Waste* at the *Composting Site*, the *Owner* shall prepare a comprehensive written inspection program which includes inspections of all aspects of the *Composting Site's* operations including the following:

(a) *Processing Building* including all outside bay doors, the *Air Pollution Control Equipment* and the presence of rust on metal surfaces within the confines of the *Processing Building*;

- (b) on-*Site* roads for presence of leaks and drips from the waste delivery trucks;
- (c) presence of excessive fugitive dust emissions from the on-*Site* roads;
- (d) on and off-*Site* litter; and
- (e) presence of vector and vermin.

(2) The inspections are to be undertaken daily by *Trained Personnel* in accordance with the inspection program to ensure that all equipment and facilities at the *Composting Site* are maintained in good working order at all times and that no negative impacts are occurring as a result of the *Organic Waste* management operations at the *Composting Site*. Any deficiencies detected during these regular inspections must be corrected as soon as reasonable.

(3) The *Owner* shall develop and implement a preventative maintenance program for all equipment associated with the processing and managing of *Organic Waste* at the *Composting Site* and with control of odour and dust emissions. The preventative maintenance program shall be maintained up-to-date and shall be available for inspection by a *Provincial Officer* upon request.

58. Quality Criteria, Testing & Monitoring

(1) Cross-Contamination Prevention

(a) The *Owner* shall ensure that the incoming *Organic Waste* is kept separate and does not come in contact with the *Immature Compost* / the *Finished Compost* and the *Compost* except where the *Immature Compost* / the *Finished Compost* and the *Compost* are being fed back into the *Composting* process; and

(b) The *Owner* may use the equipment utilized in processing of the incoming *Organic Waste* to process the *Immature Compost* / the *Finished Compost* and the *Compost* provided that the equipment has been cleaned, in accordance with the procedures described in documents listed in the attached Schedule "A", to prevent the *Immature Compost* / the *Finished Compost* and the *Compost* from being contaminated by the incoming *Organic Waste*.

(2) Quality Control Monitoring of the *Organic Waste* at the generator site:

(a) Prior to being accepted at the *Composting Site* for the first time, the incoming *Organic Waste* from a new source/stream shall be characterized in accordance with the *Ministry's* regulatory requirements for sampling and testing to ensure that the incoming *Organic Waste* complies with the quality criteria specified in this *Certificate*. The incoming *Organic Waste* may be considered a pre-approved waste source/stream once the incoming *Organic Waste* meets the required quality criteria and has been classified as such by the *Owner*; and

(b) The incoming *Organic Waste* shall be re-characterized following any process changes, operational issues or other factors that may affect the quality of the incoming *Organic Waste* from the pre-approved source/stream.

(3) Quality Control Monitoring of the *Organic Waste* at the *Composting Site*:

(a) The *Owner* shall not accept for *Composting* any individual *Organic Waste* source or an additive necessary for *Composting* that exceeds the following quality parameters set out in "Schedule B" of this *Certificate*:

- (i) trace elements; and
- (ii) organic chemicals;

(b) (i) Notwithstanding requirements from Condition 58.(2), the *Owner* shall conduct quality control monitoring of the incoming *Organic Waste* from each source/stream, except the *leaf and yard waste*; and

(ii) The *Owner* sample and analyze the incoming *Organic Waste* weekly; and

(c) (i) For the incoming *Organic Waste* from a particular source/stream with consistent quality as demonstrated through a minimum of four (4) analytical events spaced over a minimum of four (4) weeks, the *Owner* may reduce the sampling frequency to once every two (2) months; and

(ii) A minimum of seven (7) business days prior to the change in the *Organic Waste* sampling frequency, as permitted by Condition 58.(3)(b)(ii), the *Owner* shall submit a written notification of the proposed change to the *District Manager*.

Compost Quality Criteria

(4) The *Finished Compost* is considered to be *Compost* when it meets the following *Compost* quality criteria:

- (a) *Compost* quality criteria set out in Schedule "B" of this *Certificate*; and
- (b) curing duration of a minimum of twenty one (21) days and compliance with one (1) of the following three (3) maturity criteria:
 - (i) the respiration rate is less than, or equal to, 400 milligrams of oxygen per kilogram of volatile solids (or organic matter) per hour; or
 - (ii) the carbon dioxide evolution rate is less than, or equal to, 4 milligrams of carbon in the form of carbon dioxide per gram of organic matter per day; or
 - (iii) the temperature rise of the *Compost* above ambient temperature is less than 8°C.

Quality Control Monitoring of Finished Compost

(5) As a minimum, the *Owner* shall conduct quality control monitoring of the *Finished Compost* as follows:

- (a) a composite sample, consisting of a minimum of ten (10) representative grab samples, shall be collected for every 500 tonnes of the *Finished Compost* produced during the first four (4) months of operation;
- (b) following the first four (4) months of operation, a composite sample, consisting of a minimum of ten (10) representative grab samples, shall be collected every two (2) months representing all *Compost* generated within the preceding sixty (60) days or every 5,000 tonnes of the *Finished Compost*, whichever comes first;
- (c) if non-compliance with the *Compost* quality criteria has taken place during three (3) consecutive sampling events, the *Owner* shall sample and test the *Finished Compost* in accordance with Condition 58.(5)(a) until compliance with the *Compost* criteria is demonstrated again; and
- (d) all composite samples shall be analyzed for the parameters listed in Schedule "B".

Enhanced Pathogen Testing

(6) (a) As a minimum, the *Owner* shall conduct an enhanced pathogen quality control monitoring of the *Finished Compost* as follows:

- (i) a composite sample, consisting of a minimum of ten (10) representative grab samples, shall be collected and tested for every 500 tonnes of the *Finished Compost*; and
- (b) Prior to any change in the pathogen testing program, the *Owner* shall submit a minimum of one (1) year of the testing data that demonstrates compliance with the pathogens *Compost* quality criteria to the *District Manager*. This testing data shall be cross-referenced with the pasteurization temperature monitoring data required to be collected in Condition 58.(10).

Sampling And Testing Methods

(7) All sampling and testing required in this *Certificate* for the purpose of verifying compliance with the *Compost* quality criteria from Condition 58.(4) shall be undertaken in compliance with the document entitled "National Standard of Canada CAN/BNQ 0413-200/2005 Organic Soil Conditioners – Composts", dated 2005, as amended.

Non-compliance with Compost Quality Criteria

(8) (a) The *Finished Compost* is classified as waste until sampling/testing required by this *Certificate* demonstrates that all *Compost* quality criteria specified in this *Certificate* are met;

(b) (i) The *Finished Compost* that does not meet the pathogen criteria from Schedule "B" and/or non-biodegradable matter criteria from Condition 58.(4) shall be moved back to the aerobic *Composting* tunnels for re-processing;

(ii) Should the *Finished Compost* consistently exceed the pathogen criteria set out in Schedule "B", as demonstrated by three (3) sampling/testing events, the *Owner*, in consultation with the *District Manager*, shall implement appropriate modifications to the *Composting* process to ensure consistent destruction of pathogens;

(iii) The *Finished Compost* that does not meet the maturation criteria from Condition 58.(4) shall be re-tested and shall not be removed from the Maturation Area of the *Processing Building* until the maturation criteria are met;

(iv) The *Finished Compost* that does not meet the trace elements and/or organic chemicals criteria from Schedule "B" shall be kept segregated from all other waste and from the *Compost* and shall be handled as waste; and

(v) The *Finished Compost* that continues to be classified as waste shall be handled and be disposed of in accordance with *O. Reg. 347* and the *EPA*.

Process Monitoring

(9) The *Owner* shall ensure that the following process parameters are monitored:

- (a) temperature of the *Composting Organic Waste* in the *Composting* tunnels, as proposed in documentation in the attached Schedule "A";
- (b) temperature of the headspace air in the *Composting* tunnels, as proposed in documentation in the attached Schedule "A";
- (c) inlet air temperature;
- (d) outlet air temperature;
- (e) relative humidity in the *Composting* tunnels;
- (f) air flow into the tunnels;
- (g) oxygen content in the air; and
- (h) temperature of the *Immature Compost* in the curing piles.

Compliance With *Composting* Process Operating Parameters

(10) (a) The *Owner* shall ensure that the *Organic Waste Composting* in the *Composting* tunnels, is maintained at a minimum pasteurization temperature of 55°C for a minimum of seventy two (72) hours, in accordance with the documentation listed in attached Schedule "A", to ensure complete inactivation of pathogens in the *Composting Organic Waste*;

(b) As a minimum, two (2) temperature probes shall monitor the required pasteurization temperature within the *Composting Organic Waste* and three (3) temperature probes shall monitor the headspace air temperature of each *Composting* tunnel;

(c) The pasteurization temperature measurements within the *Composting Organic Waste* must be taken one (1) metre inside the *Composting* stockpile mass; and

(d) Should temperature monitoring show that the required pasteurization temperature has not been achieved, the *Composting* process must be continued until the above requirement has been met.

Temperature Monitoring Within the Curing Stockpiles

(11) As a minimum, the *Owner* shall monitor the temperature of the *Immature Compost* within the curing stockpiles weekly. The measurements shall be taken one (1) metre inside the curing stockpile mass and at points sufficient to provide a temperature profile of the *Immature Compost*.

(12) The *Owner* shall not start the curing process duration countdown until the temperature monitoring required by Condition 58.(11), above, demonstrates that the temperature of the *Immature Compost* in the Maturation Area does not exceed 50 °C.

Odour Monitoring Program

(13) A minimum of ninety (90) days prior to any *Organic Waste* being received at the *Composting Site*, the *Owner* shall prepare and submit to the *District Manager* an Odour Monitoring Program. The Odour Monitoring Program shall be designed to detect and identify any odours originating from the operation of the *Composting Site* which may cause nuisance impacts. The Odour Monitoring Program shall include a description of the equipment and inspection protocol to ensure that negative pressure is maintained at all times throughout the *Processing Building*. The Odour Monitoring Program shall be implemented after written concurrence from the *District Manager* has been received. In the future, should it be necessary to modify the approved Odour Monitoring Program written authorization of the *District Manager* is required.

59. Nuisance Impact Control & Housekeeping

(1) The *Owner* shall ensure that all vehicles that have delivered *Organic Waste* to the *Composting Site* are not leaking or dripping waste when leaving the *Composting Site*.

(2) The *Owner* shall ensure that the exterior of all trucks delivering *Organic Waste* to the *Composting Site* is cleaned prior to leaving the *Composting Site*, as needed, to prevent odours. Truck washing shall occur only in the dedicated wash down area of the *Processing Building*.

(3) Should the *Owner* become aware that the truck(s) delivering waste to the *Composting Site* have leaked waste or wastewater on the municipal roadways, the *Owner* shall immediately submit a written and/or verbal notification to the owner of the leaking vehicle(s).

(4) The *Owner* shall:

- (a) take all practical steps to prevent the escape of litter from the *Composting Site*;
- (b) pick up litter around the *Composting Site* on a daily basis, or more frequently if necessary; and
- (c) if necessary, erect litter fences around the areas causing a litter problem.

(5) Prior to the receipt of any *Organic Waste* at the *Composting Site*, the *Owner* shall:

- (a) implement necessary housekeeping procedures to eliminate sources of attraction for vermin and vectors; and
- (b) hire a qualified, licensed pest control professional to design and implement a pest control plan for the *Composting Site*. The pest control plan shall remain in place, and be updated from time to time as necessary, until the *Composting Site* has been closed and this *Certificate* has been revoked.

(6) The *Owner* shall ensure that all *Composting Site* roads and operations / yard areas are regularly swept / washed to prevent dust impacts from the *Composting Site*.

(7) The *Owner* shall store all *Compost* within the confines of the *Processing Building*.

(8) The *Owner* shall regularly clean and disinfect, if necessary, all equipment and storage areas that are used to handle and process waste at the *Composting Site*.

60. Operations Manual & Staff Training

(1) The *Owner* shall prepare an Operations Manual for use by the *Composting Site* personnel. The Operations Manual shall contain the following:

- (a) outline the responsibilities of the *Composting Site* personnel;
- (b) personnel training protocols;

- (c) waste receiving and screening procedures;
- (d) unloading, handling and storage procedures;
- (e) waste processing and process monitoring procedures;
- (f) sampling and testing procedures;
- (g) *Composting Site* inspections and recording procedures;
- (h) the emergency response procedures; and
- (i) procedure for handling complaints as described in the *Certificate of Approval (Air/Noise)* for this *Composting Site*.

(2) A copy of this Operations Manual shall be kept at the *Composting Site*, must be accessible to personnel at all times and must be updated, as required.

(3) (a) All employees of the *Composting Site* shall be trained with respect to the following, as it is relevant to the employee's position:

- (i) terms, conditions and operating requirements of this *Certificate*;
- (ii) operation and management of the *Site*, or area(s) within the *Composting Site*, as per the specific job requirements of each individual employee, and which may include procedures for receiving, screening and identifying waste, refusal, handling, processing and temporarily storing wastes;
- (iii) an outline of the responsibilities of the *Composting Site* employees including roles and responsibilities during emergency situations;
- (iv) the *WRIC Environmental Emergency Plan*, including exit locations and evacuation routing, and location of relevant equipment available for emergency situations;
- (v) environmental, and occupational health and safety concerns pertaining to the wastes to be handled;
- (vi) emergency first-aid information;
- (vii) relevant waste management legislation and regulations, including the *EPA* and *O. Reg. 347*;
- (viii) recording procedures as required by this *Certificate*;
- (ix) equipment and *Composting Site* inspection procedures, as required by this *Certificate*;
- (x) nuisance impact control & housekeeping procedures, as required by this *Certificate*; and
- (xi) procedures for recording and responding to public complaints as required by the *Certificate of Approval (Air/Noise)* for this *Composting Site*.

(4) The *Owner* shall ensure that all employees are trained in the requirements of this *Certificate* relevant to the employee's position:

- (a) upon commencing employment at the *Composting Site* in a particular position;
- (b) whenever items listed in Condition 60.(1) are changed; or
- (c) during the planned three (3)-year refresher training.

61. ***Environmental Emergency Plan (Composting Facility)***

(1) The emergency response and contingency planning measures for the *Composting Site* that are required by Condition 45(a)(vi) shall include, as a minimum, the following information:

- (a) procedures and actions to be taken should the incoming *Organic Waste* not meet the quality criteria specified by this *Certificate*;
- (b) procedures and actions to be taken should the composted *Organic Waste* fail to meet the compost quality criteria specified by the *Certificate*;
- (c) procedures and actions to be taken should the occurrence of the complaints require the *Owner* to suspend the waste processing activities at the *Composting Site*;
- (d) modifications to the *Processing Building* and the implementation schedule should the fugitive odour emissions originating from the *Processing Building* result in odour complaints;
- (e) procedures and actions to be taken should a long term power failure at the *Composting Site* or a suspension of waste processing activities require a phased *Re-Start-up* of operations; and
- (f) procedures to be taken should it be necessary for the *Owner* to remove the unprocessed *Organic Waste* from the *Composting Site*.

(2) The emergency response and contingency planning measures for the *Composting Site* that are required by Condition 45(a)(vi) shall be prepared in consultation with the *District Manager*, the local Municipality and the Guelph Fire Department.

(3) As is required by Condition 45(c) of this Certificate, no waste shall be received at the *Composting Site* for storage or processing until the *District Manager* provides a written concurrence to the Plan.

62. Emergency Response and Reporting

(1) The *Owner* shall immediately take all necessary measures, as outlined in the applicable *WRIC Environmental Emergency Plan*, to handle the emergency situations occurring at the *Composting Site* and/or *Re-Start-up* of operations.

(2) The *Owner* shall ensure that the equipment and materials outlined in the applicable *WRIC Environmental Emergency Plan* are immediately available at the *Composting Site* at all times and are in a good state of repair and fully operational.

(3) The *Owner* shall ensure that all *Composting Site* personnel are fully trained in the use of the equipment and materials outlined in the applicable *WRIC Environmental Emergency Plan*, and in the procedures to be employed in the event of an emergency.

(4) All Spills, as defined in the *EPA*, shall be immediately reported to the **Ministry's Spills Action Centre at 1-800-268-6060** and shall be recorded in the log book as to the nature and cause of the spill, and the action taken for clean-up, correction and prevention of similar future occurrences.

(5) Should a Spill, as defined in the *EPA*, occur at the *Composting Site*, in addition to fulfilling the requirements from the *EPA*, the *Owner* shall submit to the *District Manager*, a written report within three (3) calendar days outlining the nature of the Spill, remedial measure taken and the measures taken to prevent future occurrences at the *Composting Site*.

63. Records Keeping

Daily Activities

(1) The *Owner* shall maintain an on-Site written or digital record of activities undertaken at the *Composting Site*. All measurements shall be recorded in consistent metric units of measurement. The record shall include, as a minimum, the following information:

- (a) date, quantity, source and type of the *Organic Waste*, (including any analytical data), received at the *Composting Site*;
- (b) date, quantity, type and the destination of the *Compost*, transferred from the *Composting Site*;
- (c) date, quantity, type and the destination of the *residual waste*, transferred from the *Composting Site* for final disposal;
- (d) date, quantity, type and the destination of the *Rejected Waste*, transferred from the *Composting Site*;
- (e) pre-Composting and post-Composting processing activities undertaken at the *Composting Site*;
- (f) tunnel loading / unloading activities and number of *Composting* tunnels actively undergoing *Composting*;
- (g) amount of the *Immature Compost* transferred from the *Composting* tunnels to the curing area;
- (h) housecleaning activities, including litter collection, floor and equipment washing;
- (i) loss of negative pressure within the *Processing Building* and the activities undertaken to restore the required negative pressure; and
- (j) results of the hydrogen sulphide and ammonia monitoring required by the *Certificate of Approval (Air/Noise)* for this *Composting Site*.

Monitoring Records

(2) (a) The *Owner* shall establish and maintain a written or digital record of all monitoring activities at the *Composting Site* as required by this *Certificate* and the *Certificate of Approval (Air/Noise)* for this *Composting Site*; and

- (b) The *Owner* shall establish and maintain a tracking system that tracks the pasteurization temperature measurements from the *Composting* tunnels and the testing results from the enhanced pathogen testing required by this *Certificate*. This tracking system shall include, as a minimum, the following information:

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- (i) identification of the *Composting* tunnel used for the purpose of the *Organic Waste* pasteurization;
- (ii) the in-waste and the headspace temperature during the *Composting Organic Waste* pasteurization cycle, as required by this *Certificate*; and
- (iii) the results of the pathogen testing, as required by this *Certificate*.

Emergency Situations

(3) The *Owner* shall maintain an on-*Site* written or digital record of the emergency situations. The record shall include, as a minimum, the following:

- (a) the type of an emergency situation;
- (b) description of how the emergency situation was handled;
- (c) the type and amount of material spilled, if applicable;
- (d) a description of how the spilled material was cleaned up and stored, if generated; and
- (e) the location and time of final disposal, if applicable.

Inspections

(4) The *Owner* shall maintain an on-*Site* written or digital record of inspections as required by this *Certificate*. The record shall include, as a minimum, the following:

- (a) the name and signature of the *Trained Personnel* that conducted the inspection;
- (b) the date and time of the inspection;
- (c) the list of any deficiencies discovered;
- (d) the recommendations for remedial action; and
- (e) the date, time and description of actions taken.

Training

(5) The *Owner* shall maintain an on-*Site* written or digital record of training as required by this *Certificate*. The record shall include, as a minimum, the following:

- (a) date of training;
- (b) name and signature of employee who has been trained; and
- (c) description of the training provided.

Sampling & Testing Records

(6) The *Owner* shall establish and maintain a written or digital record of all sampling and testing activities at the *Composting Site*. This record shall include, as a minimum, the following information:

- (a) waste sampled, sample collection locations and volume collected;
- (b) day and time of collection;
- (c) sample handling procedures;
- (d) parameters tested for and the resulting concentrations;
- (e) name of the laboratory facility conducting the testing; and
- (f) conclusions drawn with respect to the results of the testing.

Complaints Response Records

(7) The *Owner* shall establish and maintain a written or digital record of complaints received and the responses made as required by the *Certificate of Approval (Air/Noise)* for this *Composting Site*.

Annual Report

(8) By March 31st following the end of each operating year, the *Owner* shall prepare and submit to the *District Manager*, an Annual Report summarizing the operation of the *Composting Site* covering the previous calendar year. This Annual Report shall include, as a minimum, the following information:

- (a) a monthly mass balance of the *Organic Waste* received, processed and transferred from this *Composting Site*, including waste type, quantity, sources and/or disposal destinations;
- (b) an annual summary mass balance of the *Organic Waste*, the *wood waste*, the *waste wood* and the Amendment Material received, processed and transferred from this *Composting Site*, including waste type, quantity, sources and/or disposal destination;
- (c) an annual summary of any deficiencies, items of non-compliance or process aberrations that occurred at this *Composting Site* and any remedial / mitigative action taken to correct them;
- (d) a descriptive summary of any spills, *incidents* or other emergency situations which have occurred at this *Composting Site*, any remedial measures taken, and the measures taken to prevent future occurrences;
- (e) a summary describing any *Rejected Waste* including quantity, waste type, reasons for rejection and origin of the *Rejected Waste*;
- (f) the quantity, by weight and volume of *Compost* and residues produced and the quantity of *Compost* and residues removed from the facility;
- (g) any environmental and operational problems, that could negatively impact the environment, encountered during the operation of the *Composting Site* or identified during the facility inspections and any mitigative actions taken;
- (h) any changes to the *WRIC Environmental Emergency Plan*, the Operations Manual or the Closure Plan that have been approved by the *Director* since the last Annual Report;
- (i) any recommendations to minimize environmental impacts from the operation of the *Composting Site* and to improve *Composting Site* operations and monitoring programs in this regard;
- (j) a summary of any complaints received and the responses made, as required by the *Certificate of Approval (Air/Noise)* for the *Composting Site*;
- (k) a description of the *Compost* distribution/markets;
- (l) conclusions from the enhanced pathogen testing as the results relate to the pasteurization temperature monitoring; and
- (m) a condition-by-condition analysis of compliance with all Conditions of this *Certificate*.

64. Wastewater Management

- (1) The *Owner* shall ensure that all wastewater generated within the *Processing Building* is:
 - (a) contained within the *Processing Building* and the storage tanks approved by this *Certificate*;
 - (b) collected in the sufficiently designed wastewater storage facilities; and
 - (c) either utilized in the process or discharged to the sanitary sewer or disposed of at a *Ministry* approved site.
- (2) The *Owner* shall regularly empty, clean and disinfect if necessary, all sumps or wastewater storage/holding areas that are used to contain and collect the wastewater generated within the *Processing Building*.
- (3) The *Owner* shall ensure that only uncontaminated water is used to irrigate the *Composting Organic Waste* after the *Composting Organic Waste* has completed the pasteurization phase of the *Composting Process*.
- (4) The *Owner* shall ensure that the impermeable membrane under the *Processing Building* is installed in accordance with the manufacturer specifications to ensure its integrity and effectiveness as a wastewater leak barrier.

65. Closure Plan

- (1) (a) The *Owner* shall submit, for approval by the *Director*, a written Closure Plan for the *Composting Site* at least six (6) months prior to closure of the *Composting Site*. This plan shall include, as a minimum, a description of the work that will be done to facilitate closure of the *Composting Site* and a schedule for completion of the required work; and
 - (b) Within ten (10) days after closure of the *Composting Site*, the *Owner* shall notify the *Director*, in writing, that the *Composting Site* is closed and that the *Composting Site* Closure Plan has been implemented.

66. Ministry's Supplementary Requirements

Unless otherwise specified by the conditions of this *Certificate*, the *Owner* shall comply with the requirements of the *Ministry's* document entitled "Interim Guidelines for the Production and Use of Aerobic Compost in Ontario", dated November 2004, as amended.

67. Q. LIMITED OPERATIONAL FLEXIBILITY – Design, Operation and Management

(1) The *Owner* may make *Modifications* to the *Material Recovery Facility (MRF)*, and the *Waste Transfer Station* and the Design and Operations Reports for the *Material Recovery Facility* and the *Waste Transfer Station* in accordance with this *Certificate* and the pre-approved changes of the *Operating Envelope* as described in the *Engineer's Report* that is identified in Item 52 of Schedule "A".

(2) For greater certainty, the follow are *Modifications* that would be allowed at the *MRF* or the Transfer Station:

1) The following *Modifications* to the *infrastructure*; i) replacement of truck doors; ii) the installation of a coverall building to house a maximum of 1000 tonnes of recyclable wastes; iii) movement or *Modifications* to the staging area for recyclable materials; iv) additional outdoor storage of recyclable materials in staging area on an asphalt pad; v) landscaping changes; vi) on-*Site* roadway changes; vii) relocation of scales; viii) Installation of additional parking stalls and/or rearrangement of parking areas; ix) Installation or *Modifications* to lighting; x) Construction of a facility for the collection and distribution of reusable items xi) installation or *Modifications* to signage; xii) changes to improve the working environment for the employees within the *MRF* or Transfer Station such as installation or improvements to heating units, air conditioning units, air handling units, odour control systems or dust control systems as long as such changes would occur within the building and would not adversely effect the surroundings environment and would not require an application for a Section 9 Certificate of Approval; and

2) The ability to make *Modifications* to the *Site's* processing operations and equipment to improve the efficiency and effectiveness of the operation of the Waste Transfer Site or the Municipal Recycling Facility such as:

- i) *Modifications* or repairs to the building and its facilities including walls, floors, pits, roof, doors, plumbing, and electrical;
- ii) The installation or replacement of recycling or transfer plant equipment such as balers, conveyors, separation equipment, and compactors;
- iii) Addition or replacement of mobile equipment for use of the *Waste Transfer Station* or the Municipal Recycling Facility; and
- iv) relocation and modification of maintenance and waste processing operations inside the building used for the *Waste Transfer Station* or the Municipal Recycling Facility.

(3) For greater certainty, the following *Modifications* to the *Site* are not permitted as part of the *Operating Envelope*:

- i) Any changes to the *MHSW*;
- ii) Any changes to the *Organic Waste* Processing Facility;
- iii) *Modifications* to the type of waste accepted at the *Site*;
- iv) *Modifications* to the storage capacity of the *Waste Transfer Station* or the Municipal Recycling Facility;
- v) extending the *Site* onto adjacent lands;
- vi) changing the function of the approved operations of the *MRF* and the *Waste Transfer Station*;
- vii) accepting hazardous waste, liquid industrial waste, or municipal or industrial sewage;
- viii) changes to the *Site* not identified in the *Engineer's Report*; or
- ix) changes to the *Site* that have requirements under the Environmental Assessment Act.

(4) The *Owner* shall provide a written notification to the *District Manager* and *Director* at least fifteen (15) days prior to

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making *Modifications* to the *Site* in accordance with 67(1) At a minimum the notification shall include the following:

- (1) a description of the change to the operations of the *Site* including an assessment of the anticipated environmental effects of the *Modifications*;
- (2) updated versions of, or amendments to, all relevant technical documents required by this *Certificate* that are affected by the Modification including but not necessarily limited to an updated *Site* Plan drawing, Design and Operations Report, the Emergency Response, Spill Reporting and Contingency Plan and the Closure Plan including a document control record that tracks all changes that were made to the documents; and
- (3) a statement signed by the *Owner* and an *Independent Professional Engineer* declaring that the *Modifications* made to the *Site* are done so in accordance with the *Operating Envelope*, are consistent with industry's best management practices and are not likely to result in an adverse effect.
- (5) Notwithstanding Condition 67(4), if the *Modifications* made to the *Site* require an amendment to the *WRIC Environmental Emergency Plan*, the *Owner* shall obtain the authorization of the local fire services authority prior to instituting the *Modifications*. A copy of the approved plan must be forwarded to the *District Manager* within fifteen (15) days of such approval.

68. Design and Operations Report

- (1) The Design and Operations Reports shall be retained at the *Site*; kept up to date; and be available for inspection by *Ministry* staff. The Design and Operations Report shall contain at a minimum the information specified for a waste processing site as described in the most recent version of the *Ministry* publication "Guide for Applying for Approval of Waste Disposal Site".
- (2) The *Owner* may amend the *Current Design and Operations Reports* for the *MRF* and the *Waste Transfer Station* in accordance with Condition 67(1) of this *Certificate*.
- (3) Changes to the Design and Operations Reports, with the exception of changes made under Condition 67(1), shall be submitted to the *Director* for approval.
- (4) If the *Owner* has made *Modifications* to the *Site* in accordance with Condition 67(1), the *Owner* shall ensure that the *Site* is built, operated and maintained in accordance with the *current Design and Operations Report*.
- (5) The *Owner* shall maintain a document control record at the *Site* that tracks all changes that are made to the Design and Operations Report.
- (6) The *Owner* may accept any solid Municipal Waste at the *Site* if the *Owner* has received written notification from a *Ministry* employee appointed for the purposes of Section 31 of the EPA, including the *Director* and *District Manager*, advising the *Owner* that the waste may be received to alleviate an emergency described in Section 31 of the EPA.

SCHEDULE "A"

This Schedule "A" forms part of this Certificate.

1. Applications for a Certificate of Approval for a Waste Disposal Site (Processing & Transfer) dated August 27, 1991, September 10, 1993, and January 2, 2007 and supporting documentation submitted therewith.
2. Applications for Certificate of Approval for a Waste Disposal Site (Processing & Transfer) submitted on April 4, 2008, February 24, 2009, October 22, 2009 and January 12, 2010 by Bill Shields, Supervisor, Governance & Compliance, City of Guelph Solid Waste Resources Division, including the Report, dated October 2009 and prepared by Golder Associates Ltd. and all other supporting documentation.
3. Applications for a Provisional Certificate of Approval for a Waste Disposal Site dated January 30, 2002 and February 1, 2005 signed by Cathy Smith, Manager, Solid Waste Resources Division, Corporation of the City of Guelph and other

supporting documentation.

4. Application for a Provisional Certificate of Approval for a Waste Disposal Site signed by Janet Laird, Director of Environmental Services, City of Guelph, dated February 17, 2006.
5. Plume Visibility Study, Wet/Dry Processing Facility, Guelph, Ontario dated November 20, 1991.
6. Evaluation of Potential Birds Hazards to Aircraft Safety Associated with the City of Guelph's Proposed Wet/Dry Recycling Facility Adjacent to the Guelph Air Park, dated March 5, 1992.
7. Letter from Mr. Dean Wyman, Manager, Solid Waste Resources Division, City of Guelph, to EAAB, dated June 12, 2006 requesting amendments to Certificate of Approval No. 9241-5DTRD9 and providing the rationale for the proposed amendments.
8. Letter to E. Gill, Ministry of Environment from K.J. Bull, City of Guelph, dated December 18, 1992 and additional information submitted therewith including the document "City of Guelph Hazardous Waste Facility Operation Manual" dated December 1992.
9. Letter and supporting documentation dated April 4, 1994, to Mr. H. M. Wong, Ontario Ministry of Environment and Energy from Mr. Richard Cave, R. Cave and Associates Ltd.
10. Letter date March 31, 1995 to the Ministry of Environment and Energy, Cambridge *District Office* from R.D. Funnell, P.Eng., City Engineer, re: Wet-Dry Recycling Centre - Annual Report.
11. Letter dated May 16, 1995 to Dave Ross, Ministry of Environment and Energy, from R.D. Funnell, P.Eng., City Engineer, RE: City of Guelph's Application to Amend Provisional Certificate of Approval No. A170128 for Waste Disposal Site (Processing) with the attached Application for an Approval of Waste Disposal Site dated May 17, 1995.
12. Letter dated December 30, 1996, to Mr. H. Wong, Ministry of Environment and Energy, West Central Region from R.D. Funnell, P.Eng., Director of Works, RE: Amendments to Certificate of Approval (Waste Disposal) No. A170128 for the City of Guelph's Wet-Dry Recycling Centre, including application dated December 31, 1996 and supporting documentation.
13. Letter dated July 14, 1997 to Mr. Hardy Wong, Director, West Central Region from Jutta Siebel, Wet-Dry Residential Coordinator, RE: City of Guelph's Wet-Dry Recycling Centre Certificate of Approval No. A170128.
14. Letter and application from Janet Laird, Manager of Solid Waste Services, City of Guelph to G. Carpentier, MOE dated April 3, 1998 re: Amendment to Certificate of Approval A170128.
15. Letter from Jutta Siebel, Wet-Dry Residential Coordinator, City of Guelph to G. Carpentier, dated May 4, 1998 re: Public Consultation and Analytical Data.
16. The covering letter from Ms. J. Laird, Manager of Solid Waste Services, City of Guelph to Mr. G. Carpentier, MOE, dated May 27, 1998 with attachments:
 - (a) Application for approval of a waste disposal site.
 - (b) Public consultation process for amendments to Certificate of Approval No. A170128.
17. The covering letter from Ms. J. Laird, to Mr. G. Carpentier, dated June 19, 1998 with attachments:
 - (a) Waste acceptance policy at the wet-dry recycling centre;
 - (b) Section 2.9 "Penalties for Improper Disposal" from the "A Guide for Solid Waste Disposal at Eastview Sanitary Landfill Site and the Wet-Dry Recycling Centre";
 - (c) Contingency plan for "odourous" wet/organic waste received at the wet-dry recycling centre.
18. Letter and application from Janet Laird, Manager of Solid Waste Services, City of Guelph, to G. Carpentier, MOE, dated October 26, 1998, re: Amendment to Provisional Certificate of Approval A170128.

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19. Facsimile from Jutta Siebel, Wet-Dry Residential Coordinator, City of Guelph, to Stephen Rouleau, MOE, dated January 13, 1999, re: Copper and Mercury Levels in Compost.
20. Facsimile from Jutta Siebel, Wet-Dry Residential Coordinator, City of Guelph, to Stephen Rouleau, MOE, dated January 15, 1999 re: Copper and Mercury Levels in *leaf and yard waste*.
21. Letter and application from Janet Laird, Manager of Solid Waste Services, City of Guelph, to Adam Ciulini, MOE, dated February 12, 1999, re: Rationale for Amendment.
22. Memorandum from Adam Ciulini, MOE, to A. Dominski, MOE, dated April 12, 1999, re: Waste Management Policy Branch's Support of the Amendment.
23. Letter and application from Janet Laird, Manager of Solid Waste Services, City of Guelph to G. Carpentier, MOE, dated August 19, 1999, re: Amendment to Certificate of Approval No. A170128.
24. Document entitled City of Guelph - Request for Amendments to Provisional Certificate of Approval No. A170128, prepared for City of Guelph, prepared by Gartner Lee Limited, dated February 2006 except for Section 2.4, 2.6, 3.4 and 3.5 which are not approved by the Director.
25. Letter from Dean Wyman, Manager, Solid Waste Resources Division, City of Guelph, to EAAB, dated June 12, 2006 re: changes to and clarification of document submitted in support of the application for amendments.
26. Email from Dean Wyman, Manager, Solid Waste Resources Division, City of Guelph, to Veronica Pochmursky, EAAB, sent September 6, 2006, re: City of Guelph's procedures for *Clean Wood* and contaminated wood and final destination of contaminated or combined wood.
27. Letter Dated February 8, 2007 from Bill Shields, Supervisor, Governance and Compliance, City of Guelph to T. Gebrezghi, MOE, amendment of Section (C) of Page 1 of the CofA;
28. Letter dated March 14, 2007 from Khaled Mamun, P. Eng., EAAB to Jennifer Turnbull, City of Guelph, requesting for additional information;
29. Fax dated March 28, 2007 from Dean Wyman, Manager, Solid Waste Resources Division, City of Guelph to Khaled Mamun, P. Eng., MOE, submission of the additional information.
30. Fax dated April 11, 2007 from Dean Wyman, Solid Waste Resources Division, City of Guelph to Khaled Mamun, P. Eng., MOE, re: addition of Waste Class 121.
31. Document "City of Guelph Household Hazardous Waste Depot Request for Amendment to Certificate of Approval A170128", dated April 2008, including all appendices.
32. E-mail dated February 2, 2010 (4:44 p.m.) from Amy Burke, Golder Associates Ltd., to Margaret Wojcik, Ontario Ministry of the Environment, including an attachment entitled "08-1112-0126 LET 2010'02'02 MOE Response.pdf" to provide additional information on the proposal.
33. E-mail dated February 17, 2010 (11:12 a.m.) from Ravi Mahabir, Golder Associates Ltd., to Bijal Shah and Margaret Wojcik, Ontario Ministry of the Environment, including an attachment entitled "0811120126 City of Guelph OWPF Response to MOE 17Feb10.pdf" to provide additional information on the proposal.
34. E-mail dated March 1, 2010 (7:46 a.m.) from Amy Burke, Golder Associates Ltd., to Margaret Wojcik, Ontario Ministry of the Environment, including an attachment entitled "08-1112-0126 MEM 2010'02'25.pdf" to provide additional information on the proposed air curtains.
35. E-mail dated March 30, 2010 (4:56 p.m.) from Ravi Mahabir, Golder Associates Ltd., to Margaret Wojcik, Ontario Ministry of the Environment, including an attachment entitled "0811120126 City of Guelph OWPF Response to MOE 30Mar,2010.pdf" to provide additional information on the proposal.

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36. E-mail dated April 8, 2010 (2:23 p.m.) from Ravi Mahabir, Golder Associates Ltd., to Margaret Wojcik, Ontario Ministry of the Environment, including an attachment entitled "0811120126 City of Guelph OWPF Response to MOE 8Apr10.pdf" to provide additional information on the proposal.
37. E-mail dated April 9, 2010 (8:27 a.m.) from Ravi Mahabir, Golder Associates Ltd., to Margaret Wojcik, Ontario Ministry of the Environment, including an attachment entitled "Revised Flowchart April 9,2010.pdf" to provide a correction to the previously submitted information.
38. E-mail dated April 09, 2010 (11:08 a.m.) from Ravi Mahabir, Golder Associates Ltd., to Margaret Wojcik, Ontario Ministry of the Environment, including an attachment entitled "08375-801-W02-1a.pdf" to provide additional information on the proposal.
39. E-mail dated April 28, 2010 (1:06 p.m.) from Ravi Mahabir, Golder Associates Ltd., to Margaret Wojcik, Ontario Ministry of the Environment, including an attachment entitled "0811120126 City of Guelph OWPF Responses to MOE 28Apr10.pdf" to provide additional information on the proposal.
40. E-mail dated May 05, 2010 (9:24 a.m.) from Ravi Mahabir, Golder Associates Ltd., to Margaret Wojcik, Ontario Ministry of the Environment, including an attachment entitled "0811120126 City of Guelph OWPF Responses to MOE 4May,2010 FSC.pdf" to provide additional information on the proposal including the schedule for phasing out the use of plastic bags to collect the *Organic Waste* in the City of Guelph, the approach to temperature monitoring of material within *Composting* tunnels.
41. E-mail dated May 7, 2010 (2:36 p.m.) from Ravi Mahabir, Golder Associates Ltd., to Margaret Wojcik, Ontario Ministry of the Environment, to clarify the proposal with respect to mixing of the *Composting* waste.
42. E-mail dated May 7, 2010 (3:52 p.m.) from Ravi Mahabir, Golder Associates Ltd., to Margaret Wojcik, Ontario Ministry of the Environment, to confirm that the acid spray system will be installed and operational at the start-up of the *Composting Site*.
43. E-mail dated May 11, 2010 (2:49 p.m.) from Ravi Mahabir, Golder Associates Ltd., to Margaret Wojcik, Ontario Ministry of the Environment, including an attachment entitled "compost temperatures.pdf" to provide data on compost temperature from two different monitoring methods.
44. E-mail dated May 26, 2010 (2:30 p.m.) from Ravi Mahabir, Golder Associates Ltd., to Margaret Wojcik, Ontario Ministry of the Environment, including an attachment entitled "0811120126 Draft CofA Review - Supporting Information RSM May 25,2010.pdf" providing additional clarification on the types of wastes to be received at the *Composting Site*.
45. E-mail dated June 2, 2010 (10:41 a.m.) from Amy Burke, Golder Associates Ltd., to Margaret Wojcik, Ontario Ministry of the Environment, providing additional clarification on the types of amendment and other wastes to be received at the *Composting Site*, the equipment decontamination procedure and the proposed pasteurization temperature monitoring.
46. E-mail dated June 18, 2010 (8:08 a.m.) from Bill Shields, Corporation of the City of Guelph, to Margaret Wojcik, Ontario Ministry of the Environment, including attachments entitled "Fig1_GuelphWRIC_Screening.pdf, Fig2_GuelphWRIC_Screening.pdf, Fig1_GuelphWRIC_Screening Option 3 (2010-05-04).pdf" describing the visual screening features and the landscaping completed at the Site.
47. E-mail dated June 25, 2010 (12:38 p.m.) from Amy Burke, Golder Associates Ltd., to Margaret Wojcik, Ontario Ministry of the Environment, including attachments entitled "0811120126 Draft CofA Review - Additional Comments 2010'06'25.pdf" and "0811120126 Draft CofA Review - Addition Comments 2010'06'23 Site_Layout_v2.pdf" showing the location of the outdoor paved pad referred to as the Amendment, Recyclables, and Leaf and Yard Waste Staging Area and describing handling of wastes at the said outdoor pad.
48. Letter from Mr. Dean Wyman, Manager, Solid Waste Resources Division, City of Guelph, to EAAB, dated June 12, 2006 requesting amendments to Certificate of Approval No. 9241-5DTRD9 and providing the rationale for the proposed amendments.
49. The Design and Operations Report for the City of Guelph *Material Recovery Facility* prepared by Golder Associates, dated January 12, 2010.

50. The Design and Operations Report for the City of Guelph *Waste Transfer Station* prepared by Golder Associates, dated January 12, 2010.

51. The Design and Operations Report for the City of Guelph WRIC Public Drop Off and *Municipal Hazardous and Special Waste* Facilities prepared by Golder Associates, dated January 12, 2010 and supplemental information provided by e-mail from Pamela Russell, P.Eng. of Golder Associates, to Jim Chisholm, P.Eng., Senior Review Engineer of the Ministry.

52. Engineers Report for the City of Guelph Waste Recycling Innovation Centre prepared by Golder Associates dated July 20, 2010 and provided by e-mail from Pamela Russell, P.Eng. of Golder Associates, to Jim Chisholm, P.Eng., Senior Review Engineer of the Ministry.

53. e-mail of July 20, 2010 from Pamela Russell of Golder Associate, to Jim Chisholm, Senior Review Engineer, Ministry of Environment along with attachments.

54. e-mail of Nov. 2, 2010 from Amy Burke of Golder Associates to Jim Chisholm, Senior Review Engineer, Ministry of Environment.

SCHEDULE "B"

This Schedule "B" forms part of this Certificate of Approval.

Compost Quality Criteria

Parameter		Concentration
Trace Elements (mg/kg dry weight) ¹	arsenic	13
	cadmium	3
	chromium	210
	cobalt	34
	copper	100
	lead	150
	mercury	0.8
	molybdenum	5
	nickel	62
	selenium	2
	zinc	500
Organic chemicals (mg/kg dry weight) ¹	PCBs ²	0.5
Pathogens	fecal coliforms	<1000 MPN/g of total solids calculated on a dry weight basis ³
	salmonellae	<3 MPN/4g total solids calculated on a dry weight basis ³
Non-biodegradable matter ⁴ % dry weight	plastic	1
	other	2

Note 1 – means milligrams per kilogram

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Note 2 - means polychlorinated biphenols

Note 3 - means "Most Probable Number"

Note 4 - will not fit through a size 8 mesh

The reasons for the imposition of these terms and conditions are as follows:

- 1. The reason for Conditions 1 to 5 inclusive and Conditions 10 and 11 is to clarify the legal rights and obligations of this Certificate.*
- 2. The reason for Condition 6 is to ensure that the Site is operated under the corporate, limited or applicant's own name which appears on the application and supporting information submitted with the application and not under any name which the Director has not been asked to consider.*
- 3. The reason for Conditions 7, 8 and 9 is to ensure that Ministry personnel, when acting in the course of their duties, will be given unobstructed access to the information and records related to the Site which are required by this Certificate, and to enable the Ministry to be assured of the City's compliance with the terms and conditions stated in this Certificate.*
- 4. The reason for Conditions 16, 17, 18, 19, 20, 21, 22, and 24, is to minimize and/or prevent nuisance or adverse environmental affects from occurring. The use and operation of the Site without these conditions may create a nuisance or result in a hazard to the health and safety of any person or the environment.*
- 5. The reason for Condition 23 is to ensure that there is no adverse impact on aircraft safety in the area and no net increase in the bird population in the area, as a result of the use and operation of this Site.*
- 6. The reason for Conditions 12(a), 12(b), 13 and 14 is to ensure that the Site is operated in accordance with the application and supporting documentation for this Certificate and not in any manner which the Director has not been asked to consider. The operation of the Site without these conditions would not be in the public interest and may result in unacceptable environmental impacts. The imposition and compliance with these conditions will further ensure that the facility is operated and monitored in accordance with established procedures and practices for this type of facility.*
- 7. The reason for Condition 15 is to outline the maximum amount of residual waste that can be taken from the Site in one day. Any amount above an average o 1000 tonnes per day requires an Environmental Assessment.*
- 8. The reason for Condition 25 is to ensure that the Site will not be operated at hours during which such operation could cause material discomfort to any person.*
- 9. The reason for Condition 26, 27, 28 is to have personnel that have the sufficient skills, knowledge and experience to do the work that is necessary at the Site.*
- 10. The reason for Condition 29 and 30 is to require the Owner to establish a forum and provide reasonable access to the Site for the exchange of information and public dialogue on activities carried out at the Composting Site and other parts of the Site. Open communication with the public and local authorities is important in helping to maintain high standards for the operation of the Composting Site and other parts of the Site and protection of the natural environment. The use and operation of the Site without this condition would not be in the public interest.*
- 11. The reason for Condition 31 is to protect the environment from an adverse effect as a result of activities at the Site.*
- 12. The reason for Conditions 32, 33, 34, 35, and 36 is to minimize the risk of environmentally unacceptable discharges of a contaminant into the environment. Compliance with the monitoring programs outlined in these conditions will enable the City to allow for an early detection system for any unacceptable discharges of contaminants and allow for the implementation of a contingency plan.*
- 13. The reason for Condition 37 is to minimize the risk of vandalism and to ensure that the Site is only operated in the presence of competent people to ensure the waste is properly managed.*

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14. *The reason for Conditions 38, 39, 40, 41, 42, 43, and 44 to ensure the Site is operated in accordance with the application and this Certificate and not in any manner which the Director has not been asked to consider. Operation of the Site without these conditions would not be in the public interest.*
15. *The reason for Condition 45 is to ensure the City has an up-to-date Environmental Emergency Plan for the Site for the prompt control, abatement, mitigation and clean-up of emergency incidents, accidental discharge of contaminants, potential environmental or nuisance related impacts.*
16. *The reason for Condition 46 is to ensure that the City has a robust Complaints Procedure*
17. *The reason for Condition 47 is to make sure that the City takes immediate measures to responds to a spill and process upset and informs the Ministry immediately of such spills or upset.*
18. *The reason for conditions 48, 49, 50, 51, and 52 is so that the City have a robust inspection program at the site and that the inspections are properly recorded and an annual summary of activities at the site are sent to the ministry.*
19. *The reason for Condition 53 is to ensure the orderly shut down of the composting facility or other parts of the site.*
20. *Condition 54. is included to specify the approved Organic Waste receipt rate, the approved Organic Waste types and the service area from which the Organic Waste may be accepted at the Composting Site based on the Owner's application and supporting documentation.*
21. *Condition 55. is included to ensure that the Composting Site is sufficiently secured, supervised and operated by properly Trained Personnel and to ensure controlled access and integrity of the Composting Site by preventing unauthorized access when the Composting Site is closed and no Composting Site personnel is on duty.*
22. *Condition 56.(1) is included to specify the hours of operation for the Composting Site to ensure that the hours of the Composting Site's operation do not result in an adverse effect or a hazard to the natural environment or any person.*
23. *Condition 56.(2) is included to ensure that only the approved waste types are accepted and processed at the Composting Site.*
24. *Condition 56.(3) is included to specify the requirements for handling of the Rejected Waste that was inadvertently received at the Composting Site.*
25. *Conditions 56.(4) and (5) are included to ensure that waste and amendment materials handling and storage are undertaken in done in a way which does not result in an adverse effect or a hazard to the environment or any person.*
26. *Condition 56.(6) is included to specify odour control measures to minimize a potential for odour emissions from the Composting Site.*
27. *Condition 57. is included to require the Composting Site to be maintained and inspected thoroughly and on a regular basis to ensure that the operations at the Composting Site are undertaken in a manner which does not result in an adverse effect or a hazard to the health and safety of the environment or any person.*
28. *Condition 58. is included to require the Owner to characterize all waste received at the Composting Site and shipped off the Composting Site to ensure that only waste approved by this Certificate is handled at the Composting Site and that all waste transferred off the Composting Site is handled in accordance with the Ministry's requirements. Condition 38. is also included to require the Owner to monitor the Composting process parameters.*
29. *Condition 59. is included to ensure that the Composting Site is operated and maintained in an environmentally acceptable manner which does not result in a negative impact on the natural environment or any person.*
30. *Condition 60. is included to ensure that personnel employed at the Composting Site are fully aware and properly trained on the requirements and restrictions related to Composting Site operations under this Certificate.*
31. *Condition 61. is included to ensure that the Owner is prepared and properly equipped to take action in the event of an emergency situation.*

32. Conditions 62. also is included to require further spill notification to the Ministry, in addition to the requirements already listed in Part X of the EPA.

33. Condition 63. is included to ensure that detailed records of Composting Site activities, inspections, monitoring and upsets are recorded and maintained for inspection and information purposes.

34. Condition 64. is included to ensure that the wastewater generated at the Composting Site is handled in accordance with the Ministry's requirements and in a manner which does not result in a negative impact on the natural environment or any person.

35. Condition 65. is included to ensure that final closure of the Composting Site is completed in accordance with Ministry's standards.

36. Condition 66. is included to require the Owner to design, operate, maintain and monitor the waste management activities at the Composting Site in compliance with the Ministry's supplementary requirements as they become published and amended from time to time.

37. The reason for Conditions 67 and 68 is to ensure that the Site is operated in accordance with the application and supporting documentation submitted by the Owner, and not in a manner which the Director has not been asked to consider.

This Provisional Certificate of Approval revokes and replaces Certificate(s) of Approval No. A170128 and 9241-5DTRD9 issued on September 29, 2006 and April 24, 2003 respectively.

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the waste disposal site is located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto, Ontario
M5G 1E5

AND

The Director
Section 39, *Environmental Protection Act*
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

* Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca

The above noted waste disposal site is approved under Section 39 of the Environmental Protection Act.

CONTENT COPY OF ORIGINAL

DATED AT TORONTO this 10th day of February, 2011

Tesfaye Gebrezghi, P.Eng.
Director
Section 39, *Environmental Protection Act*

JC/
c: District Manager, MOE Guelph
Pamela Russell, Golder Associates Ltd.

AMENDMENT TO PROVISIONAL CERTIFICATE OF
APPROVAL
WASTE DISPOSAL SITE

NUMBER A170128

Notice No. 1

Issue Date: September 22, 2011

 RECEIVED
OCT 03 2011

CITY CLERK'S OFFICE

The Corporation of the City of Guelph
1 Carden St
Guelph, Ontario
N1H 3A1

Site Location: 110 Dunlop Drive
Division 'C', RP 61R-5574
Lot 4 and 5, Concession 1
Guelph City, County of Wellington
N1H 6N1

You are hereby notified that I have amended Provisional Certificate of Approval No. A170128 issued on February 10, 2011 for the use and operation of a 29.54 hectare Waste Disposal Site (Transfer/Processing), as follows:

1. The following Condition 58.(1) is amended to read as follows:

58. Quality Criteria, Testing & Monitoring

(1) Cross-Contamination Prevention:

- (a) The *Owner* shall ensure that the incoming *Organic Waste* is kept separate and does not come in contact with the *Immature Compost* / the *Finished Compost* and the *Compost* except where the *Immature Compost* / the *Finished Compost* and the *Compost* are being fed back into the *Composting* process.
- (b) The *Owner* may use the equipment utilized in processing of the incoming *Organic Waste* to process the *Immature Compost* / the *Finished Compost* and the *Compost* provided that the equipment has been cleaned, in accordance with the procedures described in documents listed in the attached Schedule "A", to prevent the *Immature Compost* / the *Finished*

Compost and the *Compost* from being contaminated by the incoming *Organic Waste*.

- (c) The *Owner* may use the equipment utilized in screening of the *Immature Compost* to screen the *Compost* provided that the screening equipment has been adequately cleaned prior to its use to screen the *Compost* and in accordance with the procedures described in documents listed in the attached Schedule "A", to prevent the *Compost* from being contaminated by the *Immature Compost*.

2. The following documents are added to Schedule "A":

55. The application for the Certificate of Approval for a Waste Disposal Site, dated September 8, 2011 and signed by Bill Shields, Corporation of the City of Guelph, including the following attachments:

- (a) E-mail dated September 2, 2011 (11:17 a.m.) from Ravi Mahabir, Dillon Consulting Limited, to Tesfaye Gebrezghi, Ontario Ministry of the Environment, describing the considered proposal and including the following attachments:
 - (i) 104328 Letter to MOE on Facility Refinements Aug22,2011 RSM.pdf;
 - (ii) Guelph screen Layout.pdf
- (b) E-mail dated September 8, 2011 (8:57 a.m.) from Ravi Mahabir, Dillon Consulting Limited, to Margaret Wojcik, Ontario Ministry of the Environment, describing the further technical details of the proposal and the cross contamination prevention procedures and including the following attachments:
 - (i) 104328 Letter to MOE on Facility Refinements Sep2,2011 RSM signed.pdf;
 - (ii) 104328 Letter to MOE on OWPF Screening Plant Operations Sep8,2011 RSM.pdf

The reason for this amendment to the Certificate of Approval is as follows:

to replace the previously approved two separate screening plants with a single double-deck screening plant to allow for increased working space within the Maturation Hall.

This Notice shall constitute part of the approval issued under Provisional Certificate of Approval No. A170128 dated February 10, 2011, as amended.

In accordance with Section 139 of the Environmental Protection Act, R.S.O. 1990, Chapter E-19, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days

after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the waste disposal site is located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, 15th Floor
Toronto, Ontario
M5G 1E5

AND

The Director
Section 39, *Environmental Protection Act*
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

* Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca

The above noted waste disposal site is approved under Section 39 of the Environmental Protection Act.

DATED AT TORONTO this 22nd day of September, 2011



Tesfaye Gebrezghi, P.Eng.
Director
Section 39, *Environmental Protection Act*

MW/

c: District Manager, MOE Guelph
Ravi Mahabir, P. Eng., Dillon Consulting Limited

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER A170128

Notice No. 2

Issue Date: November 2, 2012

The Corporation of the City of Guelph
1 Carden St
Guelph, Ontario
N1H 3A1

Site Location: 110 Dunlop Drive
110 Dunlop Dr
Guelph City, County of Wellington
N1H 6N1

You are hereby notified that I have amended Approval No. A170128 issued on February 10, 2011 and amended on September 22, 2011 for the use and operation of a 29.54 hectare Waste Disposal Site (Transfer/Processing), as follows: , as follows:

The following sub-conditions in Condition 54 are hereby amended as follows:

54. Service Area, Approved Waste Types, Rates & Storage

- (1.1) The *Composting Site* may only accept solid non-hazardous residential, commercial, institutional or industrial *Organic Waste* from the Provinces of Ontario, limited to the following *Organic Waste* :
- (a) Source-Separated *Organic Waste* limited to the following:
- (i) food wastes: fruit, vegetable and general table scraps, meat and fish/shellfish products, dairy products, eggs and egg shells, herbs, nuts and seeds, sugar and spices, confectionery products, sauces, bones, pet food, bread, grains, rice, pasta, flour, coffee grounds and tea bags;
 - (ii) solidified cooking oils and cooked or raw grease and fats from residential sources only;
 - (iii) paper fibres: soiled paper towels, tissues, paper plates, coffee filters, soiled paper food packaging items such as boxboard, cardboard, newspaper, and other paper fibre packaging materials;
 - (iv) fresh flowers, houseplants and their soil, hair, pet fur, feathers and sawdust, wood shavings;
 - (v) ashes from residential sources only;

- (vi) pet waste that is not collected or encased in a bag; and
 - (vii) pet litter box or bedding wastes, including the intermingled pet waste;
- (b) *Organic Waste* from the industrial, commercial and institutional sources that produce or collect food wastes;
 - (c) *Leaf and Yard Waste*; and
 - (d) *Compost* covers as described in the supporting documentation listed in the attached Schedule "A".
- (1.2) (a) A minimum of eight (8) months prior to accepting *Organic Waste* from any new source at the *Site* , the *Owner* shall provide written notice to the *District Manager* of its intent to commence acceptance of the new waste .
- (b) The *Owner* shall submit to the *District Manager* the following information regarding the new waste source in writing at least six (6) weeks prior to receiving the new waste identified in Condition 54 (1.2)(a):
- (i) the name and location of the generator,
 - (ii) the date the *Owner* proposes to commence accepting the waste at the *Site* ,
 - (iii) description of the constituent components of the waste being accepted,
 - (iv) confirmation whether inclusion of the waste component referenced above in Condition 54 (1.2)(a) is characterized as incidental or inadvertent,
 - (v) information related to the handling and storage of the waste prior to its delivery to the *Site* , and
 - (vi) all operational plans the *Owner* proposes for integrating the processing of waste from the new source into the waste stream currently being processed at the *Site*.
- (4) (d) i. The *Owner* shall not accept at the *Composting Site* any *Organic Waste* that is collected through a waste collection program that allows use of bags, except the waste that is generated in and collected by the City of Guelph and in accordance with Table 1 entitled "Proposed Phase-out of Plastic Bag Usage in Organics Collection" included in Item #40 of the attached Schedule "A";
- ii. Notwithstanding Condition 54 (4)(d) (i) above, the *Owner* is allowed to accept *Organic Waste* that has been placed in a biodegradable certified compostable bag.
- iii. The *Owner* shall ensure that any *Organic Waste* accepted at the *Site* that is

generated outside of the City that is collected through a waste collection program will only be collected in biodegradable certified compostable bags in accordance with Item 56 in Schedule "A".

The following Item is hereby added to Schedule "A":

56. Environmental Compliance Approval Application submitted by the City of Guelph requesting amendment to Condition No. 54 (4)(d). The application was signed and dated by Bill Shields, Supervisor of Governance and Compliance on October 3, 2012. The supporting documentation for the application include the following:
- a. ECA Amendment Outline prepared by Golder Associates which consists of a letter dated October 2, 2012 addressed to Mr. Bill Shields, City of Guelph from Ms Amy Burke and Mr. Michael Cant, Golder Associates (Project No. 12-1188-0007);
 - b. Public Liaison Committee Comments and Responses prepared by the City of Guelph which includes:
 - i. Memorandum dated February 10, 2010 entitled "Addendum to ESDM Report for City of Guelph OWPF Responses to Request Information/Clarification from MOE" addressed to Bijal Shah, Ministry of the Environment from Ravi Mahabir and Sean Capstick, Golder Associates; and
 - ii. Memorandum dated May 4, 2010 entitled "Summary of Key Items Discussed at April 29 Meeting with MOE" addressed to Tes Gebrezghi, Bijal Shah and Margaret Wojcik, Ministry of the Environment from Ravi Mahabir and Sean Capstick, Golder Associates; and
 - c. ECA Amendment Support Letter provided by Wellington Organix Inc. which consists of a letter dated August 29, 2012 addressed to Mr. David Gordon, City of Guelph from Mr. Mark Jared, Wellington Organix.

The reason(s) for this amendment to the Approval are as follows:

1. *The reason for the amendment to Condition 54 (1.1) and (1.2) is to ensure the City notifies the Ministry should the City start to accept waste from other clients.*
2. *The reason for the amendment to Condition 54 (4)(d) is to permit the City of Guelph to accept incoming waste in certified biodegradable compostable bags as the City has shown that operational changes have addressed odour issues at the Site and the restriction on waste being accepted in plastic bags is longer required.*

This Notice shall constitute part of the approval issued under Approval No. A170128 dated February 10, 2011

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon

me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of
Part II.1 of the Environmental Protection Act
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 2nd day of November, 2012



Tesfaye Gebrezghi, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

DG/
c: District Manager, MOE Guelph

Amy Burke, Golder Associates Ltd.



AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER A170128

Notice No. 3

Issue Date: January 24, 2013

The Corporation of the City of Guelph
 1 Carden St
 Guelph, Ontario
 N1H 3A1

Site Location: 110 Dunlop
 110 Dunlop Dr , Guelph Organic Waste Composting Facility,
 Guelph City, County of Wellington
 N1H6N1

You are hereby notified that I have amended Approval No. A170128 issued on February 10, 2011 and amended on September 22, 2011 and November 2, 2012 for the establishment and operation of a Waste Disposal Site (Transfer and Processing) consisting of a 29.54 hectare of property for the purposes of composting, multi-material recovery, and waste transfer to serve the municipalities and businesses of the Province of Ontario, the State of New York, the State of Michigan and Municipal Hazardous and Special Waste Transfer Station serving the County of Wellington and City of Guelph,

to be used for:

a) the use and operation of an Organic Waste Processing Facility composting of the following categories of waste (Note: Use of the site for additional categories of wastes requires a new application and amendments to the Provisional Certificate of Approval); organic non-hazardous waste from residential, industrial, commercial and institutional sources limited to a maximum Site indoor storage capacity of 8,500 tonnes;

b) the use and operation of a Material Recovery Facility for processing, transfer and temporary storage of the following categories of waste (Note: Use of the Site for additional categories of wastes requires a new application and amendments to the Provisional Certificate of Approval); municipal waste including food and beverage cans, cardboard, glass, newspaper, plastic, waste electrical and electronic equipment and other such materials as would be collected by means of the source separated dry waste collection system limited to a maximum indoor storage capacity of 3850 tonnes and having an outdoor storage area for recyclable waste and leaf and yard waste that is located to the west of the Organic Waste Processing Facility;

c) the use and operation of a Municipal Hazardous and Special Waste facility for the transfer and temporary storage of the following categories of waste (Note: Use of the Site for additional categories of wastes requires a new application and amendments to the Provisional Certificate of Approval); Municipal Hazardous and Special Waste limited to the following waste classes; 112, 121, 145, 146, 148, 212, 213, 221, 242, 251, 252, 261, 263, 269, 312, and 331 as outlined in the New Ontario Waste Classes January 1986 limited to a maximum Site storage capacity of 15 tonnes; and

d) the use and operation of a Waste Disposal Site (Transfer) for non-hazardous solid industrial waste (Note: Use of the Site for additional categories of wastes requires a new application and amendments to the Provisional Certificate of Approval); from industrial, commercial and institutional sources, commercial waste and domestic waste, with an indoor storage maximum capacity of 795 tonnes and outdoor storage areas for leaf and yard waste and for recyclable waste.

, as follows:

The following Definition is hereby amended as follows:

(aaa) "**Site**" means the 29.54 hectare Waste Disposal Site (Processing and Transfer) for the purposes of receipt, storage, processing and transfer of waste by *Composting*, waste transfer, and multi-material recovery, to serve the municipalities and businesses of the Province of Ontario, the State of New York, the State of Michigan and *Municipal Hazardous and Special Transfer Waste Station*, serving the County of Wellington and City of Guelph located on Lot 4 and 5 Concession 1, Division C, Guelph, Ontario as shown on Reference Plan 61R-5574;

The following Condition is hereby revoked:

56. (6) **Odour Control:**

(a) The *Owner* shall maintain a negative air pressure atmosphere within the *Processing Building*, as compared to the ambient atmospheric pressure, at all times;

The following Conditions are hereby amended as follows:

Public Liaison Committee

29. (1) The *Owner* shall invite the following groups to provide input and/or comments into preparation of the Terms of Reference for the *Public Liaison Committee (ToR PLC)*:

- (a) home owners within 2,000 metres of the *Site*;
- (b) any interested non-governmental organization (NGOs); and
- (c) any interested person(s) or group(s);

(2) (a) The *Owner* shall consider all input and/or comments submitted by the groups listed above during preparation of the *ToR PLC*; and

(b) A minimum of ninety (90) days prior to the receipt of the *Waste* at the *Site*, the *Owner* shall prepare and submit to the *District Manager* the *ToR PLC*, including documentation demonstrating consideration of all public input and/or comments received, for written concurrence of the *District Manager*;

(3) The *ToR PLC* shall be amended from time to time according to appropriate amending procedures identified within the content of the *ToR PLC*. Any amendment to the *ToR PLC* must be agreed to by the *District Manager* prior to its implementation;

(4) Within sixty (60) days from the *District Manager*'s concurrence to the *ToR PLC*, the *Owner* shall take all reasonable steps to establish a *Public Liaison Committee (PLC)* which shall serve as a forum for dissemination, consultation, review and exchange of information regarding the operation of the *Site*, including environmental monitoring, maintenance, complaint resolution, and new approvals or amendments to existing approvals related to the operation of this *Site*;

(5) The *Owner* shall invite representation from the following groups to participate on the *PLC*:

- (a) home owners within 2,000 metres of the *Site*;
- (b) any interested NGOs; and
- (c) any interested person(s) or group(s);

(6) The number of representatives from each group shall be as specified in the *ToR PLC* approved by the *District Manager*;

(7) No later than ninety (90) days from the *District Manager*'s concurrence to the *ToR PLC*, the *Owner* shall submit to the *District Manager* a written report that details steps to be taken by the *Owner* to establish, maintain and participate in a *PLC*. This report shall include the identification of each of the representatives that have been invited to participate in the *PLC*;

(8) A copy of the Annual Report that is required by Conditions 52 shall be provided to the *Public Liaison Committee* at the first scheduled meeting following March 31st; and

(9) The *City* shall allow reasonable access to the *Site* for any member of the *Public Liaison Committee*;

40. (a) The *City* shall ensure that only municipal waste recyclable material, generated within the Province of Ontario, the State of New York and the State of Michigan is received at this *Site*;

54. (1.2) (a) A minimum of **six (6)** months prior to accepting *Organic Waste* from any new source at the *Site*, the *Owner* shall provide written notice to the *District Manager* of its intent to commence acceptance of the new waste .

The following Item is hereby added to Schedule "A":

57. Environmental Compliance Approval Application requesting that Condition 40 (a) relating to the service area be amended. The application was signed by Mr. Bill Shields, Supervisor of Governance and Compliance, City of Guelph and dated August 2, 2012.

58. Letter dated November 2, 2012 addressed to Mr. Dale Gable, Ministry of the Environment from Mr. Bill Shields, Supervisor of Governance and Compliance, City of Guelph requesting Condition 56 (6)(a) be revoked.

The reasons for this amendment to the Approval are as follows:

1. *The reason for the revocation of Condition 56 (6)(a) is the requirement to maintain negative air pressure is addressed with the ECA related to the air. This condition is a duplicate requirement.*
2. *The reason for the amendment to Condition 29 is to ensure the PLC is an exchange of information for the entire Site and not limited to the Composting Site.*
3. *The reason for the amendment to Condition No. 40 is to approve the service area expansion to include the State of New York as applied for by the City. This is to ensure the facility and equipment can operate at its peak efficiency.*
4. *The reason for the amendment to Condition 54 (1.2)(a) which corrects an administrative error in the last notice.*

This Notice shall constitute part of the approval issued under Approval No. A170128 dated February 10, 2011

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of Part II.1 of
the Environmental Protection Act
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at:
Tel: (416) 212-6349, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 24th day of January, 2013

Tesfaye Gebrezghi, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

DG/
c: District Manager, MOE Guelph
Amy Burke, Golder Associates Ltd.



AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER A170128

Notice No. 3

Issue Date: January 24, 2013

The Corporation of the City of Guelph
1 Carden St
Guelph, Ontario
N1H 3A1

Site Location: 110 Dunlop
110 Dunlop Dr , Guelph Organic Waste Composting Facility,
Guelph City, County of Wellington
N1H 6N1

You are hereby notified that I have amended Approval No. A170128 issued on February 10, 2011 and amended on September 22, 2011 and November 2, 2012 for the establishment and operation of a Waste Disposal Site (Transfer and Processing) consisting of a 29.54 hectare of property for the purposes of composting, multi-material recovery, and waste transfer to serve the municipalities and businesses of the Province of Ontario, the State of New York, the State of Michigan and Municipal Hazardous and Special Waste Transfer Station serving the County of Wellington and City of Guelph,

to be used for:

- a) the use and operation of an Organic Waste Processing Facility composting of the following categories of waste (Note: Use of the site for additional categories of wastes requires a new application and amendments to the Provisional Certificate of Approval); organic non-hazardous waste from residential, industrial, commercial and institutional sources limited to a maximum Site indoor storage capacity of 8,500 tonnes;*
- b) the use and operation of a Material Recovery Facility for processing, transfer and temporary storage of the following categories of waste (Note: Use of the Site for additional categories of wastes requires a new application and amendments to the Provisional Certificate of Approval); municipal waste including food and beverage cans, cardboard, glass, newspaper, plastic, waste electrical and electronic equipment and other such materials as would be collected by means of the source separated dry waste collection system limited to a maximum indoor storage capacity of 3850 tonnes and having an outdoor storage area for recyclable waste and leaf and yard waste that is located to the west of the Organic Waste Processing Facility;*

- c) *the use and operation of a Municipal Hazardous and Special Waste facility for the transfer and temporary storage of the following categories of waste (Note: Use of the Site for additional categories of wastes requires a new application and amendments to the Provisional Certificate of Approval); Municipal Hazardous and Special Waste limited to the following waste classes; 112, 121, 145, 146, 148, 212, 213, 221, 242, 251, 252, 261, 263, 269, 312, and 331 as outlined in the New Ontario Waste Classes January 1986 limited to a maximum Site storage capacity of 15 tonnes; and*
- d) *the use and operation of a Waste Disposal Site (Transfer) for non-hazardous solid industrial waste (Note: Use of the Site for additional categories of wastes requires a new application and amendments to the Provisional Certificate of Approval); from industrial, commercial and institutional sources, commercial waste and domestic waste, with an indoor storage maximum capacity of 795 tonnes and outdoor storage areas for leaf and yard waste and for recyclable waste.*

, as follows:

The following Definition is hereby amended as follows:

- (aaa) "Site" means the 29.54 hectare Waste Disposal Site (Processing and Transfer) for the purposes of receipt, storage, processing and transfer of waste by *Composting*, waste transfer, and multi-material recovery, to serve the municipalities and businesses of the Province of Ontario, the State of New York, the State of Michigan and *Municipal Hazardous and Special Transfer Waste Station*, serving the County of Wellington and City of Guelph located on Lot 4 and 5 Concession 1, Division C, Guelph, Ontario as shown on Reference Plan 61R-5574;

The following Condition is hereby revoked:

56. (6) **Odour Control:**

- (a) The *Owner* shall maintain a negative air pressure atmosphere within the *Processing Building*, as compared to the ambient atmospheric pressure, at all times;

The following Conditions are hereby amended as follows:

Public Liaison Committee

- 29. (1) The *Owner* shall invite the following groups to provide input and/or comments into preparation of the Terms of Reference for the *Public Liaison Committee (ToR PLC)*:
 - (a) home owners within 2,000 metres of the *Site* ;
 - (b) any interested non-governmental organization (NGOs); and
 - (c) any interested person(s) or group(s);

- (2)
 - (a) The *Owner* shall consider all input and/or comments submitted by the groups listed above during preparation of the *ToR PLC* ; and
 - (b) A minimum of ninety (90) days prior to the receipt of the *Waste* at the *Site* , the *Owner* shall prepare and submit to the *District Manager* the *ToR PLC* , including documentation demonstrating consideration of all public input and/or comments received, for written concurrence of the *District Manager*;
- (3) The *ToR PLC* shall be amended from time to time according to appropriate amending procedures identified within the content of the *ToR PLC* . Any amendment to the *ToR PLC* must be agreed to by the *District Manager* prior to its implementation;
- (4) Within sixty (60) days from the *District Manager*'s concurrence to the *ToR PLC*, the *Owner* shall take all reasonable steps to establish a *Public Liaison Committee (PLC)* which shall serve as a forum for dissemination, consultation, review and exchange of information regarding the operation of the *Site* , including environmental monitoring, maintenance, complaint resolution, and new approvals or amendments to existing approvals related to the operation of this *Site* ;
- (5) The *Owner* shall invite representation from the following groups to participate on the *PLC* :
 - (a) home owners within 2,000 metres of the *Site*;
 - (b) any interested NGOs; and
 - (c) any interested person(s) or group(s);
- (6) The number of representatives from each group shall be as specified in the *ToR PLC* approved by the *District Manager*;
- (7) No later than ninety (90) days from the *District Manager*'s concurrence to the *ToR PLC*, the *Owner* shall submit to the *District Manager* a written report that details steps to be taken by the *Owner* to establish, maintain and participate in a *PLC* . This report shall include the identification of each of the representatives that have been invited to participate in the *PLC* ;
- (8) A copy of the Annual Report that is required by Conditions 52 shall be provided to the *Public Liaison Committee* at the first scheduled meeting following March 31st; and
- (9) The *City* shall allow reasonable access to the *Site* for any member of the *Public Liaison Committee*;

40. (a) The *City* shall ensure that only municipal waste recyclable material, generated within the Province of Ontario, the State of New York and the State of Michigan is received at this *Site*;
54. (1.2) (a) A minimum of **six (6)** months prior to accepting *Organic Waste* from any new source at the *Site* , the *Owner* shall provide written notice to the *District Manager* of its intent to commence acceptance of the new waste .

The following Item is hereby added to Schedule "A":

57. Environmental Compliance Approval Application requesting that Condition 40 (a) relating to the service area be amended. The application was signed by Mr. Bill Shields, Supervisor of Governance and Compliance, City of Guelph and dated August 2, 2012.
58. Letter dated November 2, 2012 addressed to Mr. Dale Gable, Ministry of the Environment from Mr. Bill Shields, Supervisor of Governance and Compliance, City of Guelph requesting Condition 56 (6)(a) be revoked.

The reasons for this amendment to the Approval are as follows:

1. *The reason for the revocation of Condition 56 (6)(a) is the requirement to maintain negative air pressure is addressed with the ECA related to the air. This condition is a duplicate requirement.*
2. *The reason for the amendment to Condition 29 is to ensure the PLC is an exchange of information for the entire Site and not limited to the Composting Site.*
3. *The reason for the amendment to Condition No. 40 is to approve the service area expansion to include the State of New York as applied for by the City. This is to ensure the facility and equipment can operate at its peak efficiency.*
4. *The reason for the amendment to Condition 54 (1.2)(a) which corrects an administrative error in the last notice.*

This Notice shall constitute part of the approval issued under Approval No. A170128 dated February 10, 2011

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

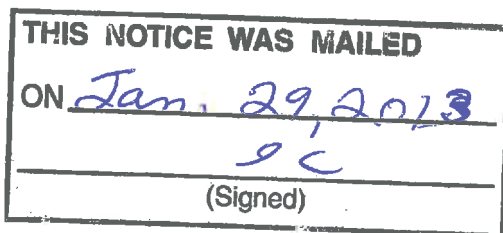
AND

The Director appointed for the purposes of
Part II.1 of the Environmental Protection Act
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

* Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-4506 or www.ert.gov.on.ca

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 24th day of January, 2013



Tesfaye Gebrezghi, P.Eng.
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

DG/

c: District Manager, MOE Guelph
Amy Burke, Golder Associates Ltd. ✓

AMENDED ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER 9496-9NFKJ9

Issue Date: January 7, 2015

The Corporation of the City of Guelph
1 Carden Street
Guelph, Ontario
N1H 3A1

Site Location: Guelph Waste Resource Innovation Centre (WRIC)
110 Dunlop Drive
City of Guelph, County of Wellington

You have applied under section 20.2 of Part II.1 of the Environmental Protection Act, R.S.O. 1990, c. E. 19 (Environmental Protection Act) for approval of:

an amendment to the wastewater infrastructure Works serving the 29.54 hectare Waste Resource Innovation Centre (WRIC) site, consisting of a Solid Waste Transfer Station, a Material Recovery Facility, an Organic Waste Processing Facility, a Municipal Hazardous and Special Waste Depot and a Public Drop-Off (PDO) Area, located at 110 Dunlop Drive on Part of Lot 5, Concession 1, Division C, in the City of Guelph, for the conveyance of sanitary sewage to the existing municipal sanitary sewer system, and for the collection, treatment and disposal of stormwater run-off from the WRIC site, providing Enhanced Level water quality control and erosion protection, and attenuating post-development peak flows to pre-development levels for the 5-year and 100-year storm events, to consolidate previous approvals for the site, to add new storm sewers and stormwater management facilities for the Public Drop-Off (PDO) Area at the eastern portion of the site, and to modify the stormwater facilities at the Solid Waste Transfer Station, consisting of the following:

Proposed Works:**Public Drop-Off (PDO) Area**

storm sewers: - installation of a new stormwater conveyance system serving the Public Drop-Off (PDO) Area, discharging to an oil and grit separator (Oil/Grit1), identified below;

oil and grit separator (Oil/Grit1 - catchment area 1.35 hectares): - one (1) oil and grit separator (Wilkinson Watergate Model WG400, or Approved Equivalent), having a sediment storage capacity of 1.4 m³, an oil storage capacity of 7.2 m³, and a total storage volume of 14.7 m³, and a maximum treatment flow rate of 393 L/s, discharging via a 525 mm diameter outlet pipe to a bioretention and infiltration facility, identified below;

bioretention and infiltration facility (catchment area 2.73 ha): - establishment of a bioretention filter and infiltration basin (Cell 1) and a second infiltration basin (Cell 2) located to the south-east of the Public Drop-Off (PDO) Area, having a minimum detention storage volume of approximately 586 m³ for the 100-year storm event, with an emergency spillway discharging via an existing ditch within a stormwater easement along the east side of the site to Dunlop Drive, and ultimately to the Eramosa River and the Grand River;

Solid Waste Transfer Station (TS) Area

storm sewers: - diversion of the existing storm sewer collection system located south-east of the Solid Waste Transfer Station (TS) from the spill collection and treatment system for the Solid Waste Transfer Station (TS) to an oil and grit separator (Oil/Grit2), identified below;

oil and grit separator (Oil/Grit2 - catchment area 1.09 hectares): - one (1) oil and grit separator (Wilkinson Watergate Model WG400, or Approved Equivalent), having a sediment storage capacity of 1.4 m³, an oil storage capacity of 7.2 m³, and a total storage volume of 14.7 m³, and a maximum treatment flow rate of 393 L/s, discharging via a 375 mm diameter outlet pipe to the existing a stormwater management pond serving the Solid Waste Transfer Station, identified below;

stormwater management pond (catchment area 5.51 ha): - modification of the drainage area to the existing stormwater management dry pond serving the Solid Waste Transfer Station, with a total storage volume of 2,899 m³ at a depth of 1.97 m with a maximum release rate of 628 L/s achieved during a 100-year design storm due to flow restriction by a staged outlet control structure consisting of three orifices having 0.25 m, 0.30 m and 0.50 m diameters;

Previous Works:

Solid Waste Transfer Station

a stormwater and spill collection and treatment system for the Solid Waste Transfer Station serving a concrete apron and a concrete fuel tank base at the petroleum fuelling facility, including:

- a series of catchbasins, manholes and underground storm sewers, discharging to an oil/water separator;
- one (1) coalescing oil/water separator, having a holding capacity of 2,700 L and designed for a maximum flow rate of 260 L/min, discharging to a pump chamber;
- a pump chamber (manhole) equipped with a pump with a rated capacity of 5 L/sec at a total dynamic head of 3.3 m, discharging via an existing swale to a stormwater management pond, identified below;

a stormwater management pond (catchment area 5.85 ha) for the Solid Waste Transfer Station discharging to an existing ditch on Dunlop Drive located to the north-east of the Solid Waste Transfer Station, including:

- a network of vegetated ditches and swales constructed on the site to collect and convey the 100-year design storm run-off to the stormwater management pond via two 525 mm diameter culverts under the driveway;
- one (1) stormwater management dry pond with a total storage volume of 2,899 m³ at a depth of 1.97 m with a maximum release rate of 628 L/s achieved during a 100-year design storm due to flow restriction by a staged outlet control structure consisting of three orifices having 0.25 m, 0.30 m and 0.50 m diameters;
- one (1) shut-off valve at the outlet control structure to allow diversion of any contaminated stormwater to a

sanitary sewage-leachate pumping station (SLPS), identified below;

sanitary sewage-leachate pumping station (SLPS) servicing the Solid Waste Transfer Station consisting of one (1) 3.5 m square by 5.6 m deep concrete wet well with duplex submersible sewage pumps each rated at 14 L/s at 13 m total dynamic head under normal operating condition and 22 L/s at 12 m total dynamic head under a stormwater management pond full/by-pass condition, a 300 mm diameter sanitary sewer inlet, a 200 mm diameter by-pass pipe from/to the adjacent stormwater management pond, identified above, discharging via a 150 mm diameter forcemain along Dunlop Drive to an existing municipal sanitary sewer on Watson Parkway;

Other Operations

redirection of the overflow outlet from the Municipal Hazardous and Special Waste Depot underground spill tank to the lined portion of the compost pad storage pond (CPSP) using a buried sewer pipe equipped with a flat gate and rip-rap protection;

Sanitary and Storm Sewers

sanitary sewers and sewer connections with diameters of 100 mm, 150 mm, and 200 mm;

storm sewers with diameters of 300 mm, 600 mm, and 900 mm;

small sanitary sewage pumping station, located in the north-east sector of the site, consisting of one (1) 1.2 m diameter sewage pumping station (SPS), complete with one (1) 4.8 m deep wet well, two (2) grinder pumps, each rated at 7.6 L/s at a total dynamic head of 16 m, and one (1) 100 mm diameter forcemain from the SPS to sanitary sewer manhole (MH 1) on Dunlop Drive connected to the existing municipal sanitary sewer system;

Stormwater Management Facilities

a stormwater management facility servicing the Waste Resource Innovation Centre, designed as a stormwater detention wet pond (SDP), having a permanent pool volume of 705 m³ for quality control and outlet control devices for quantity control, including:

- a perimeter drainage swale around the site;
- subsurface infiltration trenches to accommodate roof-top run-off;
- grass-lined drainage ditches;
- two (2) double-inlet catch basins located within the grassed ditch to capture and direct surface stormwater run-off from around the perimeter of the outdoor compost curing pad (OCCP) to a 300 mm diameter storm sewer leading to stormwater detention pond 1 (SDP1);
- one (1) lined compost pad storage pond (CPSP) with a temporary storage capacity of 100 m³ for run-off from the 1.56 ha outdoor compost curing pad (OCCP) having a total storage capacity of 540 m³;
- one (1) 600 mm diameter inlet storm sewer connecting the compost pad storage pond (CPSP) and manhole (MH 5) at the outdoor compost curing pad (OCCP);
- an outlet from the compost pad storage pond (CPSP) to the sanitary sewer system via a 200 mm diameter sewer leading to manhole (MH A2), with a 50 mm diameter orifice plate at the pipe inlet, for conveyance of the run-off from the outdoor compost curing pad (OCCP) to the sewage pumping station (SPS) at a maximum controlled rate of 7 L/s for the 100-year storm event;

- a separation berm between the compost pad storage pond (CPSP) and stormwater detention pond 1 (SDP1), including a ditch inlet catch basin with invert at 0.45 m above the bottom of the compost pad storage pond (CPSP), to convey excess flow to stormwater detention pond 1 (SDP1) during the 2-year storm event or greater with corresponding compost pad storage pond (CPSP) volumes of greater than 100 m³ via a 900 mm diameter pipe from the ditch inlet catchbasin and over the separation berm;
- an impermeable liner along the base and slopes of the compost pad storage pond (CPSP);

a stormwater detention wet pond (SDP1, catchment area 5.71 ha) having a permanent pool volume of approximately 630 m³ at a depth of 0.6 m and a total storage volume of 2,090 m³, including the permanent pool volume, including:

- seven (7) stormwater inlet locations around the pond perimeter for direct conveyance of run-off from a total drainage area of up to 5.71 ha into the pond, in addition to the 900 mm diameter overflow line from the compost pad storage pond (CPSP) ditch inlet catch basin to a rip rap protected area;
- a small, impermeable berm constructed around the pond outlet structure to ensure the minimum required permanent pool storage volume for quality control;
- an outlet structure for discharge of effluent to stormwater detention pond 2 (SDP2) via a 900 mm diameter sewer equipped at the inlet with a headwall and an adjustable steel gate with a 200 mm diameter orifice for quantity control;

a stormwater detention wet pond (SDP2, catchment area 2.87 ha) having a permanent pool volume of approximately 75 m³ and a total storage volume of 1,870 m³, including the permanent pool volume, designed for controlled outflow rates of 0.12 m³/s for the 5-year storm event and 0.18 m³/s for the 100-year storm event, including:

- four (4) stormwater inlet locations around the pond perimeter for direct conveyance of run-off from a total drainage area of 2.87 ha into the pond, in addition to the 900 mm diameter inlet sewer from stormwater detention pond 1 (SDP1);
- a small, impermeable berm constructed around the pond outlet structure to ensure the minimum required permanent pool storage volume for quality control;
- an outlet structure for discharge of effluent to the Dunlop Drive roadside ditch via a 900 mm diameter CSP sewer equipped at the inlet with a headwall and an adjustable steel gate with a 400 mm diameter orifice for quantity control;

including erosion/sedimentation control measures during construction and all other controls, electrical equipment, instrumentation, piping, valves and appurtenances essential for the proper operation of the aforementioned Works;

all in accordance with the submitted supporting documents listed in Schedule "A" forming part of this Approval.

For the purpose of this environmental compliance approval, the following definitions apply:

"Approval" means this entire document including the application and any supporting documents listed in any schedules in this Approval;

"Approved Equivalent" means a substituted product that meets the required quality and performance standards of a named product and has been approved for substitution in writing by the Director.

"Director" means a person appointed by the Minister pursuant to section 5 of the Environmental Protection Act for the purposes of Part II.1 of the Environmental Protection Act;

"Ministry" means the ministry of the government of Ontario responsible for the Environmental Protection Act and the Ontario Water Resources Act and includes all officials, employees or other persons acting on its behalf;

"Owner" means The Corporation of the City of Guelph and includes their successors and assignees;

"Previous Works" means those portions of the sewage Works previously approved under an Approval;

"Water Supervisor" means the Water Supervisor of the Guelph office of the Ministry;

"Works" means the sewage works described in the Owner's application(s) and this Approval.

You are hereby notified that this environmental compliance approval is issued to you subject to the terms and conditions outlined below:

TERMS AND CONDITIONS

1. GENERAL PROVISIONS

(1) The Owner shall ensure that any person authorized to carry out work on or operate any aspect of the Works is notified of this Approval and the Conditions herein and shall take all reasonable measures to ensure any such person complies with the same.

(2) Except as otherwise provided by these Conditions, the Owner shall design, build, install, operate and maintain the Works in accordance with the description given in this Approval, and the application for approval of the Works.

(3) Where there is a conflict between a provision of any submitted document referred to in this Approval and the Conditions of this Approval, the Conditions in this Approval shall take precedence, and where there is a conflict between the listed submitted documents, the document bearing the most recent date shall prevail.

(4) Where there is a conflict between the listed submitted documents, and the application, the application shall take precedence unless it is clear that the purpose of the document was to amend the application.

(5) The Conditions of this Approval are severable. If any Condition of this Approval, or the application of any requirement of this Approval to any circumstance, is held invalid or unenforceable, the application of such Condition to other circumstances and the remainder of this Approval shall not be affected thereby.

(6) The issuance of, and compliance with the Conditions of this Approval does not:

(a) relieve any person of any obligation to comply with any provision of any applicable statute, regulation or other legal requirement, including, but not limited to, the obligation to obtain approval from the local conservation authority necessary to construct or operate the sewage Works; or

(b) limit in any way the authority of the Ministry to require certain steps be taken to require the Owner to furnish any further information related to compliance with this Approval.

(7) This Approval includes the collection, treatment and disposal of stormwater run-off from the 29.54 hectare Waste Resource Innovation Centre (WRIC) in the City of Guelph, to provide Enhanced Level water quality control and erosion protection, discharging via existing ditches to the Eramosa River. Any changes within the drainage areas that might increase the required storage volumes or increase the flows to or from the stormwater management facilities or any structural/physical changes to the stormwater management facilities, including the inlets and outlets will require an amendment to this Approval.

2. EXPIRY OF APPROVAL

This Approval will cease to apply to those parts of the proposed Works which have not been constructed within **five (5) years** of the date of this Approval.

3. CHANGE OF OWNER

(1) The Owner shall notify the Water Supervisor and the Director, in writing, of any of the following changes within **thirty (30) days** of the change occurring:

(a) change of Owner;

(b) change of address of the Owner;

(c) change of partners where the Owner is or at any time becomes a partnership, and a copy of the most recent declaration filed under the Business Names Act, R.S.O. 1990, c. B17 shall be included in the notification to the Water Supervisor;

(d) change of name of the corporation where the Owner is or at any time becomes a corporation, and a copy of the most current information filed under the Corporations Information Act, R.S.O. 1990, c. C39 shall be included in the notification to the Water Supervisor.

4. OPERATION AND MAINTENANCE

(1) The Owner shall ensure that the design minimum liquid retention volume(s) is maintained in the wet ponds at all times.

(2) The Owner shall conduct a monthly visual inspection of the oil/water separators and the effluent from the pumping manhole during discharge of treated water for any visual oil sheen.

(3) The Owner shall inspect the Works at least once a year and, if necessary, clean and maintain the Works to prevent the excessive build-up of sediments, debris, and/or vegetation, maintain the inlet and outlet structures, and address any signs of slope erosion.

(4) The Owner shall maintain a logbook to record the results of these inspections and any cleaning and maintenance operations undertaken, and shall keep the logbook at the Corporate Office for inspection by the Ministry. The logbook shall include the following:

(a) the name of the Works; and

(b) the date and results of each inspection, maintenance and cleaning, including an estimate of the quantity of any materials removed.

5. MONITORING AND REPORTING

(1) The Owner shall implement a ground water and surface water sampling program to ensure early detection of contaminants in the event that such contaminants escape the Waste Resource Innovation Centre (WRIC) site, as follows:

(2) Ground Water and Surface Water shall be sampled and analysed for the following parameter suite:

Parameters (sampled semi-annually in the spring and fall)	Biological Oxygen Demand (BOD)	Chloride (Cl)
	Chemical Oxygen Demand (COD)	Sodium (Na)
	Total Kjeldahl Nitrogen (KTN)	Calcium (Ca)
	Ammonia as Nitrogen (NH ₃ -N)	Boron (B)
	Total Phosphorus (Total P)	Total Iron (Fe)
	Total Sulphate (SO ₄)	Phosphorus (P)
	Phenols	Zinc (Zn)
	Nitrate (NO ₃) and Nitrite (NO ₂)	
General Parameters (semi-annually)	pH	Magnesium (Mg)
	Conductivity	Potassium (K)
	Alkalinity	
Organics (sampled annually)	EPA 624,625 (ATG 16+17+18) & ATG (19+20)	
Field Parameters	pH, Conductivity, Temperature	

(3) The surface water monitoring shall include obtaining grab samples at the discharge locations of the final surface water off the Waste Resource Innovation Centre (WRIC) site, for at least three (3) wet events per year (a wet event is defined as a minimum of 15 mm of rain in the previous 24 hours), and tested for Total Suspended Solids (mg/L), and the results recorded. Two (2) of the events must occur within the May to September time period.

(4) The Owner shall **annually** review and update the ground water and surface water sampling programs, designed to detect and quantify any impacts originating from the Waste Resource Innovation Centre (WRIC) site.

(5) Sampling frequency and parameters for analysis may be adjusted upon the written approval of the Water Supervisor, from time to time, as ground water and surface water information becomes available.

(6) All ground water monitoring wells which form part of any monitoring program shall be protected from damage. Any ground water monitoring wells that are damaged shall be repaired or replaced forthwith or properly abandoned in accordance with Ontario Regulation 903.

(7) The Owner shall **annually** review and update, if required, the detailed maintenance schedules for the stormwater management facilities on the Waste Resource Innovation Centre (WRIC) site.

(8) The Owner shall submit to the Water Supervisor, **every year**, a copy of the test results as per Condition 5, Subsection (2) and Subsection (3), above.

(9) The Owner shall submit to the Water Supervisor, an **annual report** on the ground water and surface water sampling and monitoring program described herein, and shall include an interpretation of the results prepared by a qualified hydrogeologist, engineer or scientist, and shall identify any remedial/mitigative action taken.

6. SPILL CONTINGENCY AND POLLUTION PREVENTION PLAN

(1) Upon commencement of operation of the Works, the Owner shall implement a Spill Contingency and Pollution Prevention Plan that outlines procedures as to how to mitigate the impacts of a spill within the area serviced by the Works and/or prevent pollution incidents. The said plan shall include as a minimum, but not limited to:

(a) the name, job title and location (address) of the Owner, person in charge, management or control of the Waste Resource Innovation Centre (WRIC) at 110 Dunlop Drive;

(b) the name, job title and 24-hour telephone number of the person(s) responsible for activating the Spill Contingency and Pollution Prevention Plan;

(c) a site plan drawn to scale showing the facility, nearby buildings, streets, catchbasins & manholes, drainage patterns (including direction(s) of flow in storm sewers) and any features which need to be taken into account in terms of potential impacts on access and response (including physical obstructions and location of response and clean-up equipment);

(d) steps to be taken to report, contain, clean up and dispose of contaminants following a spill;

(e) a listing of telephone numbers for: local clean-up companies who may be called upon to assist in responding to spills; local emergency responders including health institution(s); and MOE Spills Action Centre 1-800-268-6060;

(f) Materials Safety Data Sheets (MSDS) for each and every hazardous material which may be transported or stored within the area serviced by the Works;

(g) the means (internal corporate procedures) by which the Spill Contingency and Pollution Prevention Plan is activated;

(h) a description of the spill response and pollution prevention training provided to employees assigned to work in the area serviced by the Works, the date(s) on which the training was provided and to whom;

(i) an inventory of response and clean-up equipment available to implement the Spill Contingency and Pollution Prevention Plan, location and date of maintenance/replacement if warranted, including testing and calibration of the equipment; and

(j) the date on which the Spill Contingency and Pollution Prevention Plan was prepared and subsequently, amended.

(2) The Spill Contingency and Pollution Prevention Plan shall be kept in a conspicuous place near the reception area on site.

(3) The Spill Contingency and Pollution Prevention Plan will be amended from time to time as needed by changes in the operation of the facility or to reflect updates in the Municipal By-Laws, or improved Best Management Practices by the Owner.

7. TEMPORARY EROSION AND SEDIMENT CONTROL

(1) The Owner shall install and maintain temporary sediment and erosion control measures during construction and conduct inspections once every **two (2) weeks** and after each significant storm event (a significant storm event is defined as a minimum of 25 mm of rain in any 24 hours period). The inspections and maintenance of the temporary sediment and erosion control measures shall continue until they are no longer required and at which time they shall be removed and all disturbed areas reinstated properly.

(2) The Owner shall maintain records of inspections and maintenance which shall be made available for inspection by the Ministry, upon request. The record shall include the name of the inspector, date of inspection, and the remedial measures, if any, undertaken to maintain the temporary sediment and erosion control measures.

8. RECORD KEEPING

The Owner shall retain for a minimum of **five (5) years** from the date of their creation, all records and information related to or resulting from the operation and maintenance activities required by this Approval.

Schedule "A"

1. Application for Approval of Industrial Sewage Works, dated October 18, 2002, and associated documents, submitted by The Corporation of the City of Guelph;
2. Application for Approval of Municipal and Private Sewage Works, dated August 16, 2007, and received on August 20, 2007, submitted by The Corporation of the City of Guelph;
3. Storm & Sanitary Drainage Assessment Report for the City of Guelph Waste Resource Innovation Centre, dated August, 2007, prepared by Gartner Lee Limited;
4. Letters with attachments from Glenn Farmer of Gartner Lee Limited to the Ministry, dated October 5, 2007 and November 26, 2007;
5. E-mail with attachments from Glenn Farmer of Gartner Lee Limited to the Ministry, dated April 1, 2008;
6. E-mail from the Ministry to Glenn Farmer of Gartner Lee Limited, dated April 21, 2008;
7. Stormwater Management Report and final plans and specifications, dated 1992, prepared by R. Cave and Associates Engineering Ltd., Consulting Engineers;
8. Application for Approval of Municipal and Private Sewage Works, along with supporting information, dated April 13, 2010 and received on April 14, 2010, submitted by the The Corporation of the City of Guelph;
9. E-mail along with supporting information from Glenn Farmer of AECOM to the Ministry, dated May 14, 2010;
10. Application for Approval of Sewage Works, dated August 25, 2011 and submitted by The Corporation of the City of Guelph;
11. Design Brief and engineering drawings and specifications, dated August 9, 2011, provided by Vida Stripinis & Associates Limited;
12. Application for Approval of Municipal and Private Sewage Works, dated March 25, 2014, and received on April 15, 2014, submitted by the The Corporation of the City of Guelph;
13. Pipe Data Form and Storm Sewer Design Sheet, dated February 2014, prepared by Sco-Terra Consulting Group Limited;
14. Design Level Stormwater Management Plan, dated April 2014, prepared by Sco-Terra Consulting Group Limited;
15. Set of Engineering Drawings (22 drawings), dated April 14, 2014, prepared by Sco-Terra Consulting Group Limited;

16. E-mail and letter from Richard Pellerin of Sco-Terra Consulting Group Limited to the Ministry, dated September 24, 2014; and
17. E-mails from Richard Pellerin of Sco-Terra Consulting Group Limited to the Ministry, dated November 25, 2014, December 18, 2014, and January 7, 2015.

The reasons for the imposition of these terms and conditions are as follows:

1. Condition 1 is imposed to ensure that the Works are built and operated in the manner in which they were described for review and upon which approval was granted. This Condition is also included to emphasize the precedence of Conditions in the Approval and the practice that the Approval is based on the most current document, if several conflicting documents are submitted for review.
2. Condition 2 is included to ensure that, when the Works are constructed, the Works will meet the standards that apply at the time of construction to ensure the ongoing protection of the environment.
3. Condition 3 is included to ensure that the Ministry records are kept accurate and current with respect to approved Works and to ensure that any subsequent Owner of the Works is made aware of the Approval and continues to operate the Works in compliance with it.
4. Condition 4 is included to require that the Works be properly operated and maintained such that the environment is protected.
5. Condition 5 is included to enable the Owner to evaluate and demonstrate the performance of the Works on a continual basis, so that the Works are properly operated and maintained at a level which is consistent with the design objectives specified in the Approval and that the Works do not cause any impairment to the receiving watercourse.
6. Condition 6 is included to ensure that the Ministry is immediately informed of the occurrence of an emergency or otherwise abnormal situation so that appropriate steps are taken to address the immediate concerns regarding the protection of public health and minimizing environmental damage and to be able to devise an overall abatement strategy to prevent long term degradation and the re-occurrence of the situation.
7. Condition 7 is included as installation, regular inspection and maintenance of the temporary sediment and erosion control measures is required to mitigate the impact on the downstream receiving watercourse during construction, until they are no longer required.
8. Condition 8 is included to require that all records are retained for a sufficient time period to adequately evaluate the long-term operation and maintenance of the Works.

Upon issuance of the environmental compliance approval, I hereby revoke Approval No(s). 5015-856HHF, and 5320-8NXK2Y issued on June 16, 2010 and December 8, 2011 respectively.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

AND

The Director appointed for the purposes of
Part II.1 of the Environmental Protection Act
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 7th day of January, 2015



Edgardo Tovilla
Director
appointed for the purposes of Part II.1 of the
Environmental Protection Act

DC/

c: DWMD Supervisor, MOE Guelph office
Richard Pellerin, P. Eng, Sco-Terra Consulting Group Limited

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER A170128

Notice No. 4

Issue Date: January 9, 2015

The Corporation of the City of Guelph
1 Carden St
Guelph, Ontario
N1H 3A1

Site Location: Guelph Waste Resource Innovation Centre (WRIC)
110 Dunlop Dr
Guelph City, County of Wellington
N1H 6N1

You are hereby notified that I have amended Approval No. A170128 issued on February 10, 2011 for the use and operation of a 29.54 hectare Waste Disposal Site (Transfer/Processing), as follows:

1. Paragraphs c) and d) of the pre-ample have been amended to read as follows:
 - c) the use and operation of a Municipal Hazardous and Special Waste facility for the transfer and temporary storage of the following categories of waste (*Note: Use of the Site for additional categories of wastes requires a new application and amendments to the Provisional Certificate of Approval*); *Municipal Hazardous and Special Waste* limited to the following waste classes; 112, 121, 145, 146, 147, 148, 212, 213, 221, 242, 251, 252, 261, 263, 269, 312, and 331 as described in the Ministry of the Environment's document entitled "*Ontario Waste Classes*", dated February 2013, as amended, limited to a maximum Site storage capacity of 15 tonnes; and
 - d) the use and operation of a Waste Disposal Site (Transfer) for solid non-hazardous waste from industrial, commercial and institutional sources, commercial waste and domestic waste, with an indoor storage maximum capacity of 795 tonnes and outdoor storage areas for leaf and yard waste and for recyclable waste.
2. The following definitions have been amended to read as follows:
 - (g) "**Environmental Compliance Approval (Air/Noise)**" means the **Environmental Compliance Approval** issued for the Site for the activities mentioned in subsection 9 (1) of the *EPA* for the Composting Site;

(ee) "**Municipal Hazardous and Special Waste**" and "**MHSW**" mean hazardous waste or special waste generated by households located within geographic boundaries of the City of Guelph and the County of Wellington that fall within waste numbers 112, 121, 145, 146, 147, 148, 212, 213, 221, 242, 251, 252, 261, 263, 269, 312, and 331 as set out in the Ministry of the Environment's document entitled "Ontario Waste Classes", dated February 2013, as amended, and as defined in *Regulation 347*, and also include wet cell batteries and small dry cell batteries, household cleaners and detergents, aerosols, waxes and polishes, fluorescent tubes and energy efficient light bulbs and mercury switches and thermostats;

3. The following definitions have been added:

(jjj) "**Public Drop-off area**" means the East Public Drop-Off and the West Public Drop-Off areas set out in the supporting documentation included in the attached Schedule "A";

(kkk) "**Environmental Compliance Approval (Municipal and Private Sewage Works)**" means the Environmental Compliance Approval issued for the Site for the activities mentioned in subsection 53 of the *OWRA*;

4. The following conditions have been amended to read as follows:

Waste Storage

17.(4)(e) wastes that are in bins in the Public Drop-Off area; and

Complaints Procedure

46.(c) The *Municipality* shall immediately orally notify the *Ministry* of the complaint, followed with the submission of a written report within three (3) days, of the complaint detailing what actions, if any, were taken to identify and remediate the cause of the complaint and what remedial action, if any, would be taken.

Annual Report

52.(e) an annual summary of the analytical results from the groundwater monitoring program and from surface water monitoring required in Environmental Compliance Approval (Municipal and Private Sewage Works), including an interpretation of the results and any remedial/mitigative action undertaken;

Organic Waste and Composting Site

54.(1.2)(b)(iv) confirmation whether inclusion of the *Organic Waste* in a biodegradable certified compostable bag is characterized as incidental/inadvertent or a result of collection through a waste collection program that allows the use of the said compostable bags;

5. Conditions 32, 33, 34, 35 and 36 are deleted.

6. The following documents have been added to Schedule "A":

57. Environmental Compliance Approval Application dated April 2, 2013, signed by Bill Shields, The Corporation of the City of Guelph, including the attached supporting documentation.
58. E-mail dated March 17, 2014 (9:31 a.m.) from Bill Shields, The Corporation of the City of Guelph, to Margaret Wojcik, Ontario Ministry of the Environment and Climate Change, with the description of the amended access to the West PDO and including the description of the wastes received at this location.

The reasons for this amendment to the Approval are as follows:

to approve an additional Public Drop-Off location, a new brush and leaf and yard waste storage areas, the new waste class to be accepted at Municipal Hazardous and Special Waste facility and to correct an administrative ambiguity in Condition 54.(1.2)(b)(iv). Conditions 32 through 35 are deleted since the groundwater and the surface water monitoring is required in the Environmental Compliance Approval (Municipal and Private Sewage Works) issued for the Site.

This Notice shall constitute part of the approval issued under Approval No. A170128 dated February 10, 2011, as amended.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5

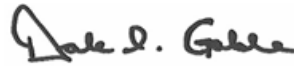
AND

The Director appointed for the purposes of
Part II.1 of the Environmental Protection Act
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 314-3717 or www.ert.gov.on.ca**

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 9th day of January, 2015



Dale Gable, P.Eng.

Director

appointed for the purposes of Part II.1 of the *Environmental*

MW/

c: District Manager, MOE Guelph
Chris Visser, Golder Associates Ltd.

December 3, 2013

Mr. Bill Shields
 Supervisor of Governance & Compliance
 Solid Waste Resources
 Environmental Services Department
 City of Guelph
 59 Carden Street
 Guelph, ON N1H 3A1

Dear Mr. Shields:

Project No: 60266226-03

Regarding: Follow Up Response to Ministry of the Environment Comments on the Surface Water Monitoring Program and Proposed Action Plan– City of Guelph

We have reviewed the comments received from the Ministry of the Environment (MOE) via email on October 31, 2013 with regard to our further response to the surface water comments from MOE review of the 2012 Annual Report dated October 8, 2013.

Based on the follow-up comments the MOE has agreed to the monitoring of Stormwater Detention Pond 2 (SD2) during and after precipitation events with water quality sampling only if discharge is required. The MOE has also requested that if this monitoring is to proceed that documentation regarding the operations of the pond should be provided in order to address, capacity, freeboard and the trigger level at which the pond will be discharged.

Discussion

A detailed assessment of the storm water ponds is contained in the “Storm & Sanitary Drainage Assessment Report for the City of Guelph Waste Resource Innovation Centre, dated August 2007 (GLL70-176). The physical characteristics of Pond SD2, as outlined in Table 3.5 of the drainage assessment report, are provided in the table below.

Depth / Stage (m)	Storage Volume (m3)	Pond Outflow 400 mmφ. (m ³ /s) ¹	Pond Outflow 900 mm φCSP (m ³ /s) ¹	Comments
0	75	0000	0.000	Pond invert
0.2	470	0.149	0.293	400 mm orifice set at + 0.15 m above invert
0.45	870	0.224	0.535	
1.0	1870	0.334	1.254	Maximum pond depth

Notes: 1-units were incorrectly stated as L/s in the report (GLL70-176) as values in report are correctly report in m³/s.

Based on the detailed site assessment, it was determined that the Pond SD2 outlet could accommodate the peak flow generated by a 100 year storm (i.e., predicted outflow is 1.2 m³/s versus 1.33 m³/s pre development levels). However, it was concluded through modelling, that due to the modification to the system, which included the blockage of the outlet at SD2, that there could be surface flooding in the low lying areas for storm events in excess of a 5 year storm. Although this has not been observed at the site to-date, it is recommended that the trigger water level in the pond be set based on the theoretical calculation for a 5 year storm, in order to be conservative. Therefore, the trigger water level is to be set at 0.46 m as per the theoretical volume calculated in Pond SD2 of 890 m³ from a 5 year storm (Table 3.6 in the drainage assessment report).

Based on the above information, the following surface water monitoring program is recommended:

- Assess Storm Water Detention Pond 2 on a monthly basis/ and or during periods of rain/storm events (where practical);
- Install a staff gauge at the point of discharge from Pond SD2 to record observed levels;
- When a target level of 0.46 m above pond invert is reached, discharge would be required;
- Water quality sampling should be completed, prior to any discharge, to insure all applicable Provincial Water Quality Objectives (PWQO) and Canadian Water Quality Guidelines (CWQG) are met.
- If applicable guidelines are met off site discharge should be completed until below the outlet invert. Upon reaching this level, the outlet should then be closed.

Further to the above, the storm water management pond (TP) on the transfer station property will continue on the monthly frequency, under non stagnant conditions, based on current proposed upgrades to the transfer station facility. As part of this, sampling of the background station EPTS-01 should also continue on a monthly basis.

We trust that this meets your requirement at this time. Should you need further information or clarifications please do not hesitate to contact me at (905) 747-7482.

Sincerely,

AECOM Canada Ltd.



Terry La Chapelle, B.Sc., P.Geo.
Senior Geologist, Project Manager

TLC:mm .

cc: Kevin Noll, MOE
Glenn Farmer, AECOM

Ministry of the Environment
and Climate Change

Ministère de l'Environnement et de
l'Action en matière de changement
climatique



Environmental Approvals
Branch

Direction des autorisations
environnementales

135 St. Clair Avenue West
1st Floor
Toronto ON M4V 1P5
Tel.: 416 314-8001
Fax: 416 314-8452

135, avenue St. Clair Ouest
Rez-de-chaussée
Toronto ON M4V 1P5
Tél : 416 314-8001
Télééc. : 416 314-8452

May 3, 2016

Bill Shields, Supervisor, Governance & Compliance, Solid Waste
The Corporation of the City of Guelph
1 Carden Street
Guelph, Ontario
N1H 3A1

Dear Bill:

Re: Amendment to the Environmental Compliance Approval No. A 170128 dated
February 10, 2011 and interpretation of the outdoor storage terms and conditions

Please see attached to this letter, a signed Notice of Amendment (No. 5), dated May 3, 2016. In addition to the Notice, we are providing you with additional explanation of the following existing terms and conditions related to outdoor storage: Conditions 17.(4)(d), 40.(c), 40.(e) and 40.(g). Please note that these terms and conditions have not been amended in this Notice of Amendment.

With regards to the relevant terms in your conditions, the following information is provided:

1. **commingled recyclables** – means two or more of the categories of recyclables mixed together, unprocessed and as picked up at the source of generation
2. **processed materials** – means recyclables that have been processed at the site as approved in the ECA, therefore not in the condition as when leaving the source of generation
3. **source-separated materials** – means individual categories of recyclables separated at the source of generation
4. **non-putrescible** – means not easily bio-degradable; usually means clean recyclables not containing food waste constituent. As a result, they are not a potential source of odours
5. **dropped off by commercial vehicles** – means waste dropped off in vehicles owned by generators encompassing an enterprise or activity involving the exchange of goods or services, including the following:
 - (a) a hotel, motel, hostel or similar accommodation;
 - (b) an office building
 - (c) in respect of the classification of occupancies in Table 3.1.2.1. of Division B of Ontario Regulation 350/06 (Building Code) made under the Building Code Act, 1992, facilities that fall within:

- (i) Group D, business and personal services occupancies, or
 - (ii) Group E, mercantile occupancies
6. **dropped off by residential vehicles** – means waste dropped by residents having access to the public drop off area

With regards to the conditions, the following comments are provided:

Condition 40.(c):

40.(c) All materials to be processed at the Material Recovery Facility shall be unloaded and processed indoors except commingled recyclables which may also, as required, be unloaded into the outdoor storage bunker assigned to this material, or in the Organic Waste Processing Facility when not in use for Composting;

As currently worded in Condition 40.(c), above, commingled recyclables may be unloaded but not stored in the outdoor storage bunker.

Condition 40.(e):

40.(e) The City shall limit any outside storage to processed or source-separated non-putrescible dry materials, dropped off by either commercial or residential vehicles, including but not necessarily limited to tires, rubble, electronic waste, source separated roofing shingles, mattresses, textiles, white goods, construction and demolition wastes, commingled recyclables, wood waste, waste wood, glass, scrap metal, and drywall;

As currently set out in Condition 40.(e), above, outdoor storage, as set out in Condition 40.(g), below, is allowed for:

- all processed recyclables processed at the site as approved in the ECA; or
- non-putrescible (therefore non-odorous), dry recyclables dropped off by commercial vehicles; or
- non-putrescible (therefore non-odorous), dry recyclables dropped off by residents in the public drop off area.

Condition 40.(g):

40.(g) Outside storage shall be on an asphalt pad, or equivalent impermeable surface, within designated concrete bunkers, or in closed storage containers in a manner and in amounts which does not create a nuisance or hazard;

In accordance with Condition 40.(g), above, outside storage consists of designated concrete bunkers or closed storage containers and must not create a nuisance or a hazard.

Condition 17(4)(d)(ii):

17.(4)(d) Outdoor storage of the following:

- (ii) a maximum of 3050 tonnes of non-putrescible recyclable wastes stored in dedicated bunkers or covered bins on an asphalt paved pad of approximate area of 6100 square metres pads located to the south of the transfer station and an asphalt paved pad of approximate area 2,100 square metres to the west of the Organic Processing Facility for the storage of such recyclable materials as waste electronics, tires, scrap metal, corrugated cardboard and reusable materials;*

Since Conditions 40(e) and 40.(g), respectively, limit outside storage to the types of waste and locations where waste may be stored, the same interpretation of the means of storage is applicable to Condition 17(4)(d)(ii), above. Therefore as currently set out in Condition 17(4)(d)(ii), above, the outdoor storage is allowed for:

- processed recyclables (as approved in the ECA) or non-putrescible (therefore non-odorous) dry recyclables dropped off by commercial vehicles or non-putrescible (therefore non-odorous) dry recyclables dropped off by residents in the public drop off area, and when stored in outdoor bunkers or in covered bins

Should you have any questions regarding the above, please do not hesitate to contact Margaret Wojcik, P.Eng., Senior Review Engineer, at 416-314-5138.

Sincerely,



Dale Gable, P.Eng.

Director

appointed for the purposes of Part II.1 of the *Environmental Protection Act*

Enclosure

MW/

AMENDMENT TO ENVIRONMENTAL COMPLIANCE APPROVAL

NUMBER A170128

Notice No. 5

Issue Date: May 3, 2016

The Corporation of the City of Guelph
1 Carden St
Guelph, Ontario
N1H 3A1

Site Location: Waste Resource Innovation Centre
110 Dunlop Dr
Guelph City, County of Wellington, Ontario

You are hereby notified that I have amended Approval No. A170128 issued on February 10, 2011 for the use and operation of a 29.54 hectare Waste Disposal Site (Transfer/Processing), as follows:

I. The following definitions have been amended to read as follows:

"dry waste" means those wastes not identified in the *Organic Waste* and the *Municipal Hazardous and Special Waste* waste streams;

"Organic Waste" means solid non-hazardous waste derived from plants or animals, including wastes consisting of other compounds of carbon, all readily biodegradable, and limited to wastes listed in Condition 54 of this *Approval*, and destined for processing in the *Organic Waste Processing Facility*;

II. The following definitions have been added:

"Biofilter" means the one (1) enclosed biofilter described in this *Approval* and in the *Environmental Compliance Approval (Air/Noise)* and in the supporting documentation referred to herein, to the extent approved in this *Approval* and in the *Environmental Compliance Approval (Air/Noise)*;

"Organic Waste Processing Facility" means the facility for the *Organic Waste* receiving, pre-processing, *Composting*, screening and curing, comprising the *Processing Building*, the *Air Pollution Control Equipment* consisting of the humidification chambers combined with ammonia scrubbers and an enclosed down-flow *Biofilter*, a stand-by diesel generator and natural gas-fired heating, ventilation and air conditioning (HVAC) units, as proposed in the application

for the Environmental Compliance Approval (formerly Certificate of Approval for a Waste Disposal Site), dated October 22, 2009 and signed by Bill Shields, Corporation of the City of Guelph, including the Report, dated October 2009 and prepared by Golder Associates Ltd. and referred to in Items #32 to #48 of the attached Schedule "A";

"Processing Building" means the fully enclosed building consisting of the following *Organic Waste* and *Amendment Materials* storage and processing areas and the building-dedicated equipment:

- three (3) receiving bays with door air curtains;
- *Organic Waste* and *Amendment Materials* tipping area and temporary storage area;
- three (3) front end loaders to transport *Organic Waste* and *Amendment Materials*;
- one (1) hopper and conveyor to transport *Organic Waste* and *Amendment Materials* to the shredder;
- one (1) shredder to break open the bags, reduce particle size and to blend *Organic Waste* with *Amendment Materials* into an *Organic Waste* mix;
- four (4) Phase 1 concrete tunnels for aerobic *Composting*;
- three (3) Phase 2 concrete tunnels for aerobic *Composting*;
- one (1) receiving hopper to transfer the composted *Organic Waste* mix from Phase 2 tunnels to intermediate screening equipment;
- one (1) intermediate screening equipment consisting of a magnetic conveyor and hurricane separator to remove any metals, oversized organics and any broken plastic bags;
- one (1) indoor 2,618 square metre-maturation area to cure the composted and screened *Organic Waste* mix;
- one (1) windrow turner for turning windrows;
- one (1) final screening equipment to remove remaining contaminants from the tested *Compost*;
- one (1) ventilation system to maintain negative pressure in the *Processing Building*, draw air from the tipping floor and maturation area and direct it as process air to the *Composting* tunnels and/or to three (3) humidifiers (three (3) ammonia scrubbers) followed by the *Biofilter*.

III. The following conditions have been added:

17.(4)(d) Outdoor storage of the following:

- vi) 37.85 cubic metres of the ammonium sulphate waste in a 37.85-cubic metre double-walled storage tank located outdoors;

17.(7)(a) i) Upon receipt of this amendment to the *Approval*, the *Owner* shall ensure that all unloading of the ammonium sulphate waste from its storage tank is supervised by the *Trained Personnel* at all times.

- ii) The *Owner* shall ensure that spill containment equipment is available on-hand for immediate use during all unloading of the ammonium sulphate waste from its storage tank.

The reasons for this amendment to the *Approval* are as follows:

to clarify the Ministry's intent to allow storage of recyclables only in the new *OWPF* and to ensure that the waste management activities carried out at the Site cease to be a significant drinking water threat in accordance with the policy CG-MC-3 of Grand River Source Protection Area Plan.

This Notice shall constitute part of the approval issued under Approval No. A170128 dated February 10, 2011, as amended.

In accordance with Section 139 of the Environmental Protection Act, you may by written Notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 142 of the Environmental Protection Act provides that the Notice requiring the hearing shall state:

1. The portions of the environmental compliance approval or each term or condition in the environmental compliance approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

Pursuant to subsection 139(3) of the Environmental Protection Act, a hearing may not be required with respect to any terms and conditions in this environmental compliance approval, if the terms and conditions are substantially the same as those contained in an approval that is amended or revoked by this environmental compliance approval.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The environmental compliance approval number;
6. The date of the environmental compliance approval;
7. The name of the Director, and;
8. The municipality or municipalities within which the project is to be engaged in.

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
655 Bay Street, Suite 1500
Toronto, Ontario
M5G 1E5


AND

The Director appointed for the purposes of Part II.1 of
the Environmental Protection Act
Ministry of the Environment and Climate Change
135 St. Clair Avenue West, 1st Floor
Toronto, Ontario
M4V 1P5

* Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 212-6349, Fax: (416) 326-5370 or www.ert.gov.on.ca

The above noted activity is approved under s.20.3 of Part II.1 of the Environmental Protection Act.

DATED AT TORONTO this 3rd day of May, 2016



Dale Gable, P.Eng.

Director

appointed for the purposes of Part II.1 of the
Environmental Protection Act

MW/

c: District Manager, MOECC Guelph
Bill Shields, The Corporation of the City of Guelph

Appendix **F**

MECP Correspondence

August 13, 2015

MEMORANDUM

IDS Ref No: 0045-9V6H3U

TO: Kevin Noll
Senior Environmental Officer
Guelph District Office

FROM: Craig Fowler
Surface Water Specialist
Technical Support Section

RE: Guelph Waste Resource Innovation Centre – 2014 AMR

I have reviewed the following document for surface water impacts with regards to the aforementioned facility:

- *2014 Annual Report – Solid Waste Transfer Station & Wet-Dry Recycling Centre, CofA (Waste Disposal Site) No. A170128. Prepared by AECOM, March 2015.*

Background

For background site information please refer to the previous review completed by Paul Odom, IDS Reference No. 7520-8WDPAK.

Comments and Recommendations

The purpose of this review was to evaluate 2014 surface water monitoring data for potential impacts from the solid waste transfer station. The review is not intended, unless otherwise noted, to determine compliance with applicable C of As. The following comments are based on information presented in the subject report.

1. Surface water chemistry results from the Stormwater Management Pond at location TP1(out) had PWQO exceedances for iron, total phosphorus, phenol, and zinc. With the exception of zinc, these parameters are elevated relative to the background

monitor, the East Pond. Although the exceedances have not been attributed to existing operations, the site continues to be a source of these parameters compared to background conditions. If offsite land uses i.e. agriculture are being used to explain the exceedances, similar concentrations would also be expected in the East Pond given the proximity of the two surface water features. Also, historically phenol concentrations have had sporadic exceedances of the respective PWQO, but for 2014 the frequency for which concentrations were elevated increased compared to previous years and indicates a positive trend of increasing concentrations. Based on the subject report it appears that discharges from the Stormwater Management Pond did not occur, at least for the times sampling occurred. It is my opinion that phenol concentrations could taint the flesh of fish, but there is low probability in terms of an offsite impact given the low concentrations and frequency of discharge events. However, trends needs to continue to be evaluated.

2. I do not object the proposed recommendations for the surface water monitoring program. It's my understanding that the recommendations reiterate points that have been previously discussed.
3. It is my opinion that there were not any deficiencies with the 2014 annual monitoring report with respect to the surface water monitoring program.

Should you have any questions, comments, or require additional information, please contact me at (905) 521-7823 or craig.fowler2@ontario.ca.

Regards,



Craig Fowler

Cc Paul Odom, Surface Water Group Leader, MOE

The purpose of the preceding review is to provide advice to the Ministry of the Environment regarding surface water based on a review of the information provided in the above referenced documents. The conclusions, opinions and recommendations of the reviewer are based on information provided by others, except where otherwise specifically noted. The Ministry cannot guarantee that the information that is provided by others is accurate or complete. A lack of specific comment by the reviewer is not to be construed as endorsing the content or views expressed in the reviewed material.

119 King Street West
12th Floor
Hamilton, Ontario L8P 4Y7
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Fax: 905 521-7820

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Hamilton (Ontario) L8P 4Y7
Tél.: 905 521-7640
Télééc.: 905 521-7820

Memorandum

Date: April 15, 2015

To: Kevin Noll
Senior Environmental Officer, Guelph District Office (GDO)

From: Abdul Quyum
Hydrogeologist, Water Resources Unit, Technical Support Section (TSS)

Re: 2014 Annual Monitoring Report
Guelph Wet-Dry Recycling Centre and Waste Transfer Station, Guelph, Ontario

As requested, I have reviewed the following report for groundwater issues:

- *2014 Annual Report – Solid Waste Transfer Station & Wet-Dry Recycling Centre, CofA/ECA (Waste Disposal Site) No. A170128, AECOM Canada Ltd., March, 2015.*

The focus of this review was Sections 7 & 8 of the report that deals with leachate and groundwater monitoring (hydraulic and geo-chemical data collection and interpretations).

The purpose of the review was to evaluate impact on the overburden and bedrock groundwater quality associated with historical and current waste handling operations at this site (wet-dry recycling center and waste transfer station).

This review was completed with respect to the requirements of Guideline B-7 *“Incorporation of the Reasonable Use Concept into MOEE Groundwater Management Activities, dated April 1994”*.

Comments:

The review comments are outlined below:

1. The groundwater flow direction in the overburden unit is influenced by surface and bedrock topography. The inferred groundwater flow direction in the overburden and bedrock units was found consistent and similar to previous years. According to the recent hydraulic data, the groundwater flows from east and west (based on GIS mapping north arrow) onto the site and then moves in a northerly/northwesterly direction along the incised bedrock valley slope before it exits the site along Dunlop Drive. Based on the inferred flow direction, the groundwater monitoring wells MW22A-11 (bedrock) and MW22B-11 (overburden) are deemed to be located along the downgradient property boundary for the purpose compliance evaluation as per the Guideline B-7 requirements.
2. For assessment of impact on the overburden and bedrock groundwater quality as per the Guideline B-7, the reasonable use concentration (RUC) for parameters of concern was established using groundwater quality data from selected on-site monitoring wells representing the background groundwater quality. The overburden unit groundwater quality at the downgradient monitoring well BH22B-11 was found marginally impacted with nitrate

in the May 2014 sampling event while the groundwater quality at this location met the RUC for parameters of concern in the December 2014 monitoring event. Considering the historical and current agricultural land use on an area located upgradient of the site and the nature of waste handling operations at the site, coupled with the nitrate detection higher than the RUC at some upgradient monitoring wells (19B-08 and 23B-12), the nitrate exceedance is not likely related to the recent waste management operations at this site. For the bedrock unit, the groundwater quality met the RUC for parameters of concern with the exception of iron. The iron exceedance may not be related to the current and historical waste operations conducted at the site because elevated iron concentrations have been detected over the years in monitoring wells representing background groundwater conditions. Moreover, iron exceedance is not a cause of concern since it is designated as a non-health related parameter in the Ontario Drinking Water Standards (ODWS). Consistent with the historical detection of organic compounds at several locations, low level of bis(2-ethylhexyl phthalate, chloroform, naphthalene, bromodichloromethane, 111-trichloroethane, toluene, and xylene were detected both in upgradient and downgradient monitoring wells but the concentrations were well below the respective regulatory standards. The monitoring for organic compounds will continue to confirm the temporal and spatial trend.

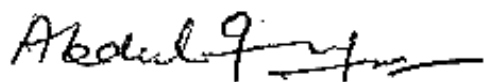
Conclusions:

The groundwater quality leaving the site at the downgradient property boundary was found marginally impacted with nitrate (overburden) and iron (bedrock). Given the current use of the facility as a waste transfer station and that the waste transfer operations are conducted inside in a building which is equipped with a floor sub-drain to capture any leachate run-off, potential negative impact on the groundwater quality caused by current waste handling and transfer operations is not anticipated and none has occurred. That said, the current groundwater quality monitoring program should continue to generate a large enough geochemical dataset especially for relatively new monitors to assess the temporal and spatial trend of impact indicator parameters. The monitoring report should be reviewed by a TSS hydrogeologist on a 6 year review frequency unless the site operations or groundwater quality conditions change significantly.

I trust that the above comments will be of benefit. If you have any questions, I can be reached at 905-521-7817 or abdul.guyum@ontario.ca

Statement of Limitations:

The purpose of the preceding review is to provide advice to the Ministry of the Environment regarding subsurface conditions based on a review of the information provided in the above referenced document. The conclusions, opinions and recommendations of the reviewer are based on information provided by others. The Ministry cannot guarantee that the information that has been provided by others is accurate or complete. A lack of specific comment by the reviewer is not to be construed as endorsing the content or views expressed in the reviewed material.



Abdul Quayum, M.A.Sc., P.Eng., P.Geo. (ab)
Hydrogeologist

