2006 Annual Report – Guelph Solid Waste Transfer Station (MOE Site No. 9241-5DTRD9)

Prepared for
City of Guelph

Submitted by
Gartner Lee Limited

March 2007

Gartner Lee

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Reference: **GLL 70-134**

Distribution:
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March 30, 2007

Mr. Dean Wyman
Manager
Solid Waste Services Division
City of Guelph Works Department
59 Carden Street
Guelph, ON N1H 3A1

Dear Mr. Wyman:

Re: GLL 70-134 – 2006 Annual Report, Guelph Solid Waste Transfer Station, Certificate of Approval (Waste Disposal Site) No. 9241-5DTRD9

Enclosed, please find our final report for this project, addressing the requirements of the site's Certificate of Approval and the MOE reporting recommendations from the Design and Operations Report.

Please don't hesitate to call me should you have any questions about this report. Thank you for allowing Gartner Lee to be of continued service to the City of Guelph.

Yours very truly,
GARTNER LEE LIMITED

Stephen C. Hollingshead, M.Sc.(Eng.), P.Eng.
Senior Geological Engineer
Principal

PW:tmc
Attach.

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Executive Summary

The following table presents a summary of the 2006 Annual Report for the City of Guelph Solid Waste Transfer Station. The Transfer Station is operated under Ministry of Environment Provisional Certificate of Approval (Waste Disposal Site) No. 9241-5DTRD9. This report also includes additional items as listed in Section 9.2 (MOE Reporting) of the City of Guelph Solid Waste Transfer Station Design and Operations Report, prepared by Gartner Lee Limited (2002). The Certificate of Approval (C of A) and the Design and Operations Report 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. Provisional C of A (Waste Disposal Site) No. 9241-5DTRD9

C of A Reporting Requirement	Report Reference and Summary
30(a) A detailed monthly summary of the type, quantity, and origin of all wastes received and transferred from the Site, including the destination, type, and quantity of waste destined for final disposal and also including any reconciliations on mass balance made.	• Table 3 (Section 3.1) provides details on the incoming and outgoing waste. Most of the waste accepted at the Transfer Station is of domestic origin. Outgoing waste is shipped off-site to the St. Thomas Landfill in Elgin County. By the end of 2006, there was a deficit of 690 tonnes of waste. The cause of this deficit could be due in part to decreased moisture content of the wastes leaving the site as a result of evaporation losses.
30(b) Any environmental and operational problems, that could negatively impact the environment, encountered during the operation of the Site and during the facility inspections and any mitigative actions taken.	• Based on the 2006 information provided to us by the City of Guelph and the results of the ground and surface water monitoring, there are no environmental impacts from the operation of the Site (Sections 4,5, 6)
30(c) A statement as to the compliance with all Terms and Conditions of this Certificate and with the inspection and reporting requirements of the conditions herein.	• Section 8 of the report discusses site compliance and non-compliance issues that were identified by the MOE in their Inspection report of the site. In 2006, the City of Guelph hired a new Director of Environmental Services and a new Manager of Solid Waste Resources. Both individuals stress compliance with all applicable legislation. To that effect, the Manager completed a reorganization of the Solid Waste Division. With the end product emphasizing compliance, the new Division structure has a Governance and Compliance section supervised by the Supervisor of Governance & Compliance. This new position and the seven (7) staff reporting to him are mandated to achieve total compliance with applicable legislation, regulations, and Certificates of Approvals issued to the City of Guelph's Solid Waste Division. The Supervisor of Governance & Compliance is a former Ministry of Environment Supervisor of Investigations, Prosecutor, and Investigator.

C of A Reporting Requirement	Report Reference and Summary
30(d) Any recommendations to minimize environmental impacts from the operation of the Site and to improve Site operations and monitoring programs in this regard.	• The site design and operations are such that environmental impacts are minimized.
30(e) A detailed section showing the results, interpretation of the results, and timetable for implementing recommendations from the approved groundwater monitoring program referred to in Condition 28.	• Section 6 discusses the results of the groundwater monitoring program. No groundwater impacts from the operation of the Transfer Station were detected or are expected in the future due to site design and operations.

B. Additional Reporting (recommended in the Design and Operations Report)

Reporting Requirement	Report Reference and Summary
9.2a) A monthly summary of the wastes received at the site, including quantity and source.	• Table 3 (Section 3.1) See above discussion on Condition 30(a).
9.2b) A monthly summary of wastes transferred off-site including quantity, destination.	• Table 3 (Section 3.1).
9.2c) A monthly summary of any waste loads rejected, and any suspect waste loads received.	• There were no rejected or suspect loads received during 2006 (Section 3.1).
9.2d) A summary of the routine maintenance procedures undertaken.	• Section 4 discusses routine maintenance conducted on the site including litter pick-up, dust control and rodent control.
9.2e) An annual summary of the analytical results for the groundwater and surface water monitoring program including an interpretation of the results relative to appropriate groundwater and surface water quality guidelines, and any proposed changes to the monitoring program.	• Section 6.2 discusses groundwater quality. Sodium and chloride exceed ODWS at background bedrock monitor 5-96 due to road salt impacts. There are no other exceedances of ODWS for the parameters tested. • A concentration of 35 μg/L of bis(2-ethylhexyl) phthalate was detected at monitor 14b-01. Bis (2-ethylhexyl) phthalate has not previously been detected at this monitor though it has historically been detected at both upgradient and downgradient monitors in 1997 and 1998. The bis(2-ethylhexyl) phthalate detection is considered to be either a sampling or laboratory artifact therefore, it is recommended that a traveling blank and field blank be collected during future organic sampling events to assist in our analysis should organics be detected (Section 6.4). No other VOC's were detected at any of the monitors that are part of the transfer station monitoring program in 2006.

Reporting Requirement	Report Reference and Summary
	• Surface water monitoring of the SWM pond during 2006 indicated no impacts as a result of site operations (Section 6.4). The PWQO was exceeded by total phosphorus (all events), phenols (March only), iron (March only) and zinc (all events). These concentrations are within the range of historic background quality.
9.2f) A listing of any public complaints received, the responses provided, and any mitigative action undertaken.	• There were no public complaints recorded by City regarding the Transfer Station during 2006 (Section 7).
9.2g) Any remedial/mitigative action undertaken.	• No remedial or mitigative action was required at the Transfer Station during 2006 (Section 9).

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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. Figure 1 shows the location and layout of the Transfer Station.

The Transfer Station has been designed to manage up to 299 tonnes/day of waste, including municipal, industrial, commercial, and institutional wastes. The station is licensed under Ministry of Environment Provisional Certificate of Approval (Waste Disposal Site) No. 9241-5DTRD9. The Transfer Station began receiving waste on October 14, 2003.

1.1 Annual Reporting Requirements

Section G, Condition 30 of the Provisional Certificate of Approval states that "by March 31st, 2004 and on an annual basis thereafter, the Municipality shall prepare and retain on-site an Annual Report covering the previous calendar year." Five items are listed in Section 30 as minimum requirements for the annual report:

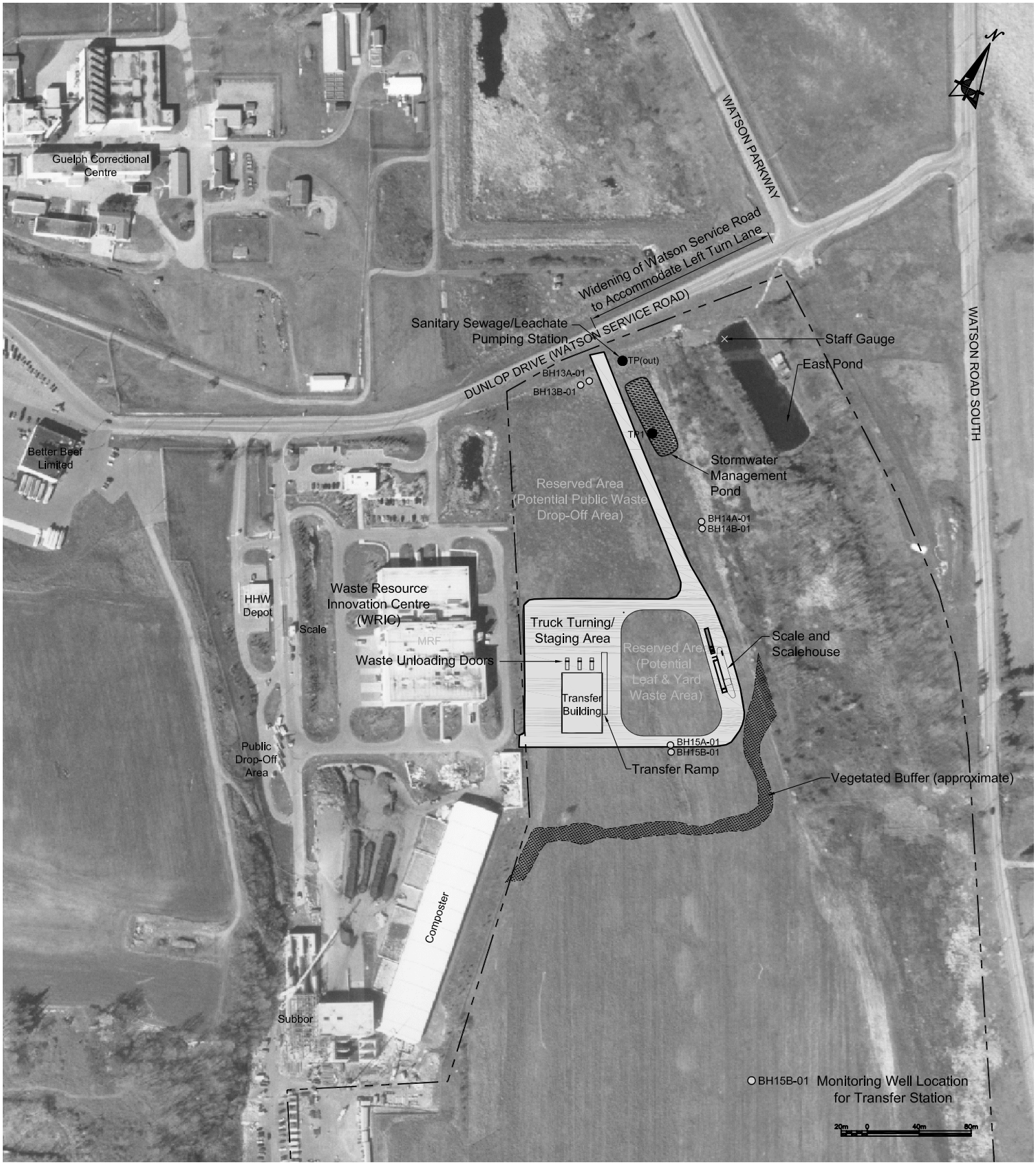
a) A detailed monthly summary of the type, quantity, and origin of all wastes received and transferred from the Site, including the destination, type, and quantity of waste destined for final disposal and also including any reconciliations on mass balance made.

b) Any environmental and operational problems, that could negatively impact the environment, encountered during the operation of the Site and during the facility inspections and any mitigative actions taken.

c) A statement as to the compliance with all Terms and Conditions of this Certificate and with the inspection and reporting requirements of the conditions herein.

d) Any recommendations to minimize environmental impacts from the operation of the Site and to improve Site operations and monitoring programs in this regard.

e) A detailed section showing the results, interpretation of the results, and timetable for implementing recommendations from the approved groundwater monitoring program referred to in Condition 28 (described in Section 2.1).



Site Name: GUELPH File Name: 70134–F01.DWG Gartner Lee	SITE PLAN Solid Waste Transfer Station City of Guelph	Project No. 70–134 Figure 1

This report includes the items listed above, as well as additional items recommended in Section 9.2 (MOE Reporting) of the City of Guelph Solid Waste Transfer Station Design and Operations Report, prepared by Gartner Lee Limited (2002):

1. A monthly summary of any waste loads rejected and any suspect waste loads received.
2. A summary of the routine maintenance procedures undertaken.
3. An annual summary of the analytical results for the surface water monitoring program including an interpretation of the results relative to the appropriate water quality guidelines, and any proposed changes to the monitoring program.
4. A list of any public complaints received, the responses provided, and any mitigative action undertaken.
5. Any remedial/mitigative action undertaken.

2. Ground and Surface Water Monitoring Program

2.1 Groundwater Monitoring Program

Groundwater monitor locations are shown in Figure 1.

Groundwater levels are to be measured at all monitoring locations on a quarterly basis each year. During 2006, this was conducted in April, June, September and December. Groundwater sampling was conducted twice in 2006; in June (dry period) and in December (wet period). Each sampling event is to include analyses for leachate indicator parameters and general chemistry. Organics analyses are to be conducted once per year, during the dry season event. Tables 1 and 2 below summarize the groundwater monitoring program and analytical parameters, respectively.

Table 1. Groundwater Monitoring Program

Location	April	August	September	November
13a-01	•	S + Organics	•	S
13b-01	•	S + Organics	•	S
14a-01	•	S + Organics	•	S
14b-01	•	S + Organics	•	S
15a-01	•	S + Organics	•	S
15-b-01	•	S + Organics	•	S
Staff Gauge[1]	•	S + Organics	•	S

Notes: 1. Pond located in eastern portion of property ("East Pond" on Figure 1).
• Water Levels Only. S Sampling and water levels.

Table 2. Analytical Parameter List

Leachate Indicator Parameters	• Biological Oxygen Demand (BOD) • Chemical Oxygen Demand (COD) • Total Kjeldahl Nitrogen (TKN) • Ammonia as Nitrogen (NH_3-N) • Total Phosphorus (Total P) • Total Suspended Solids (TSS) for surface water and leachate only • Total Sulphate (SO_4) • Phenols • Chloride (Cl) • Sodium (Na) • Calcium (Ca) • Boron (B) • Total Iron (Fe) • Phosphorus (P) • Zinc (Zn)
General Parameters	• pH • Conductivity • Alkalinity • Magnesium (Mg) • Potassium (K)
Organics	• 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 16 (Cont)**	**Misa Group 19**
1,1,2,2-Tetrachloroethane	Tetrachloroethylene	Acenaphthene
1,1,2-Trichloroethane	trans-1,2-Dichloroethylene	5-Nitroacenaphthene
1,1-Dichloroethane	Trans-1,3-Dichloropropylene	Acenaphthylene
1,1-Dichloroethylene	Trichloroethylene	Anthracene
1,2-Dichlorobenzene	Trichlorofluoromethane	Benzo(a)anthracene
1,2-Dichloroethane	Vinyl chloride	Benzo(a)Pyrene
1,2-Dichloropropane		Benzo(b)Fluoranthene
1,3-Dichlorobenzene	**Misa Group 17**	Benzo(g,h,i)perylene
1,4-Dichlorobenzene		Benzo(k)Fluoranthene
Bromodichloromethane	Benzene	Biphenyl
Bromoform	Ethylbenzene	Camphene
Bromomethane	Styrene	1-Chloronaphthalene
Carbon Tetrachloride	Toluene	2-Chloronaphthalene
Chlorobenzene	o-Xylene	Chrysene
Chloroform	m-Xylene and p-Xylene	Dibenzo(a,h)Anthracene
Chloromethane		Fluoranthene
Cis-1,3-Dichloropropylene	**Misa Group 18**	Fluorene
Dibromochloromethane		Indeno(1,2,3-cd)Pyrene
1,2-Dibromoethane	Acrolein	Indole
Methylene Chloride	Acrylonitrile	1-Methylnaphthalene
		2-Methylnaphthalene

Misa Group 19 (Cont)	Misa Group 20
Naphthalene	2,3,4,5-Tetrachlorophenol
Perylene	2,3,4,6-Tetrachlorophenol
Phenanthrene	2,3,5,6-Tetrachlorophenol
Pyrene	2,3,4-Trichlorophenol
Benzyl Butyl Phthalate	2,3,5-Trichlorophenol
bis(2-ethylhexyl)Phthalate	2,4,5-Trichlorophenol
Di-N-butylPhthalate	2,4,6-Trichlorophenol
Di-N-octylPhthalate	2,4-Dimethylphenol
4-Bromophenyl phenyl Ether	2,4-Dinitrophenol
4-Chlorophenyl Phenyl Ether	2,4-Dichlorophenol
bis(2-chloroisopropyl)Ether	2,6-Dichlorophenol
bis(2-Chloroethyl)Ether	4,6-Dinitro-o-Cresol
Diphenyl ether	2-Chlorophenol
2,4-Dinitrotoluene	4-Chloro-3-methylphenol
2,6-Dinitrotoluene	4-Nitrophenol
bis(2-chloroethoxy)Methane	m-,p-Cresol
Diphenylamine	o-Cresol
N-Nitrosodiphenylamine	Pentachlorophenol
N-Nitrosodi-N-propylamine	Phenol

2.2 Surface Water Monitoring Program

Surface water sampling is to be undertaken on a monthly basis in the stormwater management pond (SWM) for the parameters (excluding organics) shown in Table 2. Organics are to be sampled once per year only. During each month, sampling will be undertaken when surface water runoff conditions occur (weather permitting). If no surface water events occur, sampling will be undertaken at the end of the month regardless. 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. Two surface water stations in the SWM pond were established by the City staff; TP1, located at the culvert along the western shore of the pond adjacent to the access road and TP(out), located at the discharge at the north end of the pond. Sampling for inorganic parameters was conducted in March, May and September 2006. Organic sampling was completed in September 2006. No other samples were collected in 2006 due to dry or frozen conditions for the remaining nine months of the year.

The existing surface water pond ("East Pond" in Figure 1) is to be sampled on a quarterly basis (as recommended in the Design and Operations report) for the inorganic parameters (excluding organics) shown on Table 2, together with the groundwater monitoring. An organic surface water sample is to be collected from this pond on an annual basis. No samples were collected from the East pond in 2006.

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 Watson Service Road (Dunlop Drive).

3. Waste Transfer Summary

3.1 Summary of Incoming and Outgoing Waste

Table 3 is a summary of the Transfer Station material handled during 2006, based on data recorded by City staff.

As shown on Table 3, the source of the waste received by the Transfer Station was primarily of domestic origin. The total tonnage of waste accepted by the Transfer Station was 61,829 tonnes. By the end of 2006, 62,880 tonnes were shipped off-site to the St. Thomas Landfill in Elgin County. At the end of 2006, there was a deficit of 690 tonnes[1]. The cause of this deficit could be due in part to decreased moisture content of the wastes leaving the site as a result of evaporation losses. Waste accepted by the Transfer Station originated mainly from the City of Guelph, the County of Wellington, the Region of Peel, County of Dufferin and the Region of Halton. The Transfer Station can accept waste from anywhere in Ontario as long as it is within the acceptable daily tonnage limit.

There were no rejected and no suspect loads received during 2006.

4. 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 2006.

A log of all security and grounds inspection noting the condition of the fences, litter, birds, vermin and vectors and any off-site discharges is recorded daily. Routine maintenance is conducted at the site that includes litter pick-up, dust control and rodent control. Inspection of the compactor, inside floor drains, oil and grit separator, etc. are conducted weekly. The floor drain in the loading ramp is pumped and cleaned every three weeks and the compactor is inspected and cleaned every Saturday. Maintenance was conducted on the holding tanks, floor drains and oil and grit separator once per month. The overhead doors are oiled every three weeks. A larger pump to increase the spray output of the misting system was installed during 2006.

A log book recording the weekly inspection of the detention ponds, ditches and facility inspections is kept on-site. Weekly inspections were recorded in 2006.

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[1] *Tonnage received in 2006 (61,829 tonnes) + Remaining tonnage on site at the end of 2005 (361 tonnes) – Tonnage transferred off-site in 2006 (62,880 tonnes) = Tonnage of waste at the end of 2006 (-690 tonnes).*

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Table 3: 2006 Monthly Summary of Incoming and Outgoing Waste Types

Guelph Solid Waste Transfer Station

Incoming Waste	JAN tonnes	FEB tonnes	MAR tonnes	APR tonnes	MAY tonnes	JUN tonnes	JUL tonnes	AUG tonnes	SEP tonnes	OCT tonnes	NOV tonnes	DEC tonnes	TOTAL tonnes
Domestic	1,028	630	1,220	1,105	1,849	2,362	2,254	2,497	2,374	2,309	2,271	1,983	21,879
ICI	994	531	979	1,182	1,449	1,136	1,123	1,173	1,117	1,142	1,096	889	12,811
Demolition	541	406	680	823	1,231	1,027	1,216	1,615	1,854	1,761	1,407	392	12,953
Residue-Wet	372	152	264	256	178	0	0	1	2	0	136	1	1,364
Residue-Dry	1,340	492	1,202	878	1,098	1,180	1,042	1,217	1,097	1,146	1,158	973	12,822
Total	4,274	2,211	4,345	4,244	5,804	5,706	5,634	6,503	6,444	6,359	6,068	4,237	61,829

Outgoing													
Mixed Waste	4,479	2,292	4,403	4,640	5,984	5,108	4,959	6,651	7,061	6,580	6,707	4,017	62,880
Total	4,479	2,292	4,403	4,640	5,984	5,108	4,959	6,651	7,061	6,580	6,707	4,017	62,880

Note: All figures in tonnes.
Data supplied by the City of Guelph

5. Contaminant Sources

5.1 Site Design and Operations

To determine if the Transfer Station is having an impact on the ground and surface water in the area, it is important to examine what are the potential contaminant sources. The site has been designed to minimize the possible sources of contaminants 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 of 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 waste loads (i.e., metal, wood, cardboard). These materials are placed in bins stored on the tipping floor or immediately outside the building and subsequently transferred to the WRIC or to an appropriate staging area. Truck boxes (both incoming waste and transfer loads 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 contaminated 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. MOE approved dust suppressant and salting of the internal paved areas may be used occasionally.

5.2 Leachate Indicators

To determine the potential leachate quality that may be generated from the Transfer Station, the leachate quality from the City of Guelph closed Eastview Landfill was examined. Prior to closure, 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). Also, BOD, COD and oil and grease have been found to be elevated. Table 4 provides a summary of the historic leachate concentrations (1997 to 2005) for the leachate monitors.

Table 4. Summary of Leachate Quality from the Waste Monitors, Eastview Landfill

Parameters		Avg.	Min.	Max.
General	• *pH*	7.60	6.85	8.63
	• *Conductivity (μS)*	12,558	2,620	21,500
	• *Alkalinity (mg/L)*	5,545	1,130	9,050
	• *Hardness (mg/L)*	1,907	91	2,880
Critical Indicators	• *Chloride (mg/L)*	1,614	101	2,610
	• *Boron (mg/L)*	20	2.32	47
	• *Phenol (μg/L)*	100	0.72	830
Leachate Indicators	• *Calcium (mg/L)*	101	36	221
	• *Sodium (mg/L)*	1,273	197	2,300
	• *Magnesium (mg/L)*	405	109	661
	• *Potassium (mg/L)*	688	26	1,410
	• *Iron (mg/L)*	13.0	1.1	41.4
	• *Manganese (mg/L)*	0.11	0.039	0.688
	• *Ammonia (mg/L)*	506	0.05	1,020

The concentrations of the leachate indicator parameters vary with location across the landfill but in most cases are elevated above the background concentrations. However, it should be noted that parameters such as chloride and sodium are also elevated in the background due to other sources such as road salt. Further, parameters such as iron, manganese, and ammonia can be elevated due to natural background conditions, in either the sandy outwash (manganese) or the wetland peat (iron and ammonia). Of all the leachate indicator parameters identified, boron, chloride and phenols are considered as critical leachate indicator parameters.

Annual routine organic analysis of the leachate shows low concentrations of BTEX (benzene, toluene, ethyl benzene and xylene) and organic compounds at the closed Eastview Landfill indicating that organic compounds are not generated in significant quantities in this landfill.

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

The Transfer Station 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 impacts to confirm that all of the safeguards are functioning.

5.3 Petroleum Indicators

The Transfer Station operations do not involve the use, storage or handling of significant quantities of potential contaminants, other than machine fuel/lubricants (the only on-site equipment that requires fuelling is a front-end loader) and occasional dust suppressant chemicals. 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 water quality is discussed in Section 6.2.1.

6. Groundwater and Surface Water

A ground and surface water monitoring program is conducted on the site as outlined in Section 2. The monitors included in this program are also part of an overall monitoring program that includes groundwater, surface water and leachate sampling for the adjacent WRIC. The 2006 Groundwater, Surface Water and Leachate Annual Monitoring Requirements report (Gartner Lee, 2007) presents a more detailed discussion on the overall monitoring of the Transfer Station and the WRIC. A summary of the monitoring results for the groundwater monitors included in the C of A for the Transfer Station is presented below.

6.1 Groundwater Monitoring

The monitoring program for the site includes three overburden monitors (in outwash materials) 13-b-01, 14b-01 and 15b-01 and three bedrock monitors 13a-01, 14a-01 and 15a-01. These locations are shown on Figure 1. The groundwater monitoring program includes biannual (June and December) routine water quality sampling and annual (June) organic water quality sampling plus seasonal water levels.

6.1.1 Groundwater Elevation and Flow Directions

To provide an overview of groundwater elevation and flow directions in the immediate area, water levels for the site plus the water levels collected from the adjacent WRIC were considered in our analysis and discussed in this section. Groundwater levels were collected in April, June, September and December during 2006. Groundwater elevations were measured at 11 locations that included a total of 21 monitors. These monitors are outlined below with the geological unit they are measuring. Groundwater elevations and hydrographs for monitoring location 13, 14 and 15 are presented in Appendix A.

Monitor	Geological Unit	Groundwater Zone
2a-91**	Sandy Silt Till	Not Used
2b-91**	Sandy Outwash	Water Table
5-96**	Dolostone Bedrock	Water Table/Bedrock
6a-96**	Dolostone Bedrock	Bedrock
6b-96**	Sandy Outwash	Water Table
7-96**	Sandy Outwash	Water Table
8-96**	Dolostone Bedrock	Water Table/Bedrock
9-96**	Sandy Outwash	Water Table
10-00**	Dolostone Bedrock	Bedrock
11a-00**	Dolostone Bedrock	Bedrock
11b-00**	Gravelly Outwash	Water Table
12a-00*	Dolostone Bedrock	Bedrock
12b-00**	Gravelly Outwash	Water Table
13a-01	Dolostone Bedrock	Bedrock
13b-01	Gravelly Outwash	Water Table
14a-01	Dolostone Bedrock	Bedrock
14b-01	Gravelly Outwash	Water Table
15a-01	Dolostone Bedrock	Bedrock
15b-01	Gravelly Outwash	Water Table

*Notes: * Replaces 3-97 and on adjacent property.*
*** Locations on adjacent property*

Shallow groundwater flows into the site from the northwest and northeast and flows beneath the site in a northeasterly direction (Figure 2). 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.

The bedrock groundwater flow pattern is similar to the overlying shallow groundwater system but with a component of flow to the southwest (Figure 3). Groundwater flow is from west to east and east to west coming into the site from both directions. It is expected that flow will ultimately become northerly as observed with the shallow groundwater system, and 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.

6.2 Groundwater Quality

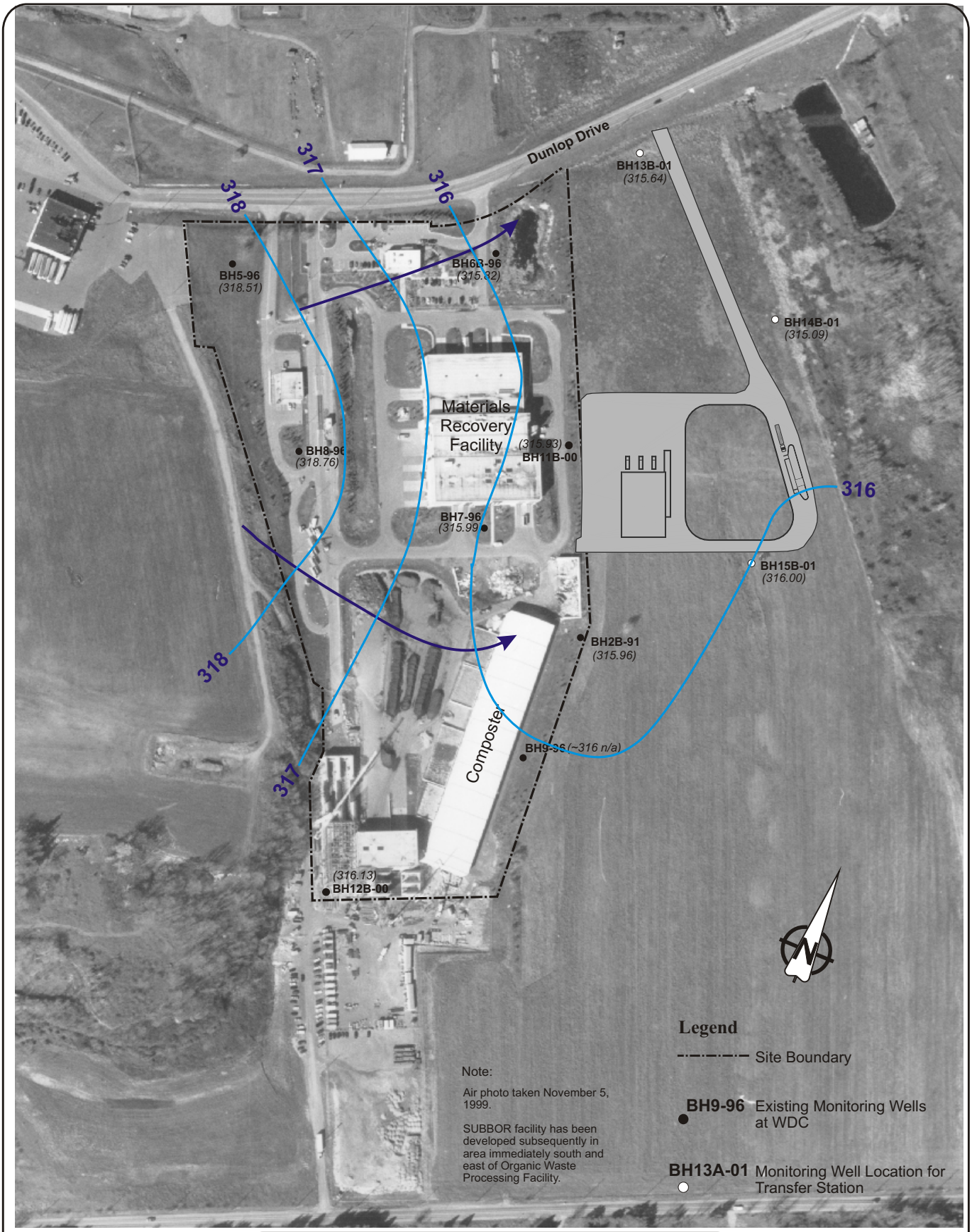
Groundwater sampling was conducted in June and December 2006. Groundwater testing results are presented in Appendix B.

To understand the groundwater quality in the area and beneath the site, the differences in the water quality within the two main geological units beneath and surrounding the site must be examined. These are the sandy outwash and the bedrock below the site. In general, there are two types of groundwater quality that have been identified within these units, based on the shallow groundwater flow regime. These are background outwash and bedrock water quality.

6.2.1 Background Outwash Water Quality

Background outwash groundwater quality can be measured at monitors 2b-91, 9-96 on the eastern extent of the adjacent WRIC, and at locations 14 and 15 on the Transfer Station property (Figures 2 and 3). Groundwater flow is directed towards the site from these areas. Note that monitor 2b-91 was not sampled during 2006 due to insufficient volume of water in June and December.

Groundwater quality at these locations is typified by lower concentrations of the major ions (Alk, Cl, Na, Ca, Mg and K). The average of these parameters during 2006, along with historical ranges for each location, are provided below. The average 2006 alkalinity, sodium and chloride concentrations at monitor 9-96 and alkalinity and sodium at monitor 14b-01 are slightly higher than the historic maximum concentrations for these monitors. Other indicator parameter concentrations for these two monitors are generally within their historic ranges though they tend to be at the high end of the range. Higher concentrations for these parameters were also noted in our 2005 report.



Gartner Lee

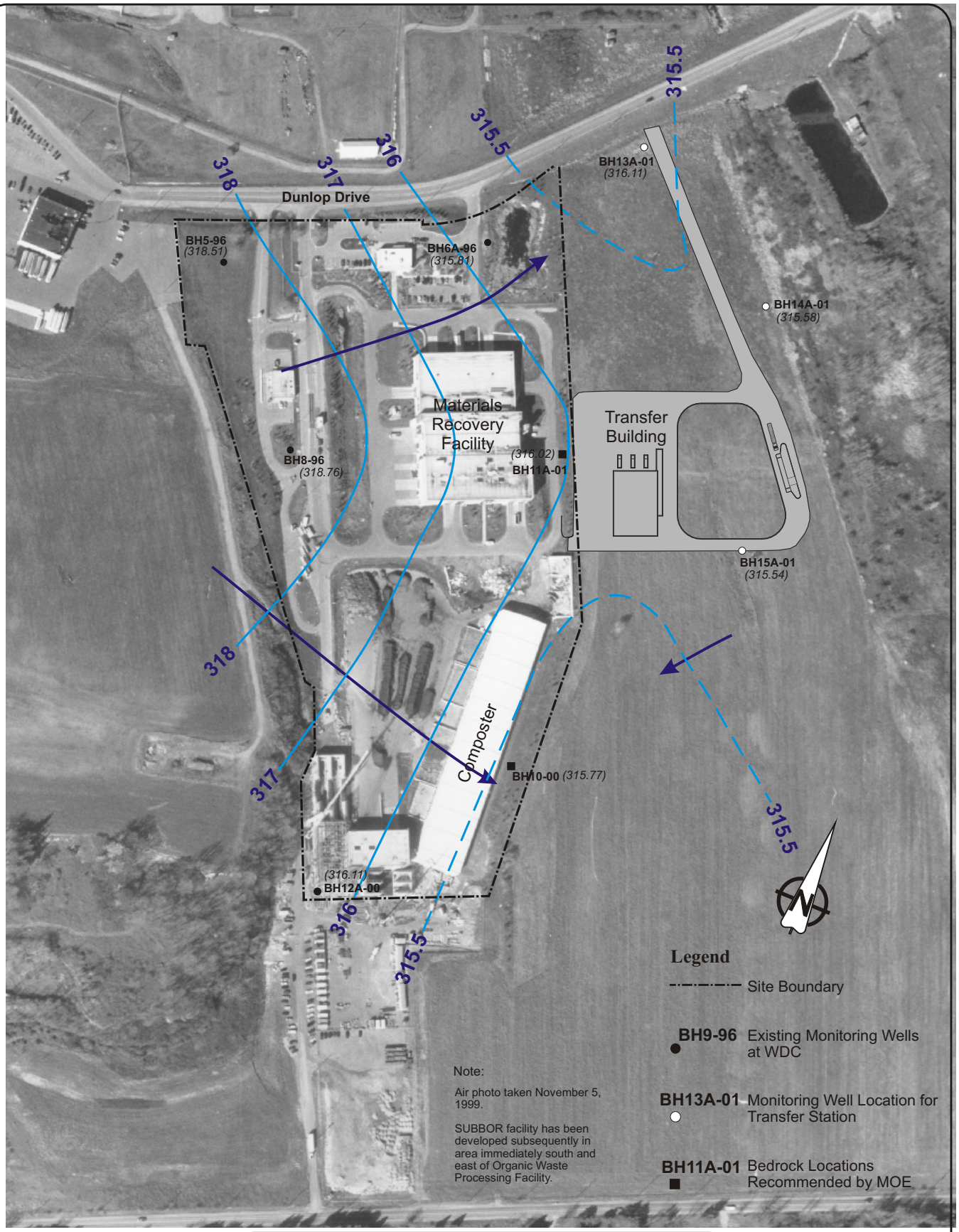
Scale 1 : 4,000

SHALLOW GROUNDWATER FLOW (June , 2006)

Annual Monitoring Program
Solid Waste Transfer Station
City of Guelph

FIGURE
2

Project 70-134
(2007\Final\Images\Shallow-F.cdr)



Gartner Lee

Scale 1 : 4,000

BEDROCK GROUNDWATER FLOW (June, 2006)

Annual Monitoring Program
Solid Waste Transfer Station
City of Guelph

FIGURE

3

Project 70-134
(2007\Final\Images\Bedrock-F.cdr)

Parameter concentrations at monitor 15b-01 are within historic ranges for the parameters presented on the table below. Compared to 2005, the 2006 average chloride concentration is significantly lower (6 mg/L compared to 33 mg/L in 2005) and the 2006 average sodium concentration is about double the 2005 average concentration. This monitor has continued to show a general increasing trend in alkalinity, calcium, magnesium and sodium in recent years. This monitor is upgradient and east of the WRIC and east of the transfer station and is considered to be a background location. The cause of this change in water quality is unknown. Further evaluation of the water quality at this monitor should be conducted as more data become available. As well, an inspection of the area, especially upgradient of this location, should be conducted to determine if there have been changes in the area outside of the transfer station. Of the background outwash monitors, there were no exceedances of the Ontario Drinking Water Standards (ODWS) in 2006.

Monitor		Alkalinity (ppm)	Chloride (ppm)	Sodium (ppm)	Calcium (ppm)	Magnesium (ppm)	Potassium (ppm)
2b-91	*Historical Range*	166 - 256	4.8 – 17	1.8 – 4	52.2 - 90	21.8 – 31.2	0.69 - 1
9-96	*Historical Range*	171 - 251	6.34 –33.5	1.48 - 20.2	68.6 - 93.2	14.7 - 29	0.3 - 1.3
	2006 Average	291	34	27	86	22	1.2
14b-01	*Historical Range*	267 - 364	22.3 - 143	7.7 – 49	95.4 - 140	26.2 - 38	1 – 2.3
	2006 Average	400	111	63.5	125	36.5	2
15b-01	*Historical Range*	200 - 533	5.2 – 56	2 – 10.7	73.4 - 190	18.7 - 53	1 - 2
	2006 Average	476	6	14	135	34	1

Note: Historical Ranges include all data up to and including 2005.

6.2.2 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. As well groundwater quality in the bedrock below the site was measured at location 6a-96. 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 2006, along with the historical ranges, at these locations are provided below. Also, provided in this table are 2006 averages from the more recent bedrock WRIC site monitors (10-00, 11a-00 and 12a-00) along with the bedrock monitors (13a-01, 14a-01 and 15a-01) installed on the Solid Waste Transfer Station property in late 2001.

The water quality collected initially at monitor 12a-00, in 2001, was found to be similar to 5-96 and 8-96, although it had lower chloride and sodium with slightly higher potassium concentrations. However, in 2002 chloride and sodium were found to be significantly elevated in the December sample. This change in water quality was discussed in the annual report for the wet-dry facility. The only sample collected in 2003, was found to be similar to the initial water quality prior to December 2002. Since 2003, the water quality at 12a-00 has become similar to that observed in 2001. Therefore, only the 2006 water quality at monitor 12a-00 is shown on the table below.

Monitor		Alkalinity (ppm)	Chloride (ppm)	Sodium (ppm)	Calcium (ppm)	Magnesium (ppm)	Potassium (ppm)
5-96	*Historical Range***	278 - 380	112 - 474	71.9 - 263	83.7 - 134	24.2 – 38.4	3.9 - 6
	2006 Average.	322	689*	490*	96.5	25	5.3
8-96	*Historical Range*	264 - 356	37.2 - 332	17.6 – 171	92 - 123	32.1 - 43.4	1.73 – 3.1
	2006 Average	320.5	114	64.5	93	33.5	2.6
6a-96	*Historical Range*	235 - 420	158 – 345	70 - 176	94.6 - 158	28.3 - 40	2 – 16.4
	2006 Average	268.5	219*	135*	135	38.5	3
12a-00	*2006 Average*	380.5	37.5	29.5	110	40	19
10-00	*Historical Range*	236 - 267	20 – 44.9	9.2 - 12	83.5 - 95.1	27.7 - 31.5	1 - 2
	2006 Average	255.5	18.5	8.9	85.5	29	1.1
11a-00	*Historical Range*	231 - 263	4 - 7.1	5.1 - 25.9	62 - 83.2	23.6 - 26	1 - 3
	2006 Average	251	9	5.3	71	25.5	1.9
13a-01	*Historical Range*	248 - 272	83.9 – 101	38 - 44	97.7 - 112	33.9 - 38.8	2 – 2.9
	2006 Average	267	105.5	41.5	97	34	2.4
14a-01	*Historical Range*	215 - 263	4.8 – 26.6	9.1 - 27.4	63.5 - 84	22.4 - 29	1 - 2
	2006 Average	253	14	15	75.5	27	1.1
15a-01	*Historical Range*	245 - 263	47 – 62.4	7.7 – 16	100 - 129	32.5 - 37	1 – 2
	2006 Average	270	57	16	96	34	1.1

*Note: * Road salt impact*
Historical Ranges include all data up to and including 2005.
*** Historical Ranges only include data from 1997 up to 2003 due to continued increasing chloride and sodium values after 2003.*

As shown on the table above, the average 2006 concentrations generally fall within the historical ranges, with the following exceptions. The 2006 average chloride and sodium concentrations at monitor 5-96 are significantly higher than the historic maximums for these parameters. The chloride concentration has shown a significant increase in recent years from less than 300 mg/L pre-2003 to about 900 mg/L during the dry sampling event. It should be noted the elevated 2006 chloride and sodium concentration at location 5-96 could be attributed to road salting of the surrounding area. The effects are found to be seasonal with the dry weather (June) sampling period showing higher sodium and chloride concentrations as compared to the wet weather (December) sampling period. As well, there have been historical road salt effects observed at location 6a-96 and 8-96. The 2006 average sodium concentration at monitor

10-00 and calcium at monitor 13a-01 are slightly lower than the historic minimums. The 2006 average chloride concentrations at monitors 11a-00 and 13a-01 and alkalinity at monitor 15a-01 are slightly higher than the historic maximums. Monitor 15a-01 has shown an increasing sodium trend over time though the 2006 average sodium concentration of 16 mg/L still remains quite low. The minor concentration differences at monitors 10-00, 11a-00, 13a-01 and 15a-01 are attributed to natural variability and are not interpreted to be a result of impacts from the transfer station. Sodium and chloride exceed ODWS at monitor 5-96 due to road salt impacts.

When the water quality from the most recent monitors located along the eastern boundary of the WRIC (10-00, 11a-00) and in the Transfer Station property (13a-01, 14a-01, 15a-01) 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 to the east, across the WRIC site, towards a deeply incised bedrock valley low. This valley cuts into the underlying Amabel Formation. The recent 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 at the recent monitors.

6.2.3 Organic Analysis Results

As per the requirements of the C of A, the groundwater is to be analyzed for organics (EPA 624, 625 for ATG MISA Groups 16 to 20) on an annual basis during the dry season monitoring event. In June 2003, prior to the opening of the Transfer Station, trace concentrations (at or just above the laboratory detection limit) of benzene, toluene and m- and p-xylene were observed at 13b-01. The organics detected at 13b-01 were unrelated to the operation of the Transfer Station, as the site had not yet commenced operations.

Organic groundwater quality samples were collected from monitors 13a-01, 13b-01, 14a-01, 14b-01, 15a-01 and 15b-01 in June 2006. A concentration of 35 ug/L of bis(2-ethylhexyl) phthalate was detected at monitor 14b-01. Bis (2-ethylhexyl) phthalate has not previously been detected at this monitor though it has historically been detected at both upgradient and downgradient monitors in 1997 and 1998. The bis(2-ethylhexyl) phthalate detection is considered to be either a sampling or laboratory artifact. As this may be a sampling artifact, it is recommended that a traveling blank and field blank be collected during future organic sampling events to assist in our analysis should organics be detected. No other organics were detected at any of the monitors that are part of the transfer station monitoring program in 2006. Monitors 14b-01 and 15b-01 are considered to be background monitors and are not expected to show any impacts as a result of operations at the site.

6.3 Downgradient Groundwater Quality

6.3.1 Shallow Outwash Groundwater Quality

Monitor 13b-01 (outwash) is downgradient of the site based on shallow groundwater flows (Figure 2). The table below compares downgradient water quality at monitor 13b-01 to the Ontario Drinking Water Standards (ODWS), leachate quality (from Eastview Landfill) and background outwash water quality from monitors BH14b-01 and BH15b-01.

Monitor		Critical Leachate Indicators			Other Leachate Indicators				
		Boron (ppm)	*Phenols (ppm)*	*Chloride (ppm)*	*Alkalinity (ppm)*	*Sodium (ppm)*	*Calcium (ppm)*	*Magnesium (ppm)*	*Potassium (ppm)*
Leachate	ODWS	5.0		250	30 - 500	200			
	Average (1997-2006)	19.8	90	1,618	5,552	1,286	102	414	688
	Historical Range	2.3 – 47	0.72 – 830	101 – 2,610	1,130 – 9.050	197 – 2,750	36 - 221	109 - 661	26 – 1,410
Downgradient									
13b-01	Historical Range	0.01 – 0.1	< 0.001 – 0.012	7 – 55	287 – 506	4.8 – 19.9	84.7 – 140	29.7 – 45	1 – 2.2
	2006 Average	0.03	0.001	98.5	437	31	130	41	1.9
Background									
14b-01	Historical Range	<0.01 – 0.05	< 0.001 – 0.013	22.3 -143	269 - 364	7.7 – 49	95.4 - 140	26.2 - 38	1 – 2.3
	2006 Average	0.02	0.001	110.5	399.5	63.5	125	36.5	2
15b-01	Historical Range	<0.01 – 0.08	< 0.001 – 0.01	5.2 – 56	200 - 533	2 – 10.7	73.4 - 190	18.7 - 53	1 - 2
	2006 Average	0.035	0.001	6	476	14	135	34	1

Note: Historical Ranges includes all data up to and including 2005.
ODWS = Ontario Drinking Water Standards.

As shown on the above table, indicator parameter concentrations observed in the three outwash monitors on the Transfer Station property are considerably lower than typical leachate concentrations from the closed Eastview Landfill. There are no exceedances of ODWS for the shallow groundwater monitors in 2006 for the parameters tested.

BH 13b-01 shows similar water quality to the upgradient monitors. Sodium and chloride at monitor 13b-01 are elevated compared to the maximum background for this monitor. The December sodium (32 mg/L) and June chloride (132 mg/L) were the highest recorded at this monitor. Similarly, the June conductivity (1090 uhmos) and December calcium (140 mg/L) were also the highest concentrations recorded at this monitor. Alkalinity, chloride and sodium have shown increasing trends since 2004 likely due to road salt impacts as this monitor is located adjacent to the access road to the transfer station.

Calcium has also shown an increasing trend over time. Though some indicator parameters are elevated in 2006, the 2006 concentrations of boron and phenols (critical leachate indicator parameters) at monitor 13b-01 remain within background ranges indicating no leachate impacts.

Elevated indicator parameter concentrations, above their maximum historic concentrations, were also noted in 2006 from monitor 14b-01 and 15b-01. At monitor 14b-01, the December conductivity (1,120 umhos), alkalinity (438 mg/L) and sodium (67 mg/L) concentrations were higher than the historic maximum concentrations at this monitor. Higher sodium concentrations have been noted at monitor 14b-01 since 2005. The cause of this increase is unclear but will be monitored in the future to determine if there is an increasing trend in this area. At monitor 15b-01, the December sodium (16 mg/L) and iron (0.29 mg/L) concentrations were the highest recorded to-date. Similar to monitor 13b-01, the alkalinity and calcium concentrations at monitor 15b-01 have been showing an increasing trend since 2004. However, at both monitors, boron and phenols remained at low concentrations. As recommended in Section 6.2, an inspection of the area, especially upgradient of monitor 15b-01, should be conducted to determine if there have been changes in the area outside of the transfer station. Neither of these monitors are expected to be impacted by site operations as they are interpreted to be upgradient of the site and considered background locations.

We conclude from this assessment, there have been no leachate impacts to the shallow groundwater in the vicinity of the Transfer Station as a result of site operations in 2006. However, information from future monitoring and a site inspection may confirm if there are other sources impacting the groundwater quality in the vicinity of monitor 15b-01.

6.3.2 Bedrock Groundwater Quality

The interpreted bedrock groundwater flow directions (Figure 3) indicate that monitors 6a-96 and 10-00 are downgradient of the active Transfer Station area. As the shallow outwash water quality is not impacted by site operations, no impacts to the deeper bedrock groundwater would be expected. The water quality in these monitors was previously discussed in Section 6.2.

The bedrock groundwater quality was compared to Ontario Drinking Water Standards (ODWS), as applicable. There are no exceedances of ODWS in 2006 for the bedrock groundwater monitors for the parameters tested.

6.4 Surface Water Monitoring

The Design and Operations report (Gartner Lee, 2002) recommends monthly inorganic surface water sampling of the stormwater management pond (SWM) for the parameters shown on Table 2. The SWM

pond was checked monthly during 2006. It was dry for the majority of 2006. When water was present, samples were collected at the culvert on the west side of the pond (TP1 on Figure 1) and at the discharge at the north end of the pond (TP1(out) on Figure 1). The water in the SWM pond was sampled in March, May and September 2006.

The existing on-site surface water pond ("East Pond" on Figure 1) is also included in the monitoring program. Samples are scheduled to be collected on a quarterly basis concurrent with the groundwater monitoring. No East Pond samples were collected in 2006. The 2006 surface water results for the leachate indicator parameters are tabulated below, and the testing results are presented in Appendix C.

SWM Pond 2006	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	-	-	-	-	-	-
March	< 0.02	0.003	359	49	240	40	2.7	6
May	0.02	< 0.001	9	83	18	27	2	0.75
September	0.03	< 0.001	6	58	5.7	20	2.6	3

Surface water results were compared to Provincial Water Quality Objectives (PWQO) and background overburden water quality. The PWQO was exceeded for total phosphorus (all events), phenols (March only), iron (March only) and zinc (all events). These concentrations are within the range of historic background quality. Baseline water quality information collected prior to building the WRIC had historically shown elevated total phosphorus concentrations. Therefore, the elevated total phosphorus was a result of agricultural land use and not a result of operations at the WRIC. Of the indicator parameters, the March chloride, sodium and potassium concentrations are elevated compared to the maximum background overburden concentrations. The March chloride, sodium and potassium concentrations were 359 mg/L, 240 mg/L and 6 mg/L compared to background maximums of 143 mg/L, 49 mg/L and 2.3 mg/L, respectively. The elevated spring concentrations are likely a result of road salt impacted runoff from the adjacent access road to the southwest. The boron and phenol concentrations are low suggesting that there have been no impacts to the SWM pond as a result of operations at the waste transfer station.

Samples from the SWM pond (TP1 and TP(out)) were collected in September 2006 and analyzed for organics. No organics were detected at either of the sampling locations in 2006.

Measurements from the staff gauge in the East pond are collected concurrent with the groundwater sampling. Measurements collected to date are summarized in the table below.

Date	Staff Gauge Measurement
Jun 2004	65.4 cm (25.75")
Nov 2004	65.4 cm (25.75")
Nov 2005	59.7 cm (23.5")
April 2006	63.5 cm (25')

The staff gauge was also checked on December 4, 2006 however, due to extensive flooding of the area as a result of beaver activity, an accurate level on the staff gauge could not be obtained.

6.5 Adequacy of Program and Proposed Changes

In conclusion, there were no observable effects attributed to the Transfer Station on the groundwater quality beneath the site. Monitor 15b-01 showed increases in some indicator parameters over the past two years; however, as this monitor is interpreted to be upgradient, the source of these increases is not a result of site operations.

The 2006 organic groundwater sampling showed a concentration of 35 mg/L of bis(2-ethylhexyl) phthalate at monitor 14b-01 that is thought to be a sampling or laboratory artifact. No other organics were detected at any of the monitors that are part of the transfer station monitoring program in 2006.

The 2006 surface water monitoring program shows that there have been no leachate impacts to the SWM pond as a result of operations at the waste transfer station though elevated spring sodium and chloride concentrations suggest road salt impacts from the adjacent access road.

It is concluded that the current monitoring program, as described in Section 2, is adequate for the site with the following recommendations:

a) A travel blank should be collected during future organic sampling events to assess potential sampling artifacts, and

b) The City will ensure quarterly surface water samples from the East Pond and monthly surface water samples from the SWM pond are collected. These samples should be analyzed for inorganic parameters as shown on Table 2. In addition, annual (dry event) organic samples should be collected from each of these surface water stations.

7. Public Concerns

There were no public complaints recorded by the City attributed to the operation of the Transfer Station during 2006.

8. Overall Compliance With the Conditions of the Certificate of Approval

This annual report addresses Condition 30 of the C of A. The ground and surface water monitoring requirements for the C of A are specified in the Design and Operations report (Gartner Lee, 2002). This report addresses all the requirements described in Condition 30 (a), (b), (d) and (e), based on information provided by the City to Gartner Lee Limited.

Condition 30(c) requires:

> *A statement as to the compliance of all Terms and Conditions of this Certificate and with the inspection and reporting requirements of the Conditions therein.*

The City continues to strive to comply with all terms and conditions of the Certificate, and to inspect and report as required by this Certificate.

In February 2006, Cam Hall (MOE Inspector) conducted an inspection of this facility with respect to the Terms and Conditions of Provisional Certificate of Approval number 9241-5DTRD9. The results of the review by the MOE were presented in their Inspection Report. The deficiencies noted by the MOE, followed by the City's responses are documented below.

a) *Condition 15 requires that the entire perimeter of the site be fenced. It was noted that there was a gap along the eastern side of the transfer station.*

The City believed that there due to the natural berm in that area, that section did not require fencing. Nevertheless, the City installed fencing to satisfy MOE's concerns.

b) Condition 17 requires that there be no more than 598 tonnes of waste be stored at the site. In the 2004 annual report, there was one incident reported where the site has 609 tonnes of waste on site.

This exceedance was a result of termite contaminated wood waste that was being brought to the site from a demolition contract that had to be completed in an expeditious manner due to potential contamination. This was a one-time incident and the material was promptly removed.

c) Condition 21 requires the City to document staff training.

Training records of all staff, including course content, are now kept on file.

d) Condition 22 requires the City to conduct regular daily and weekly inspections of the equipment and facilities as outlined in section 7, table 4 of item 2 of schedule "A" and to record the results of the inspections.

A daily inspection log sheet has been updated to cover the items as outlined in Section 7, Table 4 of Item 2 of Schedule "A". Inspections are being conducted on each day the site is being operated and logs are completed each day.

e) Condition 23 requires that in addition to the inspection requirements outlined in section 7, table 4 of item 2 of schedule "A", that the following areas also be inspected: oil water separator, holding tanks and associated containment areas, drainage swales, culverts and catch basins, storm water management pond and security fence, barriers and property line.

The current daily inspection log sheet covers all these areas. Inspections are being conducted on each day the site is being operated and logs are completed each day.

f) Condition 25 requires there be a site Contingency Plan and an Emergency Response Plan as detailed in section 10 of item 2 in schedule "A", and that the plans are reviewed annually.

The 2006 Contingency Plan, including the Emergency Response Plan, has been reviewed and updated. They will be reviewed again in 2007.

g) Condition 27 requires the City to respond to all complaints regarding the operation of the site and to record each complaint in a sequential numbered logbook.

There were no complaints received by the City in 2006 relating to the Transfer Station. Appropriate administration practices (log books) are in place to satisfy this requirement should complaints be received.

h) Condition 28 requires the City to report the results of all groundwater monitoring as required by section 8 of item 2 in schedule "A".

The MOE identified a number of items in its report that the inspector believed were outstanding based on his review of the 2003 and 2004 annual reports for the transfer station. For ease of reference, the items as they appeared in the MOE report are reproduced below with the City's comments immediately following each item.

2003

1. *Total suspended solids results for groundwater are not reported for any of the groundwater monitoring wells for the June and December 2003 monitoring events.*

   Total Suspended sediment (TSS) analysis is completed on surface water and leachate samples only. Groundwater samples are filtered and therefore, should only have negligible TSS concentrations. Because parameters for ground and surface water sampling were presented on one list, it may not have been clear that TSS was only required for surface water and leachate. This has been corrected on Table 2 of this report. As well, two lists have since been developed and will be used at the site.

2. *Phosphorus results for groundwater were not reported for any of the groundwater monitoring wells for the June 2003 monitoring event.*

   Although requested by the City, this parameter was inadvertently not analyzed by the laboratory for the June, 2003 monitoring event. Phosphorus analysis for the groundwater was completed in 2005 and 2006.

3. *Volatile organic parameters, as listed in Ministry Analytical Test Group (ATG) Numbers 16, 17 and 18, are not reported for groundwater monitoring well 14a-01 for the June 2003 monitoring event.*

4. *Results for the volatile organic parameters 1,1-dichloroethylene and ethylene dibromide as listed in Ministry ATG 16; acrolein and acrylnitrile as listed in Ministry ATG 18 and 2-chloroethylvinyl ether and again 1,1-dichloroethylene as listed in EPA Method 624 – are not reported in any of the groundwater monitoring wells for the June 2003 monitoring event.*

   ATG 16 parameters were completed. The analysis for 1,1-dichloroethylene was completed but due to a reporting error was not included in the 2003 report. Ethylene dibromide was reported as 1,1-dibromoethane, which is the same compound. Both ATG 18 parameters were missed in 2003 but were completed in 2004 and the results met MO.E. criteria. The 2-chloroethylvinyl ether analysis was not completed, as it is not part of the MISA ATG 16, 17 and 18 list. The EPA 624 parameters are a United States designation and the MISA groups are a Canadian designation. Accordingly, the City was not required to analyze 2-chloroethylvinyl either.

5. *Results for extractable organic parameters ….as listed in Ministry ATG 19;…as listed in Ministry ATG 20;…as listed in EPA Method 625 – are not reported for any of the groundwater monitoring wells for the June 2003 monitoring event.*

   The City's review shows that the ATG 19 list was not completed in 2003, but these parameters were done in 2004 and met all applicable criteria; once again, the differences between the parameters completed and the parameters reported are a result of the difference between EPA 625 and MISA groups. At the time the 2003 samples were submitted to the laboratory, the City requested MISA ATG 20 analysis, which the laboratory completed based on their internal MISA ATG 20 list. In future, the City will submit a complete listing of the specific organic parameters (as shown on Table 2) to the laboratory to ensure that the proper organics analysis is conducted, and will double check that the requested results were received. Subsequent analysis of MISA ATG 20 have met applicable criteria.

   EPA Method 625 parameters are not required. These are equivalent to MISA group 22 of the EPA 625 scan. Only MISA 19 and 20 parameters are included on the monitoring list, as presented in Table 2 of this report.

<u>2004</u>

1. *Groundwater monitoring occurred in April, June, September and November 2004 instead of the required March, June, September and December 2004.*

   The 2004 groundwater level monitoring occurred on April 27, June 8, September 14 and November 30, which is adequate to evaluate seasonal fluctuations, the purpose of the monitoring program. Nevertheless, the City will endeavor to conduct future monitoring events in the specific months listed in the C of A.

Items 2), 3) 4) and 5) were discussed above under items 1) to 5) re 2003.

i) Condition 29 requires the City to maintain a log book or electronic file format which records daily information on the results of inspections and reports required under conditions 22, 23 and 24.

All required records are currently being kept in accordance with this condition.

In 2006, the City of Guelph hired a new Director of Environmental Services and a new Manager of Solid Waste Resources. Both individuals stress compliance with all applicable legislation. To that effect, the Manager completed a reorganization of the Solid Waste Division.

With the end product emphasizing compliance, the new Division structure has a Governance and Compliance section supervised by the Supervisor of Governance & Compliance. This new position and the seven (7) staff reporting to him are mandated to achieve total compliance with applicable legislation, regulations, and Certificates of Approvals issued to the City of Guelph's Solid Waste Division. The Supervisor of Governance & Compliance is a former Ministry of Environment Supervisor of Investigations, Prosecutor, and Investigator.

9. Conclusions and Recommendations

Based on the 2006 information provided to us by the City of Guelph and the results of the ground and surface water monitoring, there are no significant environmental impacts from the operation of the site. No remedial or mitigative action was required at the Transfer Station during 2006.

Records pertaining to details of the incoming and outgoing waste, environmental and operational problems should be kept up to date.

The approved ground and surface water monitoring program should be continued during 2007 for the site. We recommend the addition of a travel blank to be collected during future organic sampling events to assess potential sampling artifacts. The area upgradient of monitor 15b-01 should be inspected to determine the source of the elevated of alkalinity, calcium, magnesium and sodium detected at this monitor.

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Appendices

Appendix A

Groundwater Elevations and Hydrographs

Routine Groundwater Elevations at the Waste Resources Innovation Centre

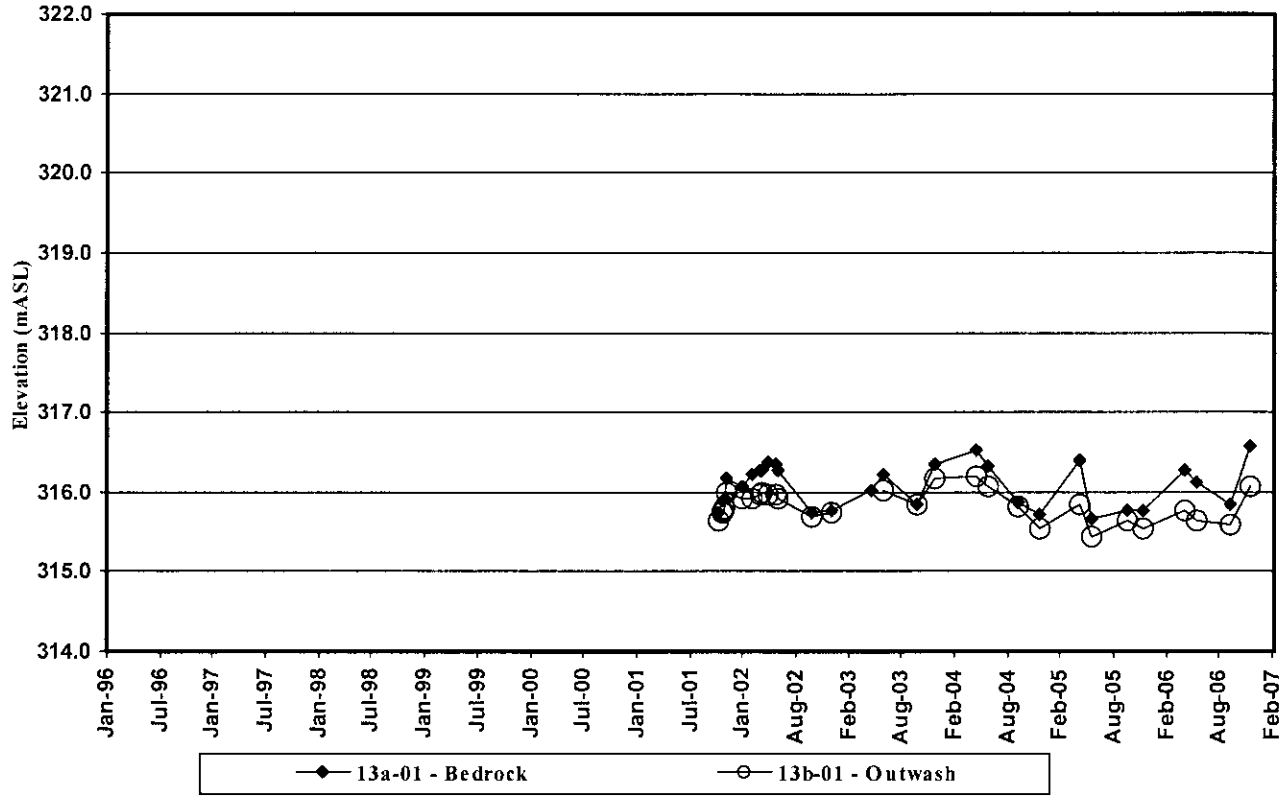
Date	2a-91	2b-91	5-96	6a-96	6b-96	7-96	8-96	9-96	10-00	11a-00	11b-00	12a-00	12b-00	13a-01	13b-01	14a-01	14b-01	15a-01	15b-01
4-Apr-91	316.00	316.02																	
14-Apr-91	315.88	315.89																	
12-May-91	315.67	315.59																	
17-May-91	315.60	315.58																	
17-May-94	316.32	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						

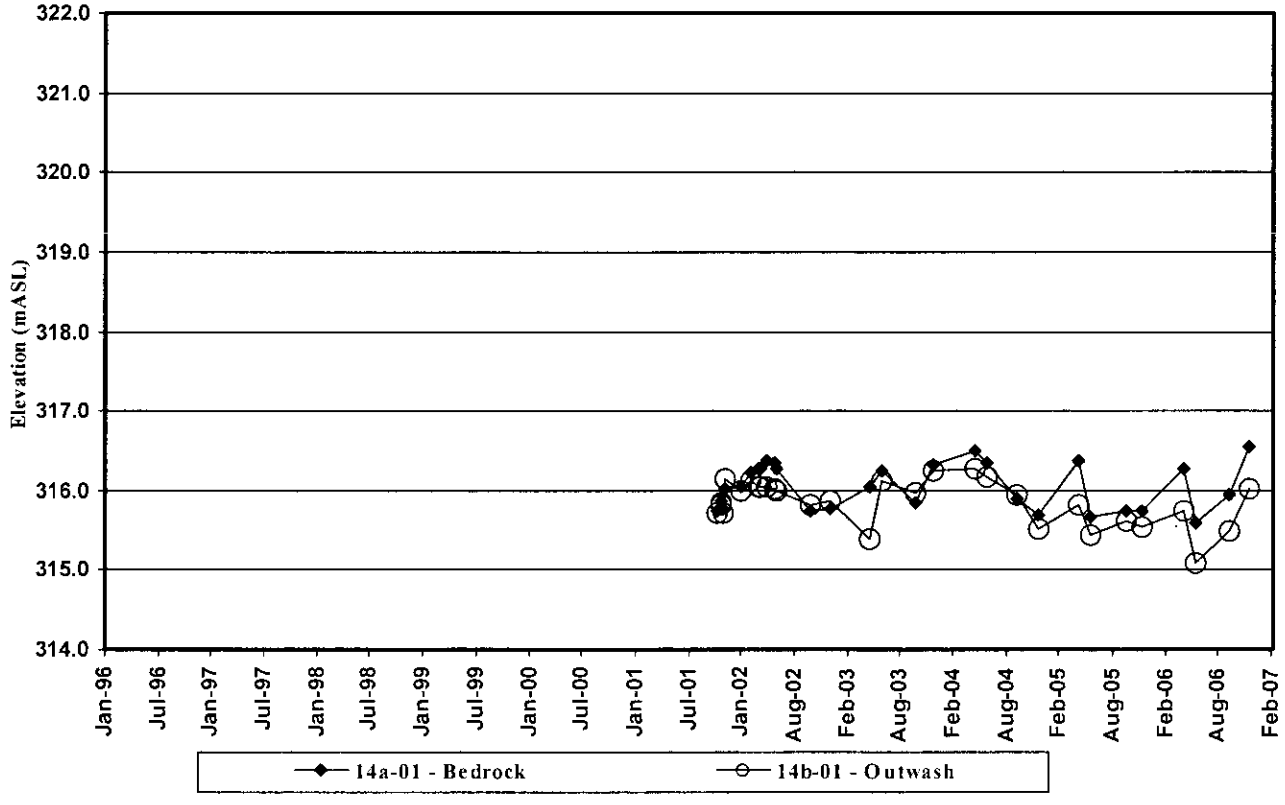
Routine Groundwater Elevations at the Waste Resources Innovation Centre

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	15a-01	15b-01
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	315.70	315.95
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	315.84	316.06
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	315.84	316.02
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	315.72	315.86
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	316.11	316.30
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	316.02	316.10
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	316.32	316.47
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	316.23	316.34
10-Apr-02														316.27	316.00	316.26	316.05	316.24	316.31
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	316.33	316.35
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	316.30	316.34
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	316.24	316.27
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	315.69	315.75
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	315.71	315.86
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	316.01	316.31
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	316.19	316.35
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	315.80	315.99
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	316.29	316.56
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	316.48	316.56
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	316.33	316.43
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	315.83	316.13
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	315.67	315.74
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	316.36	316.34
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	315.62	315.59
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	315.70	315.66
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	315.72	315.66
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	316.23	316.17
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	315.54	316.00

Routine Groundwater Elevations at the Waste Resources Innovation Centre

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	15a-01	15b-01
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	315.77	315.72
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	316.54	316.48





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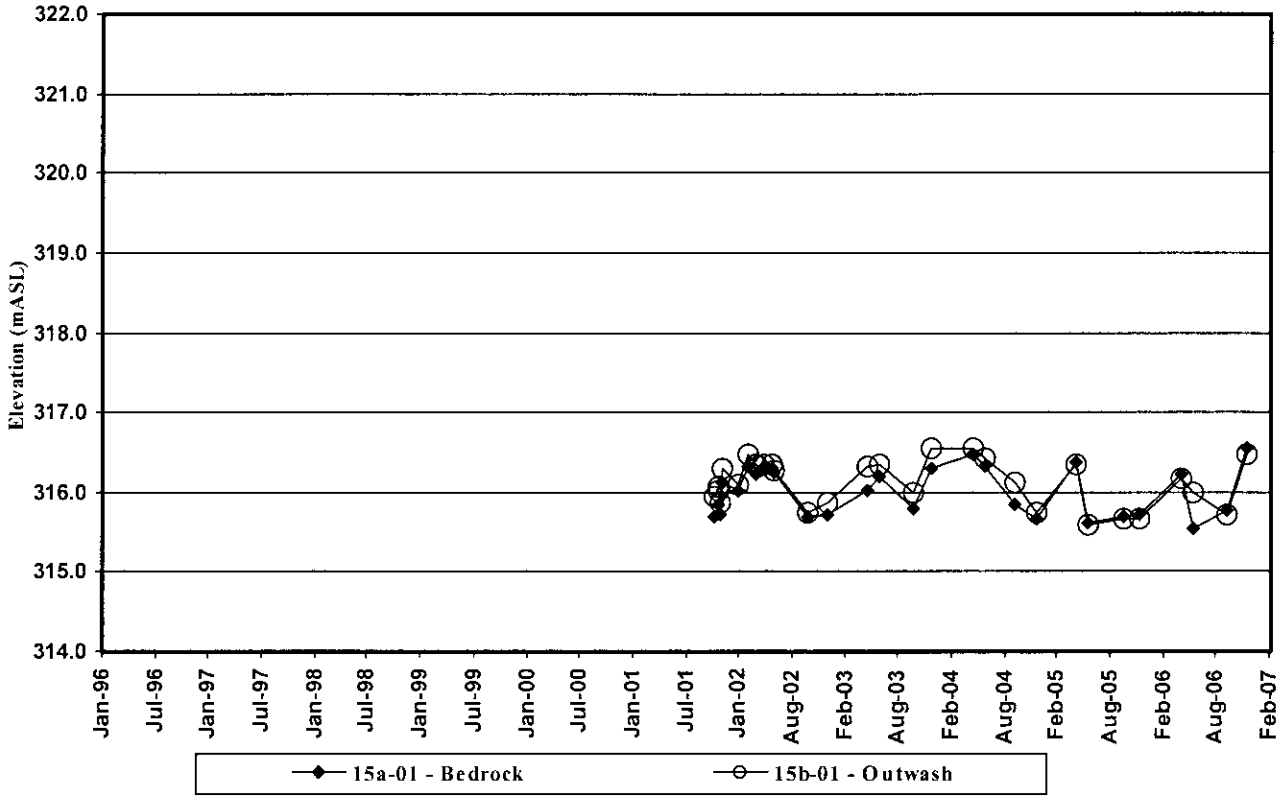
Hydrographs

FIGURE
A - 5

70-133
9 Rpt Hydrographs



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Waste Resource Innovation Centre

Hydrographs

FIGURE
A - 6

70-133
9 Rpt Hydrographs

Appendix B

Groundwater Chemistry – Routine and Organics

Routine Groundwater Quality - General Analysis -Waste Resource Innovation Centre

	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	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
Monitor 1a-91 Lower Till	07-Nov-91	EPL	7.2	609	297	32	8.1							25.6		10.5	2.9	96.7	< 0.005	0.03	< 0.09	< 0.005
	04-Mar-92	EPL	7.09	647	300	31.8	7.9							26.2		9.23	3.14	94.7	0.03	0.03	1.13	0.02
	07-Mar-92	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
	17-May-94	EPL	7.76	703	242	31.6	5.5					< 0.05		28.7		12.6	2.41	97.6	0.10	0.02	< 0.06	0.02
	05-May-95	MDS	7.6	689	250	32.5	5.2					< 0.05		31.7		17.3	2.67	102	0.01	0.02	< 0.06	< 0.005
Monitor 1b-91 Outwash	07-Nov-91	EPL	7.3	753	280	40	15							37.4		23.9	3.5	111	0.07	0.05	< 0.09	< 0.005
	04-Mar-92	EPL	7.31	733	227	34.9	13.6							34.1		10.5	2.95	97.2	0.27	0.05	0.7	0.02
	07-Mar-92	EPL	7.64	740	224	34.1	14.6							33.6		20.7	3.01	97.8	0.02	0.04	< 0.06	0.01
	17-Mar-94	EPL	7.74	521	225	23	11.4					< 0.05		15.6		5.45	2.01	67.7	0.06	0.03	< 0.06	0.009
	05-May-95	MDS	7.85	398	138	16.4	7.4					< 0.05		19.7		26.9	10.9	46.1	0.03	0.03	< 0.06	< 0.005
Monitor 2a-91 Lower Till	07-Nov-91	EPL	7.78	434	215	28	2.8							17.1		24.5	32	35	0.11	0.06	< 0.09	< 0.005
	04-Mar-92	EPL	7.61	494	229	28.7	3.6							20		21.3	34.7	36.9	0.31	0.07	1.14	0.009
	07-Mar-92	EPL	7.88	479	209	28.3	1.4							16.2		15.2	30.6	36.6	0.02	0.06	< 0.06	< 0.005
	17-May-94	EPL	7.99	462	236	24.3	0.9					< 0.05		10.5		10.5	39.6	30.4	0.20	0.07	< 0.06	< 0.005
	05-May-95	MDS	8.02	437	210	20.9	1					< 0.05		11.7		8.92	45.5	28	0.05	0.07	< 0.06	< 0.005
	13-Apr-96	ENT	8.31	424	220	29	1.82				0.45			19.8	< 0.5	8.1	30	49.3	0.23	0.09		0.01
	13-Jun-96	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
	21-Aug-96	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
	18-Sep-96	ENT	8.11	363	226	31.4	1.9				0.03			18	< 0.5	6.4	31.4	41.1	< 0.01	0.15		< 0.01
	11-Feb-97	WBL	7.9			23.8	1.7	< 0.34	8	0.17	0.021	< 0.011	< 2	48.4	< 0.72	119	27.1	45.6	0.8	0.06	0.05	0.03
	26-Mar-97	WBL	8.18	514	235	27.7	2.29	< 0.34	17	0.16	0.089	< 0.011	< 2	25.2	< 0.72	5.8	26.2	51	0.67	0.07	< 0.03	0.02
	25-Jun-97	WBL	8.24	471	226	21.8	1.43	1.89	< 7	0.33	0.26	< 0.011	3	18.8	< 0.72	5.33	24	36.5	0.07	0.07	< 0.03	0.02
	01-Oct-97	WBL	8.1	441	227	22.6	1.63	0.66	14	0.33	0.176	< 0.011	4	16.3	< 0.72	5.13	26.9	38.6	0.48	0.06	< 0.03	0.02
	11-Dec-97	WBL	8.12	450	225	22.2	1.92	< 0.34	33	0.34	0.108	< 0.011	< 2	16.7	< 0.72	4.97	29.5	38.6	1.28	0.06	< 0.03	0.04
	31-Mar-98	WBL	8.05	455	227	21.3	1.77	1.03			0.212		< 2	16.3	< 0.72	6.47	24.2	44.8	1.14	0.06	< 0.01	0.02
	24-Jun-98	WBL	8.06	463	230	21.2	1.39	0.9			0.177		8	17	< 0.72	4.92	26.7	42	0.18	0.10	< 0.006	0.01
	02-Oct-98	CAN	8	500	240	25	< 1	2	< 5	0.17	< 0.1	0.08	4	19	< 1	4.8	31	41	0.6	0.05		0.02
	03-Dec-98	CAN	7.9	490	240	23	< 1	< 2	< 5	0.2	< 0.1	0.12	4	17	< 2	4.9	30	36	< 0.05	0.05		< 0.01
	29-Jun-99	Barr	8.45	440	220	24.2	2	1.5	9	0.33	0.24	0.025	1790	15.8		5.9	28.7	38	0.39	0.05	< 0.1	0.02
	09-Dec-99	Barr	8.04	454	221	23.2	1.4	0.7	14	0.46	0.23	0.009	2760	15	< 1	< 5	32.3	34.5	0.02	0.07	< 0.1	< 0.005
	21-Jun-00	Philip	7.88	441	231	21.6	1.2	1	< 5	0.46	0.31	0.005	198	15.3	< 1	5.1	25.6	35.8	< 0.03	0.04	< 0.05	< 0.005
	07-Dec-00	Philip	8.15	388	236	22.6	1.1	1.1	10	0.47	0.25	0.011	3870	17.8	< 1	5.2	27.8	35.7	0.21	0.09		0.11
	27-Jun-01	Philip	7.9	456	236	23	1	1.9	< 5	0.34	0.22	0.018	538	22.4	< 1	4.8	29.4	38.2	0.06	0.13	< 0.1	0.14
	03-Dec-01	Philip	8.19	457	241	20.3	1.6	1	< 5	0.23	0.07	0.028	19	18.1	< 1	4.2	30.4	33.3	0.03	0.07	< 0.1	0.04
	04-Jun-02	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
	03-Dec-02	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
	02-Jun-03	Philip	8.14	460	220	23.7	1	< 0.5	9	0.67	0.17	< 0.001	< 1	15.7	20	4.6	25.8	40.4	< 0.01	0.06		< 0.005
	01-Dec-03	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
	09-Jun-04	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
	30-Nov-04	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
	03-Aug-05	N/A																				
	28-Nov-05	Maxx	8.24	433	233	25		< 2	14	0.8	0.14	< 0.02		15	< 1	4	32	4	< 0.05	0.06	< 0.05	0.005
	01-Jun-06	MAX	8.2	510	254	27	1.4	< 2	6	0.8	0.24	< 0.02		15	< 1	7	28	48	< 0.02	0.06	< 0.05	< 0.005
	04-Dec-06	MAX	8.2	511	256	26	1.3	< 2	< 4	0.5	0.23	< 0.02		18	< 1	6	30	43	< 0.02	0.06	< 0.05	< 0.005

Routine Groundwater Quality - General Analysis -Waste Resource Innovation Centre

	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	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
Monitor	07-Mar-92	EPL	8	499	154	26.3	0.4							28.1		18.1	3.56	63.8	< 0.005	< 0.01	< 0.06	< 0.005
2b-91	17-May-94	EPL	7.9	587	208	31.4	2					< 0.05		34		8.69	9.44	63.9	0.05	0.01	< 0.06	< 0.005
Outwash	05-May-95	MDS	7.95	530	179	28.3	0.6					< 0.05		25.5		8.59	3.69	68.9	0.02	< 0.01	< 0.06	< 0.005
	13-Apr-96	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
	13-Jun-96	ENT	8.34	337	177	25.1	0.8				0.016			28.2	0.1	7.5	3.9	60.3	< 0.01	0.05		< 0.01
	21-Aug-96	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
	18-Sep-96	ENT	7.93	377	216	22.9	0.9				< 0.01			26	< 0.5	6.5	2.9	60.2	< 0.01	0.07		< 0.01
	11-Dec-96	ENT	8.19	459	208	21.1	1.1				0.04			26.7	< 0.5	7.2	4.6	51	< 0.01	0.02		0.01
	27-Mar-97	WBL	8.14	543	180	26.8	0.69	< 0.34	18	0.24	< 0.01	0.014	2	25.8	< 0.72	10.5	2.4	71.9	0.09	0.03	< 0.03	0.01
	31-Mar-98	WBL	7.92	556	183	25.8	0.78	1.03			< 0.019		< 2	23.2	1.34	16.2	3.88	74.8	0.11	< 0.02	0.02	0.01
	24-Jun-98	Dry																				
	02-Oct-98	Dry																				
	03-Dec-98	Dry																				
	09-Dec-99	Barr	7.77	463	166	23.9	< 1	0.9	14	0.4	0.43	0.005	987	27	< 1	17	3.6	53.2	< 0.01	< 0.01	< 0.1	0.02
	21-Jun-00	Philip	7.89	401	184	24.5	0.7	< 0.5	< 5	0.23	< 0.03	< 0.002	321	25.5	< 1	8.1	4	58.2	< 0.03	< 0.005	< 0.05	< 0.005
	07-Dec-00	INS																				
	27-Jun-01	INV																				
	03-Dec-01	INV																				
	04-Jun-02	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	0.02
	03-Dec-02	INS																				
	02-Jun-03	Philip	8	444	182	23.1	< 1	1.4	14	0.74	< 0.03	< 0.001	1	15	6	4.8	2.2	54.4	< 0.01	< 0.01		0.02
	01-Dec-03	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
	08-Jun-04	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		0.18
	30-Nov-04	INS																				
	03-Aug-05	INS																				
	28-Nov-05	INS																				
	01-Jun-06	INS																				
	04-Dec-06	INS																				
Monitor	07-Nov-91	EPL	7.2	711	278	42	1							31.7		22.6	3.2	104	0.12	0.02	< 0.09	0.3
3-91	04-Mar-92	EPL	7.49	740	308	39.9	2							33.4		15.7	3.37	96.9	0.44	0.02	0.68	0.22
Bedrock	17-May-94	EPL	7.92	802	327	40.2	2.7					< 0.05		34.2		32.1	13.2	98.5	0.01	0.02	< 0.06	0.3
	05-May-95	MDS	7.47	687	300	37.2	< 0.4					< 0.05		32.5		20.8	7.75	96.5	0.02	0.01	< 0.06	0.43
	21-Aug-96	ENT	7.75	950	363	45.2	13.4				1.09			39	1.5	8	44.1	116	< 0.01	0.12		0.46
	18-Sep-96	ENT	7.53	720	323	39.9	7.1				0.45			30.8	< 0.5	40.1	18.1	105	0.03	0.11		0.28
	11-Dec-96	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
Monitor	11-Dec-97	WBL				464	29.4		79	2.08	0.037	2.07			< 0.72		98.5	905	54.9	0.05	3.3	6.86
3-97	31-Mar-98	WBL	7.72	1270	343	30.5	6.52	1.15			< 0.019		< 2	58.6	< 0.72	165	99.3	126	0.12	0.04	0.07	0.05
Outwash	24-Jun-98	WBL	7.56	939	364	27	4.98	1.17			< 0.019		2	27.8	< 0.72	71.6	44.9	112	0.48	0.07	< 0.006	0.13
	02-Oct-98	Dry																				
	03-Dec-98	Dry																				
Monitor	07-Nov-91	EPL	7.54	589	290	35	1.8							54.2		15.8	12	88	< 0.005	0.02	< 0.09	0.05
5-91	07-Mar-92	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
edrock/Outwa	17-May-94	EPL	7.64	547	282	31.9	1					< 0.05		15.6		8.68	4.67	68.5	0.08	0.01	< 0.06	0.92
	05-May-95	MDS	7.37	1210	234	60.2	< 0.4					< 0.05		53		210	51.1	136	< 0.005	0.02	< 0.06	0.23

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Monitor	Date	Lab	pH	Cond-uctivity	Alk	Mg	K	BOD	COD	TKN	NH3-N	Total-P	TSS	SO4	Phenol	Cl	Na	Ca	Fe	B	P	Zn
					mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
5-96 Bedrock	11-Feb-97	WBL	7.32			34.8	4.83	< 0.34	< 7	0.24	0.021	0.012	< 4	32.7	< 0.72	6.53	54.6	125	0.01	0.04	< 0.03	1.07
	27-Mar-97	WBL	7.45	1390	312	35	5.16	< 0.34		0.19	0.051	< 0.011	2	39.5	< 0.72	219	88.8	130	0.01	0.03	< 0.03	1.92
	25-Jun-97	WBL	7.58	1460	326	33.5	5.1	< 0.34	< 7	0.35	0.044	< 0.011	< 2	41.6	< 0.72	251	100	104	0.02	0.03	< 0.03	1.62
	01-Oct-97	WBL	7.26	1290	345	37.1	5.57	< 0.34	13	0.29	< 0.01	< 0.011	< 2	43.4	< 0.72	190	102	116	0.02	0.03	< 0.03	1.78
	11-Dec-97	WBL	7.34	1240	358	35.9	5.85	< 0.34	25	0.24	0.018	< 0.011	< 2	43.3	< 0.72	173	96.3	115	0.02	0.02	< 0.03	1.7
	31-Mar-98	WBL	7.18	1180	352	30.6	5.14	< 0.34			0.058		< 2	41.5	< 0.72	142	75.3	128	0.02	0.03	< 0.01	1.52
	24-Jun-98	WBL	7.38	1240	346	31.4	5.27	1.32			0.062		3	38.6	< 0.72	172	84.2	107	0.03	0.05	< 0.006	2.1
	02-Oct-98	CAN	7.3	1300	370	32	5.3	3	6	0.25	< 0.1	0.03	3	42	< 1	160	91	100	< 0.05	< 0.05		1.9
	03-Dec-98	CAN	7.3	1200	380	30	5.6	< 2	< 5	0.13	< 0.1	0.11	2	39	< 2	130	88	94	< 0.05	< 0.05		1.5
	29-Jun-99	Barr	8.01	1216	333	34.4	6	1.3	10	0.23	0.06	0.004	55	41.7		236	105	105	< 0.01	< 0.01	< 0.1	2.12
	09-Dec-99	Barr	7.32	1136	355	30.2	4.8	0.6	14	0.42	0.32	0.058	24	33	< 1	124	100	90.5	< 0.01	0.02	< 0.1	1.61
	21-Jun-00	Philip	7.27	1056	330	29.2	5	0.6	10	0.46	< 0.03	< 0.002	29	35.8	< 1	165	95.3	100	< 0.03	0.009	< 0.05	1.42
	07-Dec-00	Philip	7.52	910	360	27.2	4.5	0.7	11	0.45	0.04	< 0.002	9	31.5	< 1	112	71.9	83.9	< 0.03	0.02		1.66
	27-Jun-01	Philip	7.55	1376	321	33.2	5	0.8	< 5	0.22	< 0.03	0.01	27	38	< 1	275	137	111	< 0.01	0.06	< 0.1	1.81
	03-Dec-01	Philip	7.68	1054	343	27.4	3.9	1	6	0.32	< 0.03	0.003	< 1	33	< 1	136	93.2	89.9	< 0.01	0.05	< 0.1	1.88
	04-Jun-02	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
	03-Dec-02	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
	02-Jun-03	Philip	7.52	2132	278	38.4	6	< 0.5	10	0.39	0.03	< 0.001	1	43.2	6	474	263	134	< 0.01	0.02		2.35
	01-Dec-03	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
	08-Jun-04	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
	30-Nov-04	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
	03-Aug-05	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
	28-Nov-05	Maxx	8.1	2780	333	25		< 2	17	0.5	< 0.05	< 0.02		49	< 1	661	53	97	< 0.05	0.02	< 0.05	1.6
	01-Jun-06	MAX	8	3480	302	31	5.9	< 2	15	0.6	0.07	< 0.02		41	< 1	908	590	120	< 0.02	0.02	< 0.05	2.1
	04-Dec-06	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

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Monitor
6a-96
Bedrock

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	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
11-Feb-97	WBL	7.55			26.4	3.58	0.87	17	0.25	< 0.01	< 0.011	< 2	32.4	< 0.72	16.3	68.8	111	0.04	0.04	< 0.03	0.04
26-Mar-97	WBL	7.76	1430	237	35.4	4.36	< 0.34		< 0.07	< 0.01	< 0.011	< 2	32.7	< 0.72	312	83.9	130	0.03	0.02	< 0.03	0.05
25-Jun-97	WBL	7.76	1640	238	30	4.74	0.36	< 7	< 0.07	< 0.01	< 0.011	< 2	33.4	< 0.72	312	136	104	0.03	0.03	< 0.03	0.05
01-Oct-97	WBL	7.26	1690	420	37.1	16.4	1.44	10	0.23	< 0.01	< 0.011	3	43.1	< 0.72	216	134	158	0.02	0.06	0.04	0.15
11-Dec-97	WBL	7.63	1700	261	33	5.53	< 0.34	15	0.22	< 0.01	< 0.011	< 2	38.3	< 0.72	333	176	116	0.02	0.02	< 0.03	0.03
31-Mar-98	WBL	7.56	1290	246	29.1	4.87	< 0.34			< 0.019		< 2	32.9	< 0.72	199	70	133	0.02	0.02	< 0.01	0.03
24-Jun-98	WBL	7.61	1480	239	31.5	4.76	0.66			< 0.019		2	31	< 0.72	270	122	121	0.04	0.02	< 0.006	0.05
02-Oct-98	CAN	7.6	1500	260	33	4.8	2	8	0.24	< 0.1	0.02	2	33	< 1	250	130	110	< 0.05	< 0.05		0.04
03-Dec-98	CAN	7.5	1600	250	33	5	< 2	< 5	0.11	< 0.1	0.12	< 1	30	< 2	280	120	110	< 0.05	< 0.05		0.07
29-Jun-99	Barr	8.19	1210	252	33.5	5	0.9	10	0.24	0.03	0.003	23	32.3		261	111	112	< 0.01	< 0.01	< 0.1	0.04
09-Dec-99	Barr	7.61	1344	260	31.1	4.3	0.7	11	0.14	0.02	0.006	79	30	< 1	208	129	101	< 0.01	0.02	< 0.1	0.07
21-Jun-00	Philip	7.52	1157	292	32	4	1.2	8	0.36	< 0.03	< 0.002	67	33.7	< 1	202	99.8	114	< 0.03	< 0.005	< 0.05	0.04
07-Dec-00	Philip	7.74	1116	288	28.3	3.5	0.5	9	0.35	< 0.03	< 0.002	75	32.4	< 1	194	97.3	94.6	< 0.03	0.01		0.03
27-Jun-01	Philip	7.73	1165	290	31.1	3	1.7	5	0.13	< 0.03	0.004	32	40	< 1	192	96	110	< 0.01	0.06	< 0.1	0.25
03-Dec-01	Philip	7.91	1232	286	30.7	2.7	< 0.5	< 5	0.12	< 0.03	0.005	1	36.4	< 1	206	104	106	< 0.01	0.05	< 0.1	0.1
04-Jun-02	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	0.03
03-Dec-02	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	0.04
02-Jun-03	Philip	7.58	1191	277	32.1	3	< 0.5	7	0.4	< 0.03	< 0.001	< 1	46.8	6	171	83.1	116	< 0.01	0.01		0.04
01-Dec-03	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	0.04
09-Jun-04	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		0.40
30-Nov-04	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		0.03
03-Aug-05	Maxx	8.02	1350	235	38	2.8	< 2	5	0.3	< 0.05	< 0.02		34	< 1	233	130	130	< 0.05	0.01	0.07	0.03
28-Nov-05	Maxx	8.08	1510	252	40		< 2	8	0.9	< 0.05	< 0.02		42	< 1	256	140	140	< 0.05	0.02	< 0.05	0.04
01-Jun-06	MAX	8.1	1510	264	35	2.7	< 2	7	0.3	< 0.05	0.04		39	1	228	130	120	< 0.02	0.02	< 0.05	0.04
04-Dec-06	MAX	7.9	1620	273	42	3.2	< 2	6	< 0.1	0.09	0.02		56	< 1	210	140	150	< 0.02	0.02	< 0.05	0.04

Routine Groundwater Quality - General Analysis -Waste Resource Innovation Centre

Monitor	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	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
6b-96 Outwash	11-Feb-97	WBL	7.39			42.2	15.3	0.42	22	0.18	0.055	< 0.011	< 4	44.3	< 0.72	621	322	167	0.04	0.05	< 0.03	0.07
	26-Mar-97	WBL	7.73	3260	260	35.2	16.3	< 0.34		0.09	< 0.01	< 0.011	2	44.1	< 0.72	815	467	146	0.07	0.06	< 0.03	0.10
	25-Jun-97	WBL	7.58	2210	323	34.8	15	0.51	< 7	< 0.07	< 0.01	< 0.011	< 2	45	< 0.72	440	198	125	0.03	0.05	< 0.03	0.14
	01-Oct-97	WBL	7.65	1740	246	36.2	5.36	4.19	56	< 0.07	< 0.01	< 0.011	< 2	35.8	< 0.72	341	164	128	0.02	0.02	0.04	0.04
	11-Dec-97	WBL	7.33	1200	333	30.6	13.1	0.75	17	0.17	< 0.01	< 0.011	< 2	39.7	< 0.72	128	80.5	120	0.15	0.05	< 0.03	0.09
	31-Mar-98	WBL	7.43	2770	270	28.8	12.6	< 0.34			< 0.019		< 2	50.9	< 0.72	649	289	168	0.11	0.03	< 0.01	0.08
	24-Jun-98	WBL	7.34	1860	308	35.5	15.4	0.48			0.047		2	43	< 0.72	279	159	163	0.02	0.08	< 0.006	0.15
	02-Oct-98	CAN	7.3	1500	410	45	15	< 2	< 5	0.34	< 0.1	< 0.02	2	40	< 1	150	92	160	< 0.05	0.05		0.14
	03-Dec-98	CAN	7.3	1300	390	35	12	< 2	< 5	< 0.1	< 0.1	0.11	4	35	< 2	120	75	120	< 0.05	< 0.05		0.1
	29-Jun-99	Barr	8.01	1550	327	34.3	11	1.9	11	0.29	< 0.02	0.003	726	44.4		338	189	125	0.01	0.03	< 0.1	0.1
	09-Dec-99	Barr	7.32	1378	332	32.1	10.5	0.6	17	0.54	0.05	0.002	96	38	< 1	155	122	121	< 0.01	0.04	< 0.1	0.11
	21-Jun-00	Philip	7.36	1639	306	31	18	< 0.5	13	3.16	2.84	< 0.002	44	48.8	< 1	313	182	130	< 0.03	0.03	< 0.05	0.1
	07-Dec-00	Philip	7.48	1137	352	32.9	10.2	2.5	11	0.44	0.09	< 0.002	388	43.7	< 1	163	78.3	113	< 0.03	0.04		0.10
	27-Jun-01	Philip	7.59	1580	339	30.2	10	1.9	< 5	0.28	< 0.03	0.005	54	43	< 1	265	188	114	< 0.01	0.07	< 0.1	0.26
	03-Dec-01	Philip	7.79	1531	379	28.6	8.9	< 0.5	11	0.42	< 0.03	0.008	< 1	56.7	< 1	252	161	116	< 0.01	0.06	< 0.1	0.14
	04-Jun-02	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	0.18
	03-Dec-02	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	0.06
	02-Jun-03	Philip	7.69	1538	270	25.8	7	0.7	10	0.37	0.1	< 0.001	1	41.9	11	350	225	101	< 0.01	0.03		0.07
	01-Dec-03	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	0.24
	09-Jun-04	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
	30-Nov-04	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		0.05
	03-Aug-05	Maxx	7.86	1920	347	39	13	< 2	13	0.7	< 0.05	< 0.02		49	< 1	297	210	160	< 0.05	0.05	< 0.05	0.11
	28-Nov-05	Maxx	8.19	1190	348	26		< 2	11	0.2	< 0.05	< 0.02		35	< 1	120	110	110	< 0.05	0.04	< 0.05	0.07
	01-Jun-06	MAX	8	2060	342	35	11	< 2	8	0.5	< 0.05	0.08		44	< 1	340	250	140	< 0.02	0.05	< 0.05	0.09
	04-Dec-06	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	0.07

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Monitor	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	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
7-96 Outwash	11-Feb-97	WBL	7.7			26.2	12.6	< 0.34	24	< 0.07	< 0.01	< 0.011	< 4	35.2	2.48	132	63.5	90.1	0.05	0.05	< 0.03	0.05
	26-Mar-97	WBL	7.7	1180	256	32.5	14	< 0.34		< 0.07	< 0.01	< 0.011	3	35.5	< 0.72	131	80.6	104	0.07	0.07	< 0.03	0.08
	25-Jun-97	WBL	7.8	992	250	29.6	9.65	0.69	< 7	0.08	< 0.01	< 0.011	2	35.2	< 0.72	66.4	33.7	95.1	0.03	0.04	< 0.03	0.11
	01-Oct-97	WBL	7.57	902	251	33.2	10.2	1.44	< 7	0.1	< 0.01	< 0.011	< 2	35.7	< 0.72	54.3	28.7	110	0.04	0.06	< 0.03	0.08
	11-Dec-97	WBL	7.52	906	248	31.8	10.1	< 0.34	< 7	0.25	< 0.01	< 0.011	< 2	36.3	< 0.72	62.1	30	105	0.17	0.06	< 0.03	0.08
	31-Mar-98	WBL	7.55	1120	224	32.4	9.06	< 0.34			< 0.019		< 2	43	< 0.72	92.4	36.8	127	0.09	0.04	< 0.01	0.09
	24-Jun-98	WBL	7.77	1200	226	34.9	9.49	0.78			< 0.019		< 2	41.3	< 0.72	89.8	38.8	141	0.06	0.06	< 0.006	0.12
	02-Oct-98	CAN	7.4	1100	280	38	11	3	10	0.27	< 0.1	< 0.02	< 1	46	< 1	74	35	130	< 0.05	< 0.05		0.12
	03-Dec-98	CAN	7.5	1200	310	39	11	< 2	< 5	0.36	< 0.1	0.1	2	41	< 2	72	32	130	< 0.05	< 0.05		0.13
	29-Jun-99	Barr	8.15	1325	248	41	12	2.2	10	0.21	< 0.02	0.003	157	58.4		282	110	132	< 0.01	0.03	< 0.1	0.12
	09-Dec-99	Barr	7.39	1478	293	45.4	14.1	0.8	13	0.2	< 0.02	< 0.002	258	41	< 1	231	91.1	135	< 0.01	0.05	0.1	0.15
	21-Jun-00	Philip	7.44	1775	255	48.8	13.9	0.6	12	0.54	< 0.03	< 0.002	160	80.9	< 1	397	172	157	< 0.03	0.04	< 0.05	0.14
	07-Dec-00	Philip	7.5	1430	321	41	13.2	16	12	0.3	0.05	< 0.002	122	75.8	< 1	227	118	135	< 0.03	0.10		0.3
	27-Jun-01	Philip	7.72	1768	293	44.4	13	1.7	6	0.34	< 0.03	0.006	163	105	< 1	307	176	144	< 0.01	0.09	< 0.1	0.25
	03-Dec-01	Philip	7.73	1259	365	36.2	11.8	< 0.5	7	0.41	< 0.03	0.004	< 1	48.7	< 1	162	87.8	124	< 0.01	0.05	< 0.1	0.15
	04-Jun-02	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	0.18
	03-Dec-02	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	0.17
	02-Jun-03	Philip	7.52	2122	298	52.7	23	< 0.5	11	0.99	0.41	0.002	2	131	12	380	212	167	< 0.01	0.06		0.2
	01-Dec-03	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	0.15
	08-Jun-04	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		0.86
	30-Nov-04	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		0.20
	03-Aug-05	Maxx	7.95	1800	325	51	19	< 2	22	1.5	0.12	< 0.02		86	< 1	190	140	180	< 0.05	0.09	0.07	0.23
	28-Nov-05	Maxx	8.07	2140	378	52		< 2	10	1	< 0.05	< 0.02		112	< 1	258	180	200	< 0.05	0.09	< 0.05	0.27
	01-Jun-06	MAX	8	1910	306	44	16	< 2	12	0.7	< 0.05	0.04		113	< 1	186	120	170	< 0.02	0.1	< 0.05	0.24
	04-Dec-06	MAX	7.9	1610	315	40	17	< 2	7	0.7	0.09	< 0.02		83	1	150	100	170	< 0.02	0.09	< 0.05	0.22

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	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	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
Monitor	11-Feb-97	WBL	7.78			39.9	2.08	< 0.34	28	0.21	< 0.01	0.034	< 2	73.5	< 0.72	33	19.3	94.9	0.05	0.05	< 0.03	0.02
8-96	27-Mar-97	WBL	7.77	864	302	36.9	1.73	< 0.34	46	0.3	< 0.01	< 0.011	3	53.9	< 0.72	49.8	18.8	107	0.01	0.03	< 0.03	0.67
Bedrock	25-Jun-97	WBL	7.84	882	308	33.6	1.77	< 0.34	< 7	< 0.07	0.018	< 0.011	2	60.8	< 0.72	40.9	17.6	92	0.02	0.05	< 0.03	0.54
	01-Oct-97	WBL	7.45	838	321	37.1	1.9	0.51	51	0.2	< 0.01	< 0.011	< 2	66.2	< 0.72	37.2	19.3	111	0.02	0.02	< 0.03	0.50
	11-Dec-97	WBL	7.61	880	297	37.7	1.99	< 0.34	< 7	0.34	< 0.01	< 0.011	< 2	75.2	< 0.72	55.4	21	105	0.06	0.03	< 0.03	0.69
	31-Mar-98	WBL	7.41	997	288	33.4	2.05	1.72			< 0.019		< 2	65.6	< 0.72	102	32.9	116	0.01	0.02	< 0.01	0.54
	24-Jun-98	WBL	7.5	890	309	32.1	1.78	0.75			< 0.019		< 2	59.6	< 0.72	58.4	30.1	107	0.06	< 0.02	< 0.006	0.63
	02-Oct-98	CAN	7.4	890	320	38	2.2	< 2	< 5	0.3	< 0.1	< 0.02	< 1	73	< 1	57	31	110	< 0.05	< 0.05		0.84
	03-Dec-98	CAN	7.4	910	310	36	2.2	< 2	< 5	0.48	< 0.1	0.12	2	72	< 2	60	28	99	< 0.05	< 0.05		0.83
	29-Jun-99	Barr	8.23	976	282	40.1	3	1.7	12	0.19	< 0.02	0.003	390	68.2		146	67.7	109	< 0.01	< 0.01	< 0.1	0.75
	09-Dec-99	Barr	7.46	1358	287	43.4	2.8	0.9	9	0.49	0.03	0.004	103	64	< 1	207	103	114	< 0.01	0.01	< 0.1	0.9
	21-Jun-00	Philip	7.43	1212	264	38.9	2.4	< 0.5	6	0.25	< 0.03	< 0.002	90	64.4	< 1	233	107	111	< 0.03	< 0.005	< 0.05	0.89
	07-Dec-00	Philip	7.6	942	320	34.6	2	1.3	13	0.25	0.04	< 0.002	131	63.7	< 1	125	59.2	94.6	< 0.03	0.06		1.01
	27-Jun-01	Philip	7.76	1019	317	36.3	2	1.6	< 5	0.27	0.03	0.037	< 1	63	< 1	139	76.1	105	0.02	0.05	< 0.1	1.11
	03-Dec-01	Philip	7.66	1329	356	36	2.3	1.1	< 5	0.2	< 0.03	0.005	< 1	50	< 1	225	93.9	103	< 0.01	0.05	< 0.1	1.02
	04-Jun-02	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	0.87
	03-Dec-02	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	0.87
	02-Jun-03	Philip	7.47	1622	276	39.9	3	< 0.5	7	0.41	< 0.03	< 0.001	1	55.1	9	332	171	116	< 0.01	0.01		1.08
	01-Dec-03	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
	08-Jun-04	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
	30-Nov-04	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		0.92
	03-Aug-05	Maxx	8.15	888	298	36	2.5	< 2	22	1.2	< 0.05	< 0.02		47	< 1	98	71	92	< 0.05	0.02	0.07	0.7
	28-Nov-05	Maxx	8.05	997	320	37		< 2	6	0.6	< 0.05	< 0.02		54	< 1	99	66	110	< 0.05	0.02	< 0.05	1
	01-Jun-06	MAX	8.1	1040	314	32	2.3	< 2	11	0.5	< 0.05	< 0.02		50	< 1	129	67	87	< 0.02	0.01	< 0.05	0.94
	04-Dec-06	MAX	8.1	976	327	35	2.8	< 2	< 4	0.4	< 0.05	< 0.02		50	< 1	99	62	99	< 0.02	0.01	< 0.05	1.1

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	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	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
Monitor	11-Feb-97	WBL	7.81			16.4	0.99	0.69	7	0.19	< 0.01	< 0.011	< 4	17.6	2.23	7.17	4.37	61.6	0.12	0.02	< 0.03	0.008
9-96	26-Mar-97	WBL	8.04	474	186	18.7	0.86	< 0.34	14	0.24	< 0.01	< 0.011	4	23.4	< 0.72	6.34	7.96	68.6	0.07	0.04	< 0.03	0.03
Outwash	25-Jun-97	WBL	8.01	582	205	20.7	0.95	< 0.34	< 7	< 0.07	< 0.01	< 0.011	< 2	26.7	< 0.72	6.93	7.38	71	0.03	0.03	< 0.03	0.02
	01-Oct-97	WBL	7.92	490	179	21.7	0.84	1.2	13	0.1	< 0.01	< 0.011	< 2	22.4	< 0.72	9.82	1.68	74.5	0.03	0.02	0.03	0.008
	11-Dec-97	WBL	7.85	488	171	21.8	0.67	< 0.34	< 7	0.22	< 0.01	< 0.011	< 2	20.4	< 0.72	13.6	1.48	70.3	0.03	< 0.02	0.04	0.005
	31-Mar-98	WBL	8.38	557	195	25.9	0.7	< 0.34			0.019		< 2	26.7	< 0.72	13.1	2.2	71.7	0.01	0.03	< 0.01	0.005
	24-Jun-98	WBL	7.79	536	193	21.6	0.78	1.38			< 0.019		3	26	< 0.72	12.5	2.83	76.2	0.03	0.05	< 0.006	0.007
	02-Oct-98	CAN	7.7	610	210	29	< 1	< 2	< 5	0.4	< 0.1	< 0.02	30	29	< 1	19	2	85	< 0.05	< 0.05		< 0.01
	03-Dec-98	CAN	7.6	590	230	24	< 1	< 2	< 5	0.31	< 0.1	0.17	2	23	< 2	11	2.5	79	< 0.05	< 0.05		0.01
	29-Jun-99	Barr	8.31	528	220	19.6	1	1.2	10	0.21	< 0.02	0.004	206	24.6		23.3	8.2	79.7	< 0.01	0.01	< 0.1	< 0.005
	09-Dec-99	Barr	7.65	649	251	20.2	< 1	< 0.5	6	0.16	0.06	0.004	238	17	< 1	31	14.6	93.2	0.01	0.03	< 0.1	0.02
	21-Jun-00	Philip	7.71	414	234	14.7	0.8	< 0.5	5	0.28	< 0.03	< 0.002	81	12.2	< 1	12	8.9	77.4	< 0.03	0.01	< 0.05	< 0.005
	07-Dec-00	Philip	7.91	408	249	15	0.3	1.1	5	0.13	0.04	< 0.002	72	13.7	< 1	13.5	8.7	69.3	< 0.03	0.06		0.17
	27-Jun-01	Philip	7.9	570	248	18.3	< 1	1.7	< 5	0.14	< 0.03	0.004	67	25	< 1	20	14.2	86	< 0.01	0.06	< 0.1	0.21
	03-Dec-01	Philip	7.93	482	223	15.3	1.3	0.9	< 5	0.39	< 0.03	0.008	< 1	10.8	< 1	15.7	20.2	72	0.03	0.03	< 0.1	0.18
	04-Jun-02	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
	03-Dec-02	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	0.01
	02-Jun-03	Philip	7.76	666	229	20.6	< 1	< 0.5	7	0.45	0.03	< 0.001	1	11	4	64.1	20.7	90.2	< 0.01	0.04		0.01
	01-Dec-03	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	0.02
	08-Jun-04	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		0.07
	30-Nov-04	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
	03-Aug-05	Maxx	8.08	584	259	22	1	< 2	13	0.8	< 0.05	< 0.02		24	< 1	9	11	87	< 0.05	0.03	0.07	< 0.005
	28-Nov-05	Maxx	8.17	714	295	18		< 2	10	0.6	< 0.05	< 0.02		21	< 1	38	34	100	< 0.05	0.04	< 0.05	0.006
	01-Jun-06	N/A																				
	04-Dec-06	MAX	8.1	686	291	22	1.2	< 2	< 4	0.3	0.07	< 0.02		20	< 1	34	27	86	< 0.02	0.04	< 0.05	0.005
Monitor	27-Jun-01	Philip	7.84	662	259	31.5	< 1	< 0.5	< 5	0.14	0.07	0.009	159	103	< 1	22	9.9	93.7	0.02	0.02	< 0.1	0.02
10-00	03-Dec-01	Philip	8.01	666	267	30.7	< 1	0.8	< 5	0.19	0.04	0.01	< 1	85.8	< 1	25.8	12	95.1	0.04	0.02	< 0.1	0.06
Bedrock	04-Jun-02	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
	03-Dec-02	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
	02-Jun-03	Philip	7.78	659	242	29.1	< 1	< 0.5	< 5	0.17	0.05	< 0.001	1	25.2	11	44.9	10	87	0.03	0.01		< 0.005
	01-Dec-03	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	0.02
	09-Jun-04	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
	30-Nov-04	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
	03-Aug-05	Maxx	8.18	599	240	31	1.2	< 2	< 4	0.3	< 0.05	< 0.02		67	< 1	20	10	86	< 0.05	0.01	< 0.05	< 0.005
	28-Nov-05	Maxx	8.07	616	251	31		< 2	5	0.2	< 0.05	< 0.02		71	< 1	23	10	90	< 0.05	0.02	< 0.05	< 0.005
	01-Jun-06	MAX	8.1	646	254	30	1.1	< 2	< 4	1	0.09	< 0.02		77	< 1	20	9.1	88	0.03	0.01	< 0.05	< 0.005
	04-Dec-06	MAX	8.2	651	257	28	1	< 2	4	0.3	0.11	< 0.02		82	< 1	17	8.6	83	0.02	0.01	< 0.05	< 0.005

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	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	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
Monitor 11a-00 Bedrock	27-Jun-01	Philip	8.13	528	263	25.3	2	2.9	< 5	0.28	0.13	0.03	45	46.8	< 1	7.1	25.9	68.7	0.34	0.1	< 0.1	0.14
	03-Dec-01	Philip	7.99	512	262	24.9	2	1.2	< 5	0.32	0.12	0.007	< 1	34.9	< 1	5.1	12	83.2	0.04	0.04	< 0.1	0.25
	04-Jun-02	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
	03-Dec-02	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	0.01
	02-Jun-03	Philip	7.71	515	231	24.7	2	< 0.5	< 5	0.38	0.11	< 0.001	1	31.8	9	6.3	5.8	67.5	< 0.01	0.03		< 0.005
	01-Dec-03	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
	08-Jun-04	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		0.19
	30-Nov-04	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
	03-Aug-05	Maxx	8.13	471	238	25	1.9	< 2	8	0.6	0.06	< 0.02		20	< 1	5	5.5	62	0.07	0.04	0.08	< 0.005
	28-Nov-05	Maxx	8.2	470	248	26		< 2	10	0.4	0.14	< 0.02		26	< 1	7	5.2	70	< 0.05	0.04	< 0.05	< 0.005
	01-Jun-06	MAX	8.1	520	250	26	2	< 2	< 4	0.4	0.16	< 0.02		25	< 1	8	5.2	72	< 0.02	0.03	< 0.05	< 0.005
	04-Dec-06	MAX	8.1	532	252	25	1.8	< 2	< 4	0.3	0.12	< 0.02		38	< 1	10	5.3	70	< 0.02	0.04	< 0.05	< 0.005
Monitor 11b-00 Outwash	27-Jun-01	Philip	7.99	798	264	25.6	2	7.2	5	0.22	< 0.03	0.017	2400	55	< 1	54	54.1	83.1	0.03	0.07	< 0.1	0.11
	03-Dec-01	Philip	7.98	1081	266	28.4	2.2	1.4	6	0.28	< 0.03	0.023	13	50.4	< 1	155	92.8	100	< 0.01	0.04	< 0.1	0.01
	04-Jun-02	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	0.02
	03-Dec-02	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	0.06
	02-Jun-03	Philip	7.72	873	226	28.1	2	0.6	5	0.37	0.04	< 0.001	< 1	48.5	7	70.6	37.2	101	< 0.01	0.41		0.03
	01-Dec-03	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	0.01
	08-Jun-04	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		0.13
	30-Nov-04	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		0.01
	03-Aug-05	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	0.03
	28-Nov-05	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
	01-Jun-06	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
	04-Dec-06	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	0.01
Monitor 12a-00 Bedrock	27-Jun-01	Philip	7.5	888	390	43.6	14	1.2	7	0.92	0.45	0.006	178	96.2	< 1	82.8	22.6	109	< 0.01	0.07	< 0.1	1.44
	03-Dec-01	Philip	7.77	920	389	44.7	10.1	1.2	16	0.75	0.19	0.008	< 1	50.6	< 1	24.7	19.7	110	< 0.01	0.06	< 0.1	1.17
	04-Jun-02	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
	03-Dec-02	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	0.96
	02-Jun-03	Philip	7.37	915	350	40.4	18	< 0.5	11	1.04	0.41	0.002	2	46.3	10	55.5	36.2	103	< 0.01	0.02		1.17
	01-Dec-03	No Ac																				
	08-Jun-04	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
	30-Nov-04	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
	03-Aug-05	Maxx	7.93	891	370	44	16	< 2	9	0.6	0.17	< 0.02		40	< 1	42	27	110	< 0.05	0.03	0.08	1.1
	28-Nov-05	Maxx	7.88	791	331	40		< 2	54	2.5	0.16	< 0.02		54	< 1	30	20	100	< 0.05	0.02	< 0.05	0.97
	01-Jun-06	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
	04-Dec-06	MAX	7.8	1020	423	41	22	< 2	8	1.2	0.56	< 0.02		49	< 1	41	34	110	< 0.02	0.02	< 0.05	1.2
Monitor 12b-00 Outwash	27-Jun-01	Philip	7.77	760	354	27.2	4	0.9	11	0.45	0.13	0.026	1730	48.9	< 1	40	25.2	106	0.62	0.1	< 0.1	0.37
	03-Dec-01	Philip	7.83	435	204	12.8	3.5	1.2	12	0.26	< 0.03	0.042	35	21.3	< 1	11.7	12.3	54.8	0.02	0.07	< 0.1	0.21
	04-Jun-02	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	0.35
	03-Dec-02	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
	02-Jun-03	Philip	7.38	1108	398	33.7	3	92	88	1.33	0.57	0.004	97	4.5	157	117	66	118	22.7	0.11		0.02
	01-Dec-03	No Ac																				
	08-Jun-04	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		0.34
	30-Nov-04	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		0.08
	03-Aug-05	Maxx	7.78	610	306	21	4.2	< 3	27	2.4	1.07	0.1		20	1	14	16	90	7.1	0.09	0.17	0.03
	28-Nov-05	Maxx	7.93	647	345	26		< 2	14	1	0.35	< 0.02		28	< 1	13	13	100	2.1	0.07	< 0.05	0.32
	01-Jun-06	MAX	8.1	584	292	19	2.5	< 2	8	1	0.49	0.02		24	< 1	10	12	72	1.7	0.05	0.05	0.15
	04-Dec-06	MAX	7.9	648	328	22	3.2	< 2	5	0.8	0.43	< 0.02		26	< 1	11	14	92	0.78	0.07	< 0.05	0.21

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	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	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
Monitor 13a-01 Bedrock	03-Dec-01	Philip	7.95	913	272	38.8	2.9	0.8	< 5	0.21	0.09	0.008	2	105	< 1	83.9	39.9	106	0.77	0.04	< 0.1	0.11
	04-Jun-02	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
	03-Dec-02	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
	02-Jun-03	Philip	7.77	921	248	35.2	2	< 0.5	< 5	0.23	0.11	< 0.001	2	111	9	88.5	41	100	0.45	0.03		0.02
	01-Dec-03	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	0.19
	09-Jun-04	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		0.12
	30-Nov-04	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
	03-Aug-05	Maxx	8.02	889	252	36	2.5	< 2	4	0.5	0.19	< 0.02		107	< 1	93	44	100	0.58	0.04	< 0.05	< 0.005
	28-Nov-05	Maxx	8	884	263	37		< 2	< 4	0.2	0.12	< 0.02		101	< 1	87	44	110	0.59	0.04	< 0.05	< 0.005
	01-Jun-06	MAX	8.1	929	266	33	2.2	< 2	5	0.5	0.17	< 0.02		106	< 1	111	40	94	0.43	0.05	< 0.05	< 0.005
	04-Dec-06	MAX	8	967	268	35	2.5	< 2	< 4	0.3	0.18	< 0.02		111	< 1	100	43	100	0.5	0.04	< 0.05	< 0.005
Monitor 13b-01 Outwash	03-Dec-01	Philip	7.93	655	296	29.7	2.2	1.4	< 5	0.23	< 0.03	0.223	338	50.4	< 1	14.9	4.8	84.7	0.01	0.02	< 0.1	0.02
	04-Jun-02	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
	03-Dec-02	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	0.02
	02-Jun-03	Philip	7.65	699	287	33.6	1	0.7	9	0.56	< 0.03	< 0.001	< 1	53.8	12	23.3	4.9	97.2	< 0.01	0.01		0.04
	01-Dec-03	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
	09-Jun-04	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		0.25
	30-Nov-04	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		0.06
	03-Aug-05	Maxx	7.98	800	345	38	2	< 2	19	1.1	< 0.05	< 0.02		25	< 1	55	12	110	0.15	0.01	< 0.05	0.06
	28-Nov-05	Maxx	8.06	846	506	45		< 2	7	0.5	< 0.05	< 0.02		17	< 1	11	14	140	< 0.05	0.06	< 0.05	0.09
	01-Jun-06	MAX	8	1090	403	41	1.7	< 2	12	0.7	< 0.05	< 0.02		21	< 1	132	30	120	< 0.02	0.02	< 0.05	0.07
	04-Dec-06	MAX	7.9	1070	471	41	2	< 2	< 4	0.4	0.08	< 0.02		26	< 1	65	32	140	< 0.02	0.04	< 0.05	0.09
Monitor 14a-01 Bedrock	04-Dec-01	Philip	7.95	674	263	27.9	< 1	2	10	0.23	< 0.03	0.011	19	64.8	< 1	26.6	27.4	84	0.25	0.04	< 0.1	0.13
	04-Jun-02	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
	03-Dec-02	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
	02-Jun-03	Philip	7.82	489	215	23.3	1	1.1	15	0.13	0.03	< 0.001	2	49.7	29	7	20	64.6	0.13	0.02		0.006
	01-Dec-03	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	0.08
	09-Jun-04	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
	30-Nov-04	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
	03-Aug-05	Maxx	8.22	533	234	26	1.1	< 2	15	1.1	< 0.05	< 0.02		51	< 1	11	19	67	< 0.05	0.03	0.07	< 0.005
	28-Nov-05	Maxx	8.18	529	242	29		< 2	9	0.4	< 0.05	< 0.02		42	< 1	15	14	78	0.16	0.02	< 0.05	< 0.005
	01-Jun-06	MAX	8.2	605	253	28	1.1	< 2	9	0.4	< 0.05	< 0.02		52	< 1	15	16	77	0.14	0.02	< 0.05	< 0.005
	04-Dec-06	MAX	8.2	597	253	26	1	< 2	< 4	0.2	0.08	< 0.02		61	< 1	13	14	74	0.11	0.02	< 0.05	< 0.005
Monitor 14b-01 Outwash	04-Dec-01	Philip	7.94	716	336	30.3	< 1	1.3	12	0.3	< 0.03	0.009	6	62.9	< 1	22.3	8.2	114	0.15	0.05	< 0.1	0.27
	04-Jun-02	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	0.2
	03-Dec-02	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	0.08
	02-Jun-03	Philip	7.59	845	270	26.2	2	0.8	18	0.62	0.04	< 0.001	2	33.7	13	85.8	32.7	104	0.37	0.02		0.12
	01-Dec-03	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	0.25
	09-Jun-04	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		0.51
	30-Nov-04	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		0.37
	03-Aug-05	Maxx	7.93	818	267	29	2.3	< 2	20	1.3	0.06	< 0.02		83	< 1	73	31	110	0.91	0.01	0.06	0.11
	28-Nov-05	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
	01-Jun-06	MAX	8	1100	361	36	2	< 2	11	0.5	0.06	0.03		59	< 1	129	60	120	0.29	0.02	< 0.05	0.26
	04-Dec-06	MAX	8	1120	438	37	2	< 2	9	0.9	0.09	< 0.02		64	< 1	92	67	130	0.15	0.03	< 0.05	0.33

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	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	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
Monitor 15a-01 Bedrock	04-Dec-01	Philip	7.95	754	259	35.1	< 1	0.6	< 5	0.16	< 0.03	0.006	< 1	92.4	< 1	48.3	7.7	104	0.27	< 0.01	< 0.1	< 0.005
	04-Jun-02	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
	03-Dec-02	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
	02-Jun-03	Philip	7.87	789	246	36	1	< 0.5	6	0.15	< 0.03	< 0.001	2	99	15	56.2	12.2	107	0.5	< 0.01		< 0.005
	01-Dec-03	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	0.07
	09-Jun-04	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		0.34
	30-Nov-04	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
	03-Aug-05	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
	28-Nov-05	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
	01-Jun-06	MAX	8.1	790	268	33	1	< 2	10	0.4	< 0.05	< 0.02		74	1	59	15	92	0.46	0.01	< 0.05	< 0.005
	04-Dec-06	MAX	8	811	271	35	1.1	< 2	< 4	0.3	0.18	< 0.02		79	< 1	55	17	100	0.55	0.01	< 0.05	< 0.005
Monitor 15b-01 Outwash	04-Dec-01	Philip	8.16	646	252	27	< 1	4.4	13	0.27	< 0.03	0.014	14	26.2	< 1	24.4	6.2	77.7	< 0.01	0.08	< 0.1	0.14
	04-Jun-02	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
	03-Dec-02	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
	02-Jun-03	Philip	7.95	534	214	22.4	< 1	1.4	12	0.66	< 0.03	0.002	3	37.1	10	5.2	5	77.2	< 0.01	0.01		0.009
	01-Dec-03	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
	09-Jun-04	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		0.05
	30-Nov-04	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
	03-Aug-05	Maxx	8.06	668	335	30	0.98	< 2	18	1.4	< 0.05	< 0.02		16	< 1	10	4.6	120	0.1	< 0.01	< 0.05	0.03
	28-Nov-05	Maxx	7.97	1150	533	53		< 2	9	0.8	< 0.05	< 0.02		26	< 1	56	10	190	< 0.05	0.04	< 0.05	0.05
	01-Jun-06	MAX	8	853	462	32	0.97	< 2	11	0.7	< 0.05	0.02		15	< 1	8	12	120	< 0.02	0.03	< 0.05	0.03
	04-Dec-06	MAX	7.8	949	490	36	1.2	< 2	7	0.4	< 0.05	< 0.02		24	< 1	4	16	150	0.29	0.05	< 0.05	0.03

ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 - Waste Transfer Station -2006

2a-91 01-Jun-06	2a-91 01-Jun-06	5-96 01-Jun-06	6a-96 01-Jun-06	6b-96 01-Jun-06
MISA Group 16				
1,1,1,2-Tetrachloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1,1-Trichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1,2,2-Tetrachloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
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:	< 0.1	< 0.1	< 0.1	< 0.1
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	0.2
Chloromethane:				
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:				
Vinyl chloride:	< 0.2	< 0.2	< 0.2	< 0.2
MISA Group 17				
Benzene:	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Styrene:	< 0.1	< 0.1	< 0.1	< 0.1
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
MISA Group 18				
Acrolein:	< 10	< 10	< 10	< 10
Acrylonitrile:	< 5	< 5	< 5	< 5

ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 - Waste Transfer Station -2006

2a-91 01-Jun-06	7-96 01-Jun-06	8-96 01-Jun-06	10-00 01-Jun-06	11a-00 01-Jun-06
MISA Group 16				
1,1,1,2-Tetrachloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1,1-Trichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1,2,2-Tetrachloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
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:	< 0.1	< 0.1	< 0.1	< 0.1
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:				
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:				
Vinyl chloride:	< 0.2	< 0.2	< 0.2	< 0.2
MISA Group 17				
Benzene:	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Styrene:	< 0.1	< 0.1	< 0.1	< 0.1
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
MISA Group 18				
Acrolein:	< 10	< 10	< 10	< 10
Acrylonitrile:	< 5	< 5	< 5	< 5

ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 - Waste Transfer Station -2006

2a-91 01-Jun-06	11b-00 01-Jun-06	12a-00 01-Jun-06	12b-00 01-Jun-06	13a-01 01-Jun-06
MISA Group 16				
1,1,1,2-Tetrachloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1,1-Trichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1,2,2-Tetrachloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
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:	< 0.1	< 0.1	< 0.1	< 0.1
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:				
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:				
Vinyl chloride:	< 0.2	< 0.2	< 0.2	< 0.2
MISA Group 17				
Benzene:	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Styrene:	< 0.1	< 0.1	< 0.1	< 0.1
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
MISA Group 18				
Acrolein:	< 10	< 10	< 10	< 10
Acrylonitrile:	< 5	< 5	< 5	< 5

ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 - Waste Transfer Station -2006

2a-91 01-Jun-06	13b-01 01-Jun-06	14a-01 01-Jun-06	14b-01 01-Jun-06	15a-01 01-Jun-06
MISA Group 16				
1,1,1,2-Tetrachloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1,1-Trichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1,2,2-Tetrachloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
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:	< 0.1	< 0.1	< 0.1	< 0.1
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:				
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:				
Vinyl chloride:	< 0.2	< 0.2	< 0.2	< 0.2
MISA Group 17				
Benzene:	< 0.1	< 0.1	< 0.1	< 0.1
Ethylbenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Styrene:	< 0.1	< 0.1	< 0.1	< 0.1
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
MISA Group 18				
Acrolein:	< 10	< 10	< 10	< 10
Acrylonitrile:	< 5	< 5	< 5	< 5

ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 - Waste Transfer Station -2006

2a-91 01-Jun-06	15b-01 01-Jun-06
MISA Group 16	
1,1,1,2-Tetrachloroethane:	< 0.1
1,1,1-Trichloroethane:	< 0.1
1,1,2,2-Tetrachloroethane:	< 0.1
1,1,2-Trichloroethane:	< 0.2
1,1-Dichloroethane:	< 0.1
1,1-Dichloroethylene:	< 0.1
1,2-Dichlorobenzene:	< 0.2
1,2-Dibromoethane:*	< 0.2
1,2-Dichloroethane:	< 0.1
1,2-Dichloropropane:	< 0.1
1,3-Dichlorobenzene:	< 0.2
1,4-Dichlorobenzene:	< 0.2
Bromodichloromethane:	< 0.1
Bromoform:	< 0.2
Bromomethane:	< 0.5
Carbon Tetrachloride:	< 0.1
Chlorobenzene:	< 0.1
Chloroform:	< 0.1
Chloromethane:	
Cis-1,2-Dichloroethylene:	< 0.1
Cis-1,3-Dichloropropylene:	< 0.2
Dibromochloromethane:	< 0.2
Methylene Chloride:	< 0.5
Tetrachloroethylene:	< 0.1
trans-1,2-Dichloroethylene:	< 0.1
Trans-1,3-Dichloropropylene:	< 0.2
Trichloroethylene:	< 0.1
Trichlorofluoromethane:	
Vinyl chloride:	< 0.2
MISA Group 17	
Benzene:	< 0.1
Ethylbenzene:	< 0.1
Styrene:	< 0.1
Toluene:	< 0.2
o-Xylene:	< 0.1
m-Xylene and p-Xylene:	< 0.1
MISA Group 18	
Acrolein:	< 10
Acrylonitrile:	< 5

ORGANIC ANALYSIS (ATG MISA Groups 19 and 20) - Waste Transfer Station -2006

Parameter	2a-91 01-Jun-06	5-96 01-Jun-06	6a-96 01-Jun-06	6b-96 01-Jun-06
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 Ether:	< 0.3	< 0.3	< 0.3	< 0.3
4-Chlorophenyl Phenyl Ether:	< 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)Methane:	< 0.5	< 0.5	< 0.5	< 0.5
Diphenylamine:				
N-Nitrosodiphenylamine:	< 1	< 1	< 1	< 1
N-Nitrosodi-N-propylamine:	< 0.5	< 0.5	< 0.5	< 0.5
MISA Group 20				
2,3,4,5-Tetrachlorophenol:				
2,3,4,6-Tetrachlorophenol:				
2,3,5,6-Tetrachlorophenol:				
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	< 2	< 2	< 2
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	< 1	< 1	< 1
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 and 20) - Waste Transfer Station -2006

Parameter	11b-00 01-Jun-06	12a-00 01-Jun-06	12b-00 01-Jun-06	13a-01 01-Jun-06
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 Ether:	< 0.3	< 0.3	< 0.3	< 0.3
4-Chlorophenyl Phenyl Ether:	< 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)Methane:	< 0.5	< 0.5	< 0.5	< 0.5
Diphenylamine:				
N-Nitrosodiphenylamine:	< 1	< 1	< 1	< 1
N-Nitrosodi-N-propylamine:	< 0.5	< 0.5	< 0.5	< 0.5
MISA Group 20				
2,3,4,5-Tetrachlorophenol:				
2,3,4,6-Tetrachlorophenol:				
2,3,5,6-Tetrachlorophenol:				
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	< 2	< 2	< 2
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	< 1	< 1	< 1
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 and 20) - Waste Transfer Station -2006

Parameter	15b-01 01-Jun-06
MISA Group 19	
Acenaphthene:	< 0.2
5-Nitroacenaphthene:	< 1
Acenaphthylene:	< 0.2
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:	< 0.2
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 Ether:	< 0.3
4-Chlorophenyl Phenyl Ether:	< 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)Methane:	< 0.5
Diphenylamine:	
N-Nitrosodiphenylamine:	< 1
N-Nitrosodi-N-propylamine:	< 0.5
MISA Group 20	
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
2-Chlorophenol:	< 0.3
4-Chloro-3-methylphenol:	< 0.5
4-Nitrophenol:	< 1
o-Cresol:	< 0.5
m-,p-Cresol:	< 0.5
Pentachlorophenol:	< 1
Phenol:	< 0.5

Appendix C

Surface Water Chemistry – Routine and Organics

Routine Surface Water Quality - General Analysis -Waste Resource Innovation Centre

Date	Lab	pH	Cond-uctivity	Alk	Mg	K	BOD	COD	TKN	NH3-N	Total-P	TSS	SO4	Phenol	Cl	Na	Ca	Fe	B	P	Zn
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
SW I		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02
13-Apr-96	ENT	7.6	310	60						392		123		< 0.5	59.4				0.02		
29-May-96	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
03-Jul-96	ENT						13		2.4	0.19	0.08	73		1							
22-Aug-96	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
18-Sep-96	ENT						< 10		2	0.13	0.07	6		< 0.5							
16-Oct-96	ENT						< 10		2	0.13	0.01	1		< 1							
20-Nov-96	ENT						< 10		3	0.08	0.15	7		15							
11-Dec-96	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
08-Apr-97	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	< 0.02	< 0.03	0.03
06-May-97	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	0.02	0.16	0.07
26-Jun-97	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	0.74	0.06	0.13	0.02
31-Jul-97	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	0.87	0.05	0.23	0.02
11-Sep-97	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	0.1	0.1	0.02
26-Nov-97	WBL	7.6	960				3.12		1.72	0.084	0.139	542		< 0.72							
09-Dec-97	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	0.38	0.02	0.08	0.01
08-Jan-98	WBL	7.65	545				6.3		1	0.2	0.31	357		7							
28-Feb-98	Froze																				
31-Mar-98	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	0.54	0.05	0.11	0.007
30-Apr-98	Dry																				
12-May-98	WBL	7.55	1420				8.52		4.02	0.795	0.3	840		0.72							
24-Jun-98	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	0.64	0.06	0.25	0.02
31-Jul-98	Dry																				
31-Aug-98	Dry																				
30-Sep-98	Dry																				
31-Oct-98	Dry																				
30-Nov-98	Dry																				
31-Dec-98	Dry																				
31-Jan-99	Froze																				
28-Feb-99	Froze																				
31-Mar-99	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	0.03
30-Apr-99	Dry																				
31-May-99	Dry																				
29-Jun-99	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	0.02
31-Jul-99	Dry																				
31-Aug-99	Dry																				
30-Sep-99	Dry																				
31-Oct-99	Dry																				
30-Nov-99	Dry																				
14-Dec-99	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	0.02
30-Jan-00	Froze																				
28-Feb-00	Froze																				
31-Mar-00	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		0.03
27-Apr-00	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	0.04
23-May-00	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	0.07
30-Jun-00	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	0.03

Routine Surface Water Quality - General Analysis -Waste Resource Innovation Centre

Date	Lab	pH	Cond-uctivity	Alk	Mg	K	BOD	COD	TKN	NH3-N	Total-P	TSS	SO4	Phenol	Cl	Na	Ca	Fe	B	P	Zn
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
SW 1		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02
30-Jul-00	Dry																				
29-Aug-00	Dry																				
28-Sep-00	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	0.03	0.23	0.04
30-Oct-00	Dry																				
28-Nov-00	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	0.02	0.7	0.11
07-Dec-00	Froze																				
31-Jan-01	Froze																				
28-Feb-01	Froze																				
31-Mar-01	Froze																				
24-Apr-01	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	0.02
28-May-01	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	0.05
30-Jun-01	Dry																				
25-Jul-01	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	0.10
31-Aug-01	Dry																				
27-Sep-01	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	0.02
18-Oct-01	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	0.04
30-Nov-01	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	0.03
04-Dec-01	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	0.04
31-Jan-02	Froze																				
28-Feb-02	Froze																				
29-Mar-02	Froze																				
29-Apr-02	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	0.36
31-May-02	Dry																				
05-Jun-02	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	0.1
31-Jul-02	Dry																				
30-Aug-02	Dry																				
27-Sep-02	Dry																				
31-Oct-02	Dry																				
29-Nov-02	Dry																				
20-Dec-02	Dry																				
31-Jan-03	Froze																				
28-Feb-03	Froze																				
29-Mar-03	Froze																				
30-Apr-03	Dry																				
31-May-03	Dry																				
05-Jun-03	Philip	6.99	240	68	2.89	4	6.1	51	6	0.16	0.934	118	6.1	< 1	26.1						
31-Jul-03	N/A																				
30-Aug-03	N/A																				
27-Sep-03	Dry																				
31-Oct-03	Dry																				
29-Nov-03	Dry																				
01-Dec-03	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
31-Jan-06	Dry																				
28-Feb-06	Dry																				
09-Mar-06	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 -Waste Resource Innovation Centre

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	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
SW 1		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02
30-Apr-06	Dry																				
16-May-06	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	0.02		0.02
30-Jun-06	Dry																				
31-Jul-06	Dry																				
31-Aug-06	Dry																				
13-Sep-06	N/A																				
31-Oct-06	Dry																				
30-Nov-06	Dry																				
31-Dec-06	Dry																				

Routine Surface Water Quality - General Analysis -Waste Resource Innovation Centre

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	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
SW 2		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02
29-Mar-02	Dry																				
30-Apr-02	Standi																				
31-May-02	Dry																				
28-Jun-02	Standi																				
31-Jul-02	Dry																				
30-Aug-02	Dry																				
27-Sep-02	Dry																				
31-Oct-02	Dry																				
29-Nov-02	Dry																				
20-Dec-02	Dry																				
31-Jan-03	Froze																				
28-Feb-03	Froze																				
29-Mar-03	Froze																				
30-Apr-03	Dry																				
31-May-03	Dry																				
05-Jun-03	Dry																				
31-Jul-03	N/A																				
30-Aug-03	N/A																				
27-Sep-03	Dry																				
31-Oct-03	Dry																				
29-Nov-03	Dry																				
20-Dec-03	Dry																				
31-Jan-06	Dry																				
28-Feb-06	Dry																				
09-Mar-06	MAX	7.5	278	29	2.1	1		8	42	1.1	0.23	0.19	38	6	< 1	60	40	9.7	1.6	< 0.02	0.2	0.08
30-Apr-06	Dry																				
16-May-06	MAX	7.4	117	45	1.8	1.4	< 2		44	0.6	0.09	0.08	4	2	< 1	9	12	12	0.4	< 0.01		0.02
30-Jun-06	Dry																				
31-Jul-06	Dry																				
31-Aug-06	Dry																				
13-Sep-06	N/A																				
31-Oct-06	Dry																				
30-Nov-06	Dry																				
31-Dec-06	Dry																				

Routine Surface Water Quality - General Analysis -Waste Resource Innovation Centre

Date	Lab	pH	Cond-uctivity	Alk	Mg	K	BOD	COD	TKN	NH3-N	Total-P	TSS	SO4	Phenol	Cl	Na	Ca	Fe	B	P	Zn
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
SW 2		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02
08-Apr-97	WBL	7.68	2050	120	7.79	35.1	17.3	380	4.91	0.329	0.495	37	20.8	< 0.72	497	293	42.6	2.14	< 0.02	0.58	0.05
06-May-97	WBL	7.98	1600	102	4.5	19.2	13	160	2.59	0.071	0.256	41	18.7	0.83	448	251	29.4	2.18	0.03	0.29	0.07
26-Jun-97	WBL	8.15	796	110	3.12	13.2	4.89	63	3.04	1.16	0.433	7	13.3	1.92	167	119	23.3	5.88	0.18	1.59	0.06
31-Jul-97	WBL	8.56	1020	137	3.74	15.7	14.9	145	5.36	0.079	0.88	54	33.3	1.05	196	154	26.2	2.97	0.06	0.88	0.03
11-Sep-97	WBL	7.43	376	83.4	2.98	13.2	2.83	54	1.85	0.38	0.342	9	26.6	< 0.72	42.5	46	22.8	2.45	0.27	0.49	0.26
26-Nov-97	WBL	7.73	340				3.15		1.12	< 0.01	0.08	220		< 0.72							
09-Dec-97	WBL	7.68	570	85	4.15	7.14	2.78	33	1.16	0.104	0.033	11	39.6	< 0.72	94.7	58	32.8	0.72	0.02	0.06	0.02
08-Jan-98	WBL	7.81	537				4.62		0.8	0.1	0.17	319		2							
28-Feb-98	Dry																				
31-Mar-98	WBL	7.84	1530	87.5	2.67	5.65	15.4		1	0.026	0.118	33	23.2	< 0.72	430	274	31.1	0.81	0.05	0.12	0.03
30-Apr-98	Dry																				
12-May-98	WBL	7.74	1120				5.55		2.32	1.22	0.13	654		0.72							
24-Jun-98	WBL	7.51	450	94.7	3.33	7.83	21.1		2.79	0.027	0.259	30	40.5	< 0.72	52.2	43.4	39.4	1.65	0.06	0.26	0.04
31-Jul-98	Dry																				
31-Aug-98	Dry																				
30-Sep-98	Dry																				
31-Oct-98	Dry																				
30-Nov-98	Dry																				
31-Dec-98	Dry																				
31-Jan-99	Froze																				
28-Feb-99	Froze																				
31-Mar-99	Dry																				
30-Apr-99	Dry																				
31-May-99	Dry																				
29-Jun-99	Dry																				
31-Jul-99	Dry																				
31-Aug-99	Dry																				
30-Sep-99	Dry																				
31-Oct-99	Dry																				
30-Nov-99	Dry																				
14-Dec-99	Dry																				
30-Jan-00	Froze																				
28-Feb-00	Froze																				
31-Mar-00	Dry																				
27-Apr-00	Dry																				
23-May-00	Dry																				
30-Jun-00	Dry																				
30-Jul-00	Dry																				
29-Aug-00	Dry																				
28-Sep-00	Dry																				
30-Oct-00	Dry																				
28-Nov-00	Dry																				
07-Dec-00	Froze																				
31-Jan-02	Dry																				
28-Feb-02	Dry																				

Routine Surface Water Quality - General Analysis -Waste Resource Innovation Centre

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	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
SW 3		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02
31-Jan-02	Dry																				
28-Feb-02	Dry																				
29-Mar-02	Dry																				
30-Apr-02	Dry																				
31-May-02	Dry																				
28-Jun-02	Dry																				
31-Jul-02	Dry																				
30-Aug-02	Dry																				
27-Sep-02	Dry																				
31-Oct-02	Dry																				
29-Nov-02	Dry																				
20-Dec-02	Dry																				
31-Jan-03	Froze																				
28-Feb-03	Froze																				
29-Mar-03	Froze																				
30-Apr-03	Dry																				
31-May-03	Dry																				
05-Jun-03	Philip	6.75	1129	184	10.8	102	172	102	31	5.65	4.3	84	72	6	140						
31-Jul-03	Dry																				
30-Aug-03	Dry																				
27-Sep-03	Dry																				
31-Oct-03	Dry																				
29-Nov-03	Dry																				
01-Dec-03	Philip	5.8	6243	459	73	179	1420	4900	65.8	9	23.4	639	65.8	1180	1880	979	218	8.7	0.14	21.1	0.47
31-Jan-06	Dry																				
28-Feb-06	Dry																				
09-Mar-06	MAX	7.6	2620	248	21	150	130	1200	120	23.1	12	230	< 50	51	628	390	87	11	0.09	10	0.67
30-Apr-06	Dry																				
16-May-06	MAX	7.8	3960	322	35	390	20	1000	53	3.3	2.5	60	61	6	862	550	110	3.2	0.13		0.21
30-Jun-06	Dry																				
31-Jul-06	Dry																				
31-Aug-06	Dry																				
13-Sep-06	N/A																				
31-Oct-06	Dry																				
30-Nov-06	Dry																				
31-Dec-06	Dry																				

Routine Surface Water Quality - General Analysis -Waste Resource Innovation Centre

Date	Lab	pH	Cond-uctivity	Alk	Mg	K	BOD	COD	TKN	NH3-N	Total-P	TSS	SO4	Phenol	Cl	Na	Ca	Fe	B	P	Zn
				mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L
EPTS-01		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02
09-Jun-04	N/A																				
09-Jun-04	N/A					<								<							
09-Jun-04	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		0.43
09-Jun-04	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		0.43
30-Nov-04	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		0.08
03-Aug-05	N/A																				
28-Nov-05	Maxx	8.18	620	231	24		< 2	< 4	0.4	0.1	< 0.02		18	< 1	51	26	84	< 0.05	0.02	< 0.05	0.08
01-Jun-06	N/A																				
04-Dec-06	MAX																				

Routine Surface Water Quality - General Analysis -Waste Resource Innovation Centre

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	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
TP1		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02
31-Jan-06	Dry																				
28-Feb-06	Dry																				
09-Mar-06	MAX	7.4	1440	49	2.7	6	17	61	2.7	0.72	0.32	40	44	3	359	240	40	1.2	< 0.02	0.3	0.12
30-Apr-06	Dry																				
16-May-06	MAX	7.9	200	83	2	0.75	< 2	24	0.8	< 0.05	0.15	4	6	< 1	9	18	27	0.06	0.02		0.15
30-Jun-06	Dry																				
31-Jul-06	Dry																				
31-Aug-06	Dry																				
13-Sep-06	MAX	7.7	159	58	2.6	3	3	21	0.9	0.08	0.26	1	9	< 1	6	5.7	20	0.07	0.03		0.06
31-Oct-06	Dry																				
30-Nov-06	Dry																				
31-Dec-06	Dry																				

Routine Surface Water Quality - General Analysis -Waste Resource Innovation Centre

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	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
TP1-Out		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02
31-Jan-06	Dry																				
28-Feb-06	Dry																				
09-Mar-06	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
30-Apr-06	Dry																				
16-May-06	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	0.02		0.02
30-Jun-06	Dry																				
31-Jul-06	Dry																				
31-Aug-06	Dry																				
13-Sep-06	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	0.03		0.02
31-Oct-06	Dry																				
30-Nov-06	Dry																				
31-Dec-06	Dry																				

Surface Water ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 - Waste Transfer Station -2006

TP1 13-Sep-06	TP1 13-Sep-06	TP1-Out 13-Sep-06
MISA Group 16		
1,1,1,2-Tetrachloroethane:	< 0.1	< 0.1
1,1,1-Trichloroethane:	< 0.1	< 0.1
1,1,2,2-Tetrachloroethane:	< 0.1	< 0.1
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:	< 0.1	< 0.1
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:	< 0.1	< 0.1
Chloromethane:		
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:		
Vinyl chloride:	< 0.2	< 0.2
MISA Group 17		
Benzene:	< 0.1	< 0.1
Ethylbenzene:	< 0.1	< 0.1
Styrene:	< 0.1	< 0.1
Toluene:	< 0.2	< 0.2
o-Xylene:	< 0.1	< 0.1
m-Xylene and p-Xylene:	< 0.1	< 0.1
MISA Group 18		
Acrolein:	< 10	< 10
Acrylonitrile:	< 5	< 5

Surface Water ORGANIC ANALYSIS (ATG MISA Groups 19 and 20) - Waste Transfer Station -2006

Parameter	TP1 13-Sep-06	TP1-Out 13-Sep-06
MISA Group 19		
Acenaphthene:	< 0.2	< 0.2
5-Nitroacenaphthene:		
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-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-Methylnaphthalene:	< 0.2	< 0.2
2-Methylnaphthalene:	< 0.2	< 0.2
Naphthalene:	< 0.2	< 0.2
Perylene:		
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 Ether:	< 0.3	< 0.3
4-Chlorophenyl Phenyl Ether:	< 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)Methane:	< 0.5	< 0.5
Diphenylamine:		
N-Nitrosodiphenylamine:		
N-Nitrosodi-N-propylamine:	< 0.5	< 0.5
MISA Group 20		
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	< 2
2-Chlorophenol:	< 0.3	< 0.3
4-Chloro-3-methylphenol:	< 0.5	< 0.5
4-Nitrophenol:	< 1	< 1
o-Cresol:	< 0.5	< 0.5
m-,p-Cresol:	< 0.5	< 0.5
Pentachlorophenol:	< 1	< 1
Phenol:	< 0.5	< 0.5

Appendix D

Certificate of Approval

Section 8. Environmental Monitoring of the Gartner Lee Design and Operations Report, 2002

Ontario

Ministry of the Environment / Ministère de l'Environnement

PROVISIONAL CERTIFICATE OF APPROVAL
WASTE DISPOSAL SITE
NUMBER 9241-5DTRD9

The Corporation of the City of Guelph
59 Carden Street
Guelph, Ontario
N1H 3A1

Site Location: Guelph Solid Waste Transfer Station
80 Dunlop Drive being Part of Lot 5, Concession 1, Div. C
Guelph City, County of Wellington

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

the use and operation of a Waste Disposal Site (Transfer) with a total Site area of 3.16 hectares all in accordance with the plans and specifications detailed in the City of Guelph, Solid Waste Transfer Station, Design and Operations Report as prepared by Gartner Lee Limited, January 2002 submitted in support of an Application for Provisional Certificate of Approval for a Waste Disposal Site dated January 30, 2002 and signed by Cathy Smith, City of Guelph.

to be used for the transfer of the following types of waste:

Non-hazardous Solid Industrial Waste from industrial, commercial and institutional sources, Commercial Waste and Domestic Waste.

Note: Use of the site for any other type of waste is not approved under this Certificate, and requires obtaining a separate approval amending this Certificate.

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

A. DEFINITIONS:

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

(b) "Certificate" means Provisional Certificate of Approval No. 8058-56XPT5;

(c) "Municipality" means The Corporation of the City of Guelph, and includes its officers, employees, agents and contractors;

(d) "Director" means a Director, Environmental Assessment and Approvals Branch, Ontario Ministry of the Environment;

(e) "District Manager" means the District Manager, Guelph District Office, West Central Region, Ontario Ministry of the Environment;

(f) "Incident" means an abnormal event which causes a spill, emission, emergency situation or other occurrence which may affect the environment, cause a nuisance or health effect;

(g) "Ministry" means Ontario Ministry of the Environment;

(h) "Reg 347" means Ontario Regulation 347 - R.S.O. 1990, General-Waste Management, as amended;

(i) "Site" and "Facility" both mean 80 Dunlop Drive, being Part of Lot 5, Concession 1, Div. C., Guelph City, County of Wellington;

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

TERMS AND CONDITIONS

B. GENERAL:

2. Except as otherwise provided by these Terms and Conditions, this Site shall be designed, developed,used, maintained and operated in accordance with the Application for Provisional Certificate of Approval for a Waste Disposal Site dated January 30, 2002 and signed by Cathy Smith, City of Guelph and subsequent plans and specifications listed in Schedule "A" of this Certificate.

3. Where there is a conflict between a provision of any document referred to in Condition 2 and the Conditions of this Certificate, the Conditions of this Certificate shall take precedence.

4. Requirements specified in this Certificate are the requirements under the Act. Issuance of this Certificate in no way abrogates the Municipality's legal obligations to take all reasonable steps to avoid violating other applicable provisions of the Act and other Statutes and Regulations and to obtain other approvals required by legislation.

5. Requirements of this Certificate are severable. If any requirement of this Certificate, or the 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.

6. The Municipality must ensure compliance with all Terms and Conditions of this Certificate. Any

non-compliance constitutes a violation of the Act and is grounds for enforcement.

7. The Municipality shall ensure that all communications and correspondence made pursuant to this Certificate include reference to the Site number. on front page

8. The Municipality shall notify the Director in writing of any of the following changes within thirty (30) days of the change occurring:

(a) (i) change of Owner or operator of the Site or both;

(ii) change of address or address of the new Owner;

(iii) change of partners when the Owner or operator is or at any time becomes a partnership, and a copy of the most recent declaration filed under the Business Names Act, 1991 shall be included in the notification to the Director;

(iv) any change of name of the corporation where the Owner or operator is or at any time becomes a corporation, and a copy of the most current "Initial Notice or Notice of Change" (form 1 or 2 of Ontario Regulation 182 Chapter C-39, R.R.O. 1990 as amended from time to time), filed under the Corporations Information Act shall be included in the notification to the Director; and

(v) change in the directors or officers of the corporation where the Owner or operator is or at any time becomes a corporation, and a copy of the most current "Initial Notice or Notice of Change" as referred to in 8(a)(iv), supra;

(b) 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.

9. The Municipality shall allow Ministry personnel, or a Ministry authorized representative(s), upon presentation of credentials, to:

(a) 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:

(b) (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.

10. (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.

11. 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.

12. 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 two (2) years.

C. SITE OPERATIONS:

13. The Site has a service area within the Province of Ontario and may accept waste during the following time frames:

(a) Monday to Friday, 7:00 a.m to 6:00 p.m.; and

(b) Saturday 8:00 a.m. to 4:00 p.m.

14. Notwithstanding the hours of operation for waste receipt referenced in Condition 13, the Site's

activities and movement of waste within the Site, including outgoing shipments, may occur during the hours of Monday 12:00 a.m. to Saturday 11:59 p.m.

15. The Site must be maintained in a secure manner, such that unauthorized persons cannot enter the Site.

16. The Municipality shall only receive and transport non-hazardous solid industrial waste from industrial, commercial and institutional sources, commercial waste and domestic waste limited to the following:

    (a) 299 tonnes per day for incoming wastes;

    (b) 299 tonnes per day for out-going wastes

17. The total maximum amount of waste, as defined in Condition 16, that may be stored at the Site shall not exceed 598 tonnes. Permanent or temporary outdoor storage of waste is not permitted at the Site with the exception of the following:

    (a) A maximum of two loaded transfer trailers awaiting shipment may be stored outside the transfer building. The length of time that a loaded trailer may be stored outside shall not exceed twelve (12) hours. All loaded transfer trailers shall be covered at all times while stored outdoors; and

    (b) A maximum of four (4) thirty (30) cubic metre bins of recyclable materials awaiting shipment or processing may be stored outside the transfer building. The length of time that the loaded bins may be stored outside shall not exceed forty-eight (48) hours. All bins containing recyclable materials shall be covered at all times while stored outdoors.

18. No storage or transfer areas, other than those approved under this Certificate shall be used for waste storage or transferring. Proposed Leaf and Yard Waste, Wood and Concrete Waste and Public Waste Drop off Areas are not permitted at this time unless an application to amend this Certificate is made to the Director.

19. The Municipality shall ensure that trained personnel as per Condition 21 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 trained personnel supervises the loading, unloading, or sorting operation.

20. All in-coming and outgoing wastes shall be screened and inspected by trained personnel as detailed in your supporting documentation listed in Sections 5 and 6 of Item 2 of Schedule "A" of this Certificate, 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.

21. The Municipality shall ensure through proper written records that all personnel directly involved with activities relating to the Site have been trained with respect to:

(a) the Terms, Conditions and operating requirements of this Certificate;

(b) the operation and management of all transfer, process, storage and contingency measures equipment and procedures;

(c) any environmental and occupational health and safety concerns pertaining to the Site and wastes to be transferred; and

(d) relevant waste management legislation and Regulations under the Act and Ontario Water Resources Act.

22. The Municipality must conduct regular daily and weekly inspections of the equipment and facilities as outlined in Section 7, Table 4 of Item 2 of Schedule "A" of this 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.

23. The Municipality, in addition to inspections and documentation requirements carried out in Condition 22, must conduct on each operating day, a visual inspection of the following areas to ensure the Site is secure 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.

24. 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 29 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.

25. The Municipality shall ensure that the Contingency Plan and the Emergency Response Plan as detailed in Section 10 of Item 2 in Schedule "A" of this Certificate is reviewed annually and revised accordingly to ensure that it both current and reflects the intended actions of the Municipality. If implementation of the Contingency Plan is necessary, it shall be effected through written concurrence from the Director.

D. STORMWATER AND WASTEWATER MANAGEMENT:

26. The Municipality shall manage all discharges from this Site including stormwater run-off, including the stormwater collected and contained in the Stormwater Collection Pond, in accordance with appropriate Municipal, Provincial and or Federal Legislation, Regulations and By-laws.

E. COMPLAINTS PROCEDURE:

27. 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, 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 will immediately orally notify the Ministry, followed with the submission of a written report within one (1) week, of the complaint detailing what actions were taken to identify and remediate the cause of the complaint and what actions will be implemented to prevent or reasonably avoid a reoccurrence.

28. The Municipality shall submit, in writing, within sixty (60) days from the date of the issuance of this Certificate, that the groundwater monitoring program as referenced in Section 8 of Item 2 in Schedule "A" will be put into effect. Commencing **March 31, 2004** and every year thereafter, 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 30. 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.

F. RECORD KEEPING:

29. The Municipality shall maintain, at the Site for a minimum of two years, a log book or electronic file format which records daily the following information:

(a) date of record;

(b) types, quantities and source of waste received at the Site;

(c) quantity and type of waste stored on the Site;

(d) quantity, type (including residual waste from transferring and wastewater discharged to sanitary sewer) and destination of waste shipped from the Site;

(e) analytical results, when required of all in-coming and outgoing wastes and materials; and

(f) results of inspections and reports required under Conditions 22, 23 and 24, including the name and signature of the person conducting the inspection and completing the report.

G. ANNUAL REPORT:

30. By **March 31, 2004**, and on an annual basis thereafter, the Municipality shall prepare and retain on-site an Annual Report covering the previous calendar year. Each report shall include, as a minimum, the following information:

WASTE SUMMARY BY MONTH

(a) a detailed monthly summary of the type, quantity and origin of all wastes received and transferred from the Site, including the destination, type and quantity of waste destined for final disposal and also including any reconciliations on mass balance made;

INSPECTION OF PROBLEMS CORRECT

(b) any environmental and operational problems, that could negatively impact the environment, encountered during the operation of the Site and during the facility inspections and any mitigative actions taken;

(c) a statement as to compliance with all Terms and Conditions of this Certificate and with the inspection and reporting requirements of the Conditions herein;

(d) any recommendations to minimize environmental impacts from the operation of the Site and to improve Site operations and monitoring programs in this regard; and

(e) a detailed section showing the results, interpretation of the results, timetable for implementing recommendations from the approved groundwater monitoring program referred to in Condition 28.

H. CLOSURE PLAN:

31. (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; and

(b) Within ten (10) days after closure of the Site, the Municipality must notify the Director in writing that the Site has been closed in accordance with the approved Closure Plan.

SCHEDULE "A"

This Schedule "A" forms part of this Provisional Certificate of Approval No.8058-56XPT5.

(1) Application for Provisional Certificate of Approval for a Waste Disposal Site dated January 30, 2002 and signed by Cathy Smith, City of Guelph.

(2) Document titled, City of Guelph, Solid Waste Transfer Station, Design and Operations Report prepared by Gartner Lee Limited, January 2002 submitted to the Ministry of the Environment on behalf of the City of Guelph in support of the Application for Provisional Certificate of Approval (Waste Disposal Site). 21141

The reasons for the imposition of these terms and conditions are as follows:

(1) The reason for Condition 1 is to simplify the wording of the subsequent Conditions and define the specific meaning of Terms as used in this Provisional Certificate of Approval.

(2) The reason for Conditions 2, 18, 26, 29 and 30 is to ensure that the Site is operated in accordance with the application and supporting documentation submitted by the Municipality, and not in a manner which the Director has not been asked to consider.

(3) The reason for Conditions 3, 4, 5, 6, 7, 8, 11, and 12 is to clarify the legal rights and responsibilities of the Municipality.

(4) The reason for Conditions 9 and 10 is to ensure that the appropriate Ministry staff have ready access to information and the operations of the Site and Facility. Condition 9 is supplementary to the powers of entry afforded a Provincial Officer pursuant to the Environmental Protection Act, the Ontario Water Resources Act, and the Pesticides Act, as amended.

(5) The reason for Conditions 13, 14, 16, 17, 19, and 20 is to ensure that the hours of operation, types, amounts and volumes of waste at the Site are managed in accordance with that approved under this Provisional Certificate of Approval.

(6) The reason for Conditions 15, 22, 23, 25, 27 and 28 is to ensure that the Site is operated in a manner which does not result in a nuisance or a hazard to the health and safety of the environment or people.

(7) The reason for Conditions 21, and 24 is to ensure that staff are properly trained in the operation of the equipment used at the Site and emergency response procedures in order to minimize the impacts of spills and process upsets occurring and will enable staff to deal promptly and effectively.

(8) The reason for Condition 31 is to ensure that the Site is closed in accordance with Ministry standards and to protect the health and safety of the public and the environment.

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 works are located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

The Secretary*
Environmental Review Tribunal
2300 Yonge St., 12th Floor
P.O. Box 2382
Toronto, Ontario
M4P 1E4

AND

The Director
Section 39, *Environmental Protection Act*
Ministry of Environment and Energy
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 24th day of April, 2003

THIS CERTIFICATE WAS MAILED
ON April 29, 2003
9C
(Signed)

Ian Parrott, P.Eng.
Director
Section 39, *Environmental Protection Act*

DL/
c: District Manager, MOE Guelph
Mark Sungaila, Gartner Lee Limited

8. Environmental Monitoring

Currently the City undertakes a routine program of groundwater and surface water monitoring at the WDC, and these results are submitted to the MOE annually as part of the City's annual report for that facility. A similar monitoring program (frequency and analyses) will be undertaken at the Transfer Station site as described herein.

8.1 Groundwater Monitoring Program

Groundwater monitor locations are shown on the site plan in Figure 8 and in Figure B-1 in Appendix B.

Groundwater levels will be measured at all monitoring locations on a quarterly basis (typically) in March, June, September and December) each year. Groundwater sampling will be conducted twice per year in June (dry period) and in December (wet period). Each sampling event will include analyses for leachate indicator parameters and general chemistry. Organics analyses will be conducted once per year, during the June (dry) event. Tables 5 and 6 below summarize the groundwater monitoring program and analytical parameters, respectively.

Table 5. Groundwater Monitoring Program

Location	March	June	September	December
13a-01	•	S + Organics	•	S
13b-01	•	S + Organics	•	S
14a-01	•	S + Organics	•	S
14b-01	•	S + Organics	•	S
15a-01	•	S + Organics	•	S
15-b-01	•	S + Organics	•	S
Staff Gauge[2]	•	S + Organics	•	S

Note: 2. *Pond located in eastern portion of property.*
• *Water Levels Only.*
S Sampling and water levels.

Table 6. Analytical Parameter List

Leachate Indicator Parameters	• Biological Oxygen Demand (BOD)
	• Chemical Oxygen Demand (COD)
	• Total Kjeldahl Nitrogen (TKN)
	• Ammonia as Nitrogen (NH_3-N)
	• Total Phosphorus (Total P)
	• Total Suspended Solids (TSS)
	• Total Sulphate (SO_4)
	• Phenols
	• Chloride (Cl)
	• Sodium (Na)

Table 6. Analytical Parameter List

	• Calcium (Ca)
	• Boron (B)
	• Total Iron (Fe)
	• Phosphorus (P)
	• Zinc (Zn)
General Parameters	• PH
	• Conductivity
	• Alkalinity
	• Magnesium (Mg)
	• Potassium (K)
Organics	• EPA 624,625 (ATG 16+17+18 & ATG 19+20)

8.2 Surface Water Monitoring Program

Surface water sampling will be taken on a monthly basis in the stormwater management pond for the parameters shown in Table 6. During each month, sampling will be undertaken when surface water runoff conditions occur (weather permitted). If no surface water events occur, sampling will be undertaken at the end of the month regardless. 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.

The existing off-site surface water pond (described in Section 2.7 and shown in Figure 8) will be sampled on a quarterly basis, together with the groundwater monitoring.

9. Record Keeping and Reporting

9.1 On-Site Records

The following records will be maintained in written format:

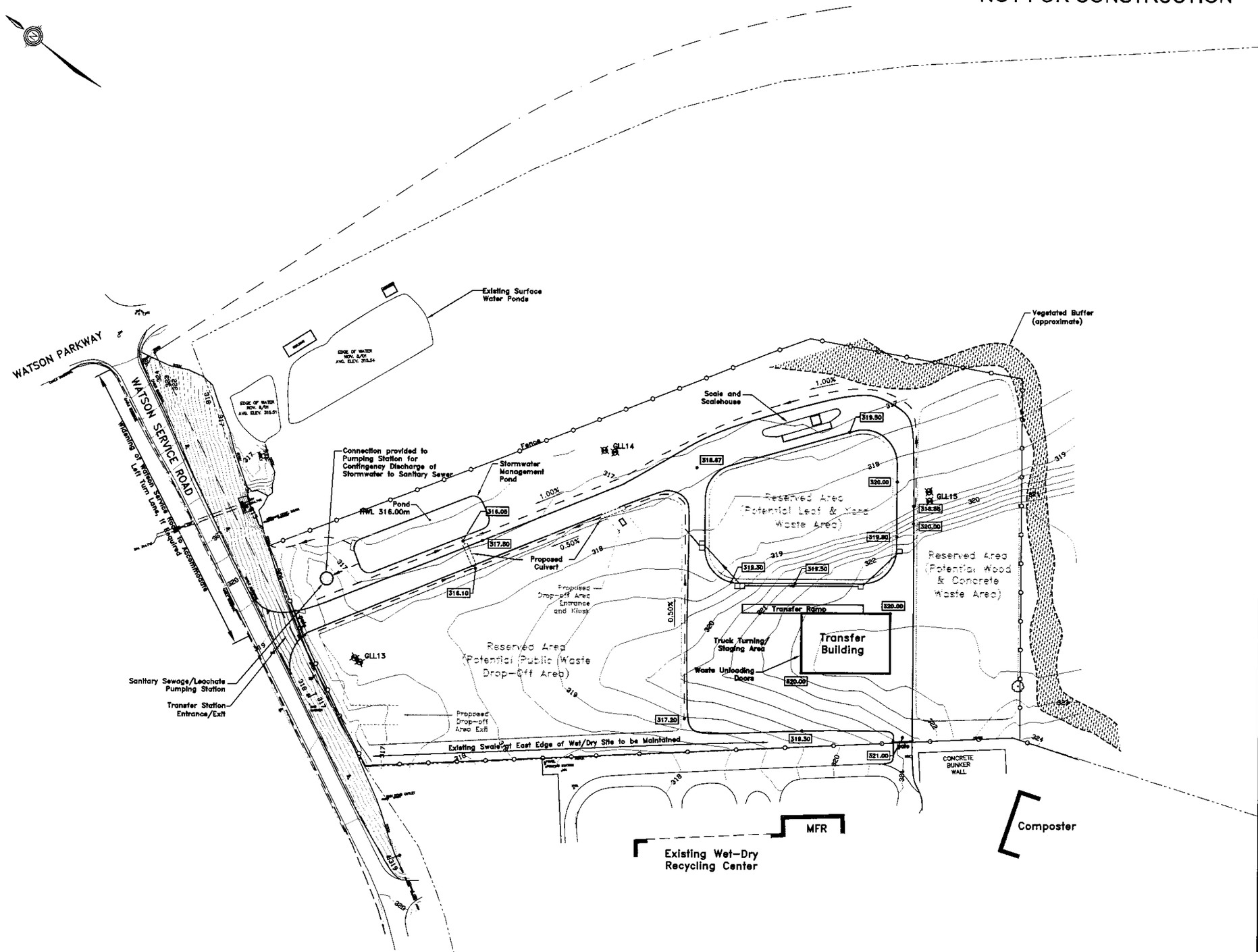
a) up-to-date site plans for all major facility elements including the building, road network, sewer and drainage systems;

b) up–to-date emergency response plan;

c) a daily record of waste received including quantity and source, and quantity and destination of material transferred off-site;

d) a daily record of any waste loads rejected;

NOT FOR CONSTRUCTION



LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- CATCH BASIN
- STORM SEWER
- 1.00% DITCH WITH FLOW DIRECTION
- 318.67 FINISHED GRADE ELEVATION (mASL)
- EXISTING MONITORING WELL LOCATION AND DESIGNATION
- EXISTING GROUND SURFACE CONTOUR AND ELEVATION(mASL)
- ASPHALT -- SURFACED ROADWAY

Notes for Site Plan

1. See accompanying Design and Operations Report for description of site features and operations.

2. Plan is based on a topographic survey plan provided by Lonsdale Consulting Engineers Inc. dated November 16, 2001. Property boundary from legal survey prepared by Van Harten Surveying Inc., dated July 16, 2001.

3. The site plan may be affected by site features which will be identified at the time of final design including sanitary sewers and other buried utilities. The size and general location of areas reserved for the potential Public Waste Drop Off Area, the Leaf and Yard Waste Area, and the Wood and Concrete Waste Area are approximate and have been provided by the City of Guelph. Size and location to be confirmed at the time of design/approval of these areas.

4. Stormwater management pond shall be located generally as shown with a storage volume of 2,200 m3 and with a high water level of 316.00 mASL. Pond grading shall be set such that the pond drains to the existing 1500 mm dia. CSP culvert beneath Watson Service Road. The upstream invert of the culvert is 314.74 m.

5. Surface water ditches, culverts, and catch basins shall be provided in general locations shown, and shall be designed to convey the 100 year return period event to the stormwater management pond without overtopping. Allowance shall be made for freeboard above the 100 year flow level in the ditches.

6. Sanitary sewer service shall be provided to washroom facility in scalehouse and to floor drain system in Transfer Building Tipping Floor (via oil/water separator and holding tanks).

7. Sanitary sewage/leachate flows to be conveyed to pumping station via gravity sewers. Flows to discharge to existing City of Guelph Sanitary Sewer located at intersection of Watson Parkway and Watson Service Road via newly-installed forcemain. Sanitary sewer system and pumping station to be designed at the time of final design.

8. New site entrance/exit shall be provided from Watson Service Road as shown. Watson Service Road to be widened to accommodate 145 m long left turn lane for new entrance/exit, if required.

No.	Description	Date	By
2	ISSUED FOR DESIGN AND OPERATIONS REPORT	12/20/01	MAS
1	DRAFT ISSUED FOR CLIENT REVIEW	12/6/01	MAS

Revisions

SCALES 20m 0 40m 80m

Scale 1:2000

Solid Waste Transfer Station - Design and Approvals
City of Guelph

SITE PLAN

Designed By:	M.A.S./D.G.J.	Drawn By:	J.M.C.
Checked By:	M.A.S.	Approved By:	R.W.L.
Date Issued:	JANUARY 2002	Project No.	21-141
Site Name:	GUELPH	File Name:	2114111.DWG

Gartner Lee

Figure No. 8