2007 Annual Report
Guelph Solid Waste Transfer Station, # 9241 – 5DTRD9

Prepared for
City of Guelph

Submitted by
Gartner Lee Limited

March, 2008

Gartner Lee

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Guelph Solid Waste Transfer Station, # 9241 – 5DTRD9

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Reference: **GLL 80-134**

Distribution:

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March 27, 2008

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 80-134 – 2007 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 do not 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

SCH:mm
Attach.

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Executive Summary

The following table presents a summary of the 2007 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. Most of the outgoing waste is shipped off-site to the St. Thomas Landfill in Elgin County. By the end of 2007, there was a deficit of 621 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 2007 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 briefly discusses site compliance. A compliance statement from the City of Guelph is presented in Appendix E.*
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 2007 (Section 3.1).

Reporting Requirement		Report Reference and Summary
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. Nitrates exceeded ODWS at bedrock monitor 6a-96. There are no other exceedances of ODWS for the parameters tested. • The 2007 organic groundwater sampling showed detections of bis(2-ethylhexyl) phthalate at monitor 14b-01 during both monitoring events and a low concentration of 4-Bromophenyl phenyl ether at monitor 14a-01. These detections are likely a result of sampling or laboratory artifact. Monitor 9-96 shows 1,1,1-Trichloroethane at low concentrations. The source of this VOC is unknown but could be from a past point source of contamination. Concentrations will continue to be monitored in the future but were low in 2007 and have declined since 2004. No other organics were detected at any of the monitors that are part of the transfer station monitoring program in 2007 or the additional monitors 5-96, 7-96, 9-96 and 12b-00, requested by the MOE. • Surface water monitoring of the SWM pond and the East Pond during 2007 indicated no impacts as a result of site operations (Section 6.4). For the SWM pond samples, the PWQO was exceeded on one or more occasions for total phosphorus, phenols, iron and zinc. These concentrations are within the range of historic background quality. Of the seasonal samples collected in 2007 at the East Pond, the PWQO for zinc was exceeded during all monitoring events. Zinc has consistently exceeded PWQO in the past at this location. All the leachate indicator parameters concentrations were within background overburden ranges at the East Pond. No organics were detected in the SWM pond locations in 2007 but chloroform was detected during both 2007 sampling events of the East Pond. The low level detections of chloroform at this location are likely a result of sampling or laboratory artefact.
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 2007 (Section 7).
9.2g)	*Any remedial/mitigative action undertaken.*	• No remedial or mitigative action was required at the Transfer Station during 2007 (Section 9).

Table of Contents

List of Figures

List of Tables

Appendices

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, calculated on a weekly average (six days), 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:

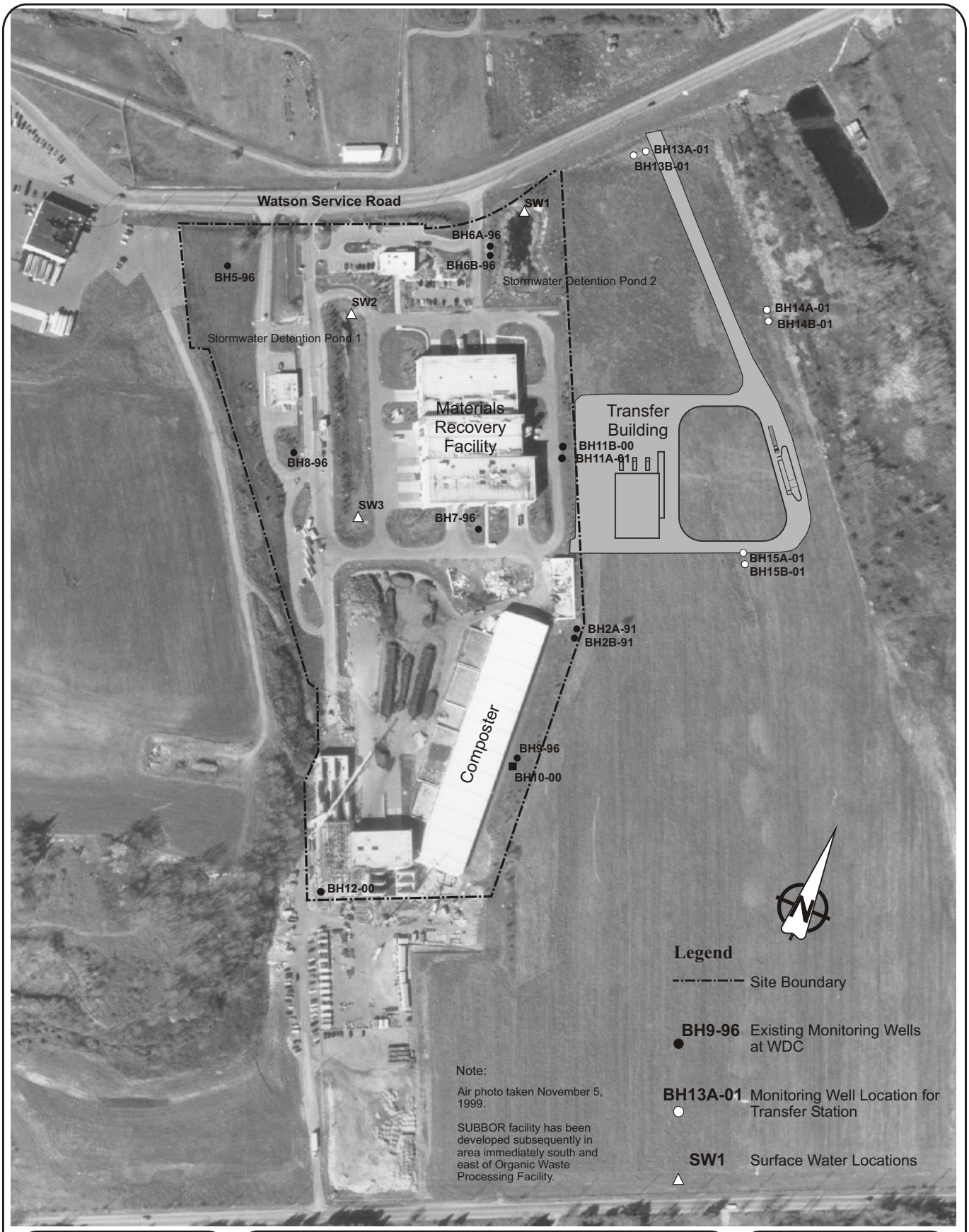
a) A detailed monthly summary of the type, quantity, and origin of all wastes received and transferred from the Site, including the destination, type, and quantity of waste destined for final disposal and also including any reconciliations on mass balance made.

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).



Gartner Lee

Scale 1 : 4,000

GROUNDWATER MONITOR LOCATION MAP

Annual Monitoring Program
Waste Resource Innovation Centre
City of Guelph

FIGURE

1

Project 80-134
(2008\133\04Planf01.cdr)

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 2007, groundwater level measurements were conducted on five occasions; in March, April, June, September and December. Groundwater sampling was conducted three times in 2007; in March (wet period), 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 but were conducted twice in 2007 during a wet (March) and a dry (June) event. Tables 1 and 2 below summarize the groundwater monitoring program and analytical parameters, respectively.

Table 1. Groundwater Monitoring Program

Location	March	April	June	September	December
13a-01	S + Organics	•	S + Organics	•	S
13b-01	S + Organics	•	S + Organics	•	S
14a-01	S + Organics	•	S + Organics	•	S
14b-01	S + Organics	•	S + Organics	•	S
15a-01	S + Organics	•	S + Organics	•	S
15-b-01	S + Organics	•	S + Organics	•	S
Staff Gauge[1]	S + Organics		S + Organics		S

Notes: 1. Pond located in eastern portion of property ("East Pond" on Figure 1). Sampling of the pond only was also conducted in May (organic parameters only) and August (inorganic parameters only).
• 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 1,1,2-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethylene 1,2-Dichlorobenzene 1,2-Dichloroethane 1,2-Dichloropropane 1,3-Dichlorobenzene 1,4-Dichlorobenzene Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroform Chloromethane Cis-1,3-Dichloropropylene Dibromochloromethane 1,2-Dibromoethane Methylene Chloride Tetrachloroethylene	trans-1,2-Dichloroethylene Trans-1,3-Dichloropropylene Trichloroethylene Trichlorofluoromethane Vinyl chloride **Misa Group 17** Benzene Ethylbenzene Styrene Toluene o-Xylene m-Xylene and p-Xylene **Misa Group 18** Acrolein Acrylonitrile	Acenaphthene 5-Nitroacenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)Pyrene Benzo(b)Fluoranthene Benzo(g,h,i)perylene Benzo(k)Fluoranthene Biphenyl Camphene 1-Chloronaphthalene 2-Chloronaphthalene Chrysene Dibenzo(a,h)Anthracene Fluoranthene Fluorene Indeno(1,2,3-cd)Pyrene Indole 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 TP1(out), located at the discharge at the north end of the pond. Sampling for inorganic parameters was conducted in March and November at both SWM surface water stations and in September and October 2007 at TP1(out) only. Organic sampling was completed in September and October 2007. No other samples were collected in 2007 due to dry or frozen/snow covered conditions for the remaining 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. Sampling for inorganic parameters was conducted in March and June 2007. Organic samples were collected in May and August 2007 from the East Pond.

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

3. Waste Transfer Summary

3.1 Summary of Incoming and Outgoing Waste

Table 3 is a summary of the Transfer Station material handled during 2007, 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 55,741 tonnes. By the end of 2007, 55,672 tonnes were shipped off-site primarily to the St. Thomas (Greenlane) Landfill in Elgin County. A small percentage of the outbound waste (about 11%) was shipped to the Covanta facility in Niagara Falls, New York. At the end of 2007, there was a deficit of 621 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 (96%), the County of Wellington (3%), the Region of Halton (less than 1%), County of Dufferin (less than 1%), the Region of Peel (less than 0.5%) and the Region of Waterloo (less than 0.5%). 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 2007.

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 2007.

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. The compactor is cleaned and inspected weekly when in use. Inspection of the inside floor drains, oil and grit separator, etc. are conducted weekly. The floor drain in the loading ramp is pumped and cleaned every three weeks. 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 log book recording the weekly inspection of the detention ponds, ditches and facility inspections is kept on-site. Weekly inspections were recorded in 2007.

1. *Tonnage received in 2007 (55,741 tonnes) + Remaining tonnage on site at the end of 2006 (-690 tonnes) – Tonnage transferred off-site in 2007 (55,672 tonnes) = Tonnage of waste at the end of 2007 (-621 tonnes).*

Table 3
2007 Monthly Summary of Incoming and Outgoing Waste

Guelph Solid Waste Transfer Station

Incoming Waste	Jan Tonnes	Feb Tonnes	March Tonnes	Apr Tonnes	May Tonnes	June Tonnes	July Tonnes	Aug Tonnes	Sept Tonnes	Oct Tonnes	Nov Tonnes	Dec Tonnes	Total
Domestic	2,021	1,584	1,937	2,022	2,378	1,999	1,886	2,086	1,769	2,103	1,967	1,771	23,523
ICI	1,012	855	1,084	1,236	1,380	1,324	1,382	1,319	1,161	1,397	1,082	764	13,996
C & D	395	323	504	797	1,275	1,010	808	744	690	782	637	314	8,277
Residue-Dry	1,350	891	792	642	732	712	792	800	790	800	816	827	9,945
Total	4,778	3,653	4,317	4,696	5,764	5,045	4,867	4,949	4,411	5,082	4,502	3,676	55,741

Outgoing Mixed Waste	Jan Tonnes	Feb Tonnes	March Tonnes	Apr Tonnes	May Tonnes	June Tonnes	July Tonnes	Aug Tonnes	Sept Tonnes	Oct Tonnes	Nov Tonnes	Dec Tonnes	Total
Mixed Waste	4,367	3,071	3,648	4,032	5,142	4,688	4,380	4,318	3,942	4,357	3,802	2,824	48,571
Pilot EFW	534	441	506	493	618	580	610	622	568	783	693	653	7,101
Total	4,902	3,513	4,154	4,525	5,760	5,267	4,990	4,939	4,510	5,140	4,496	3,476	55,672

Note: 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 sources of impact. The site has been designed to minimize the possible sources of impacts and limit the risk of their emission to the environment, as discussed below.

Waste is dumped from incoming collection vehicles onto an indoor tipping floor located within the transfer building. The transfer building is a steel framed, metal clad building with a reinforced, surface-hardened slab-on-grade floor. The tipping floor is curbed such that liquid discharges onto the floor cannot readily flow off 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). 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 impacted runoff.

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

Ditches are located on both sides of the driveway to collect road runoff and to convey upstream runoff to the pond. A culvert conveys flow from the ditch on the west side of the driveway to the ditch on the east side and ultimately to the pond. MOE approved dust suppressant and road salt for 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 2006) for the leachate monitors.

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

Parameters		Avg.	Min.	Max.
General	▶ pH	7.62	6.85	8.63
	▶ Conductivity (μS)	12,585	2,620	21,500
	▶ Alkalinity (mg/L)	5,552	1,130	9,050
	▶ Hardness (mg/L)	1,948	91	2,900
Critical Indicators	▶ Chloride (mg/L)	1,618	101	2,610
	▶ Boron (mg/L)	19.8	2.32	47
	▶ Phenol (μg/L)	90	0.72	830
Leachate Indicators	▶ Calcium (mg/L)	102	36	221
	▶ Sodium (mg/L)	1,286	197	2,300
	▶ Magnesium (mg/L)	414	109	661
	▶ Potassium (mg/L)	688	26	1,410
	▶ Iron (mg/L)	12.8	1.1	41.4
	▶ Manganese (mg/L)	0.11	0.039	0.688
	▶ Ammonia (mg/L)	503	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 2007 Groundwater, Surface Water and Leachate Annual Monitoring Requirements report (Gartner Lee, 2008) 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

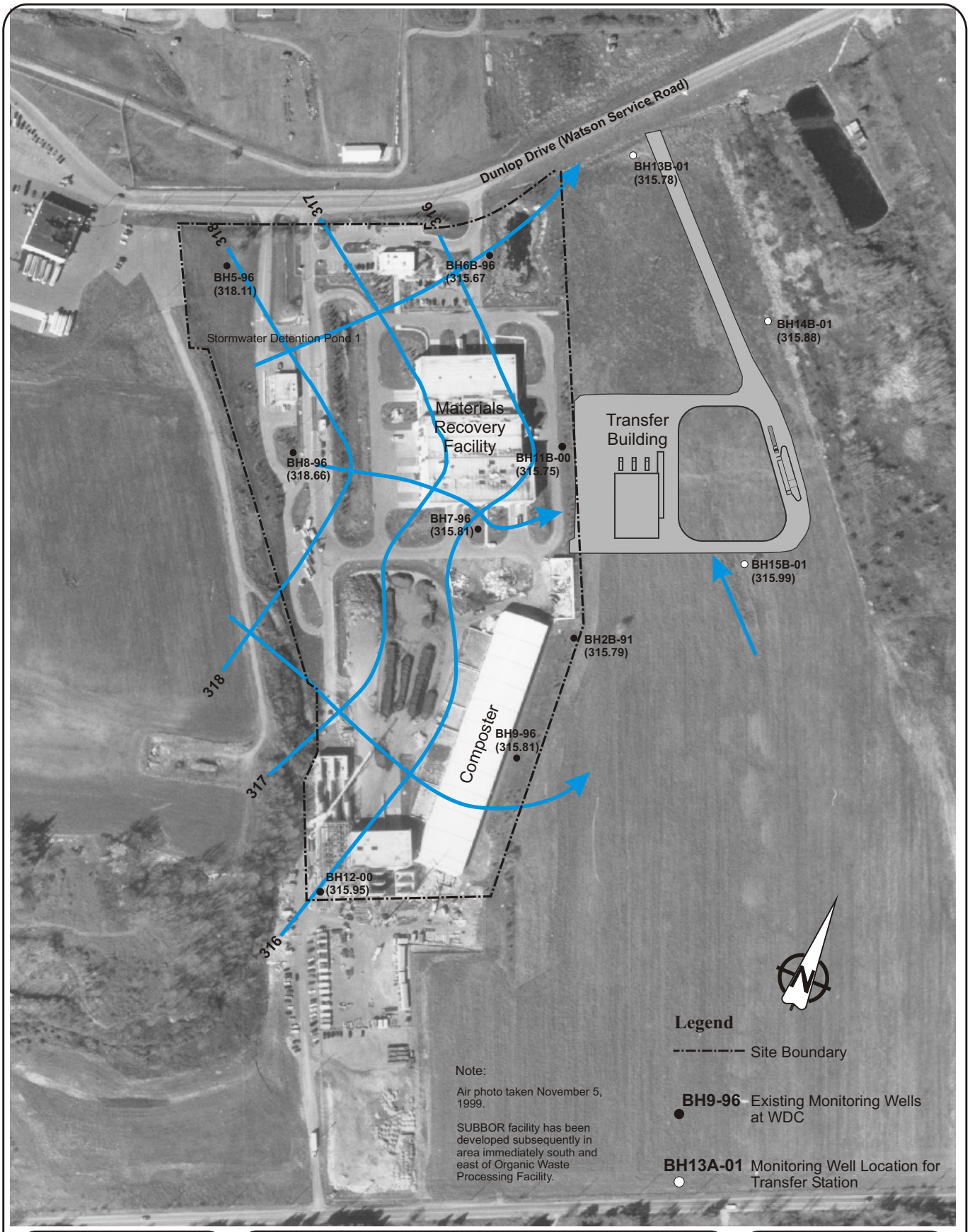
To provide an overview of groundwater elevation and flow directions in the immediate area, water levels for the site plus the water levels collected from the adjacent WRIC were considered in our analysis and discussed in this section. Groundwater levels were collected in March, April, June, September and December during 2007. Groundwater elevations were measured at 11 locations that included a total of 19 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. Five additional monitoring nests are currently being installed; two to the north and three south of



Gartner Lee

Scale 1 : 4,000

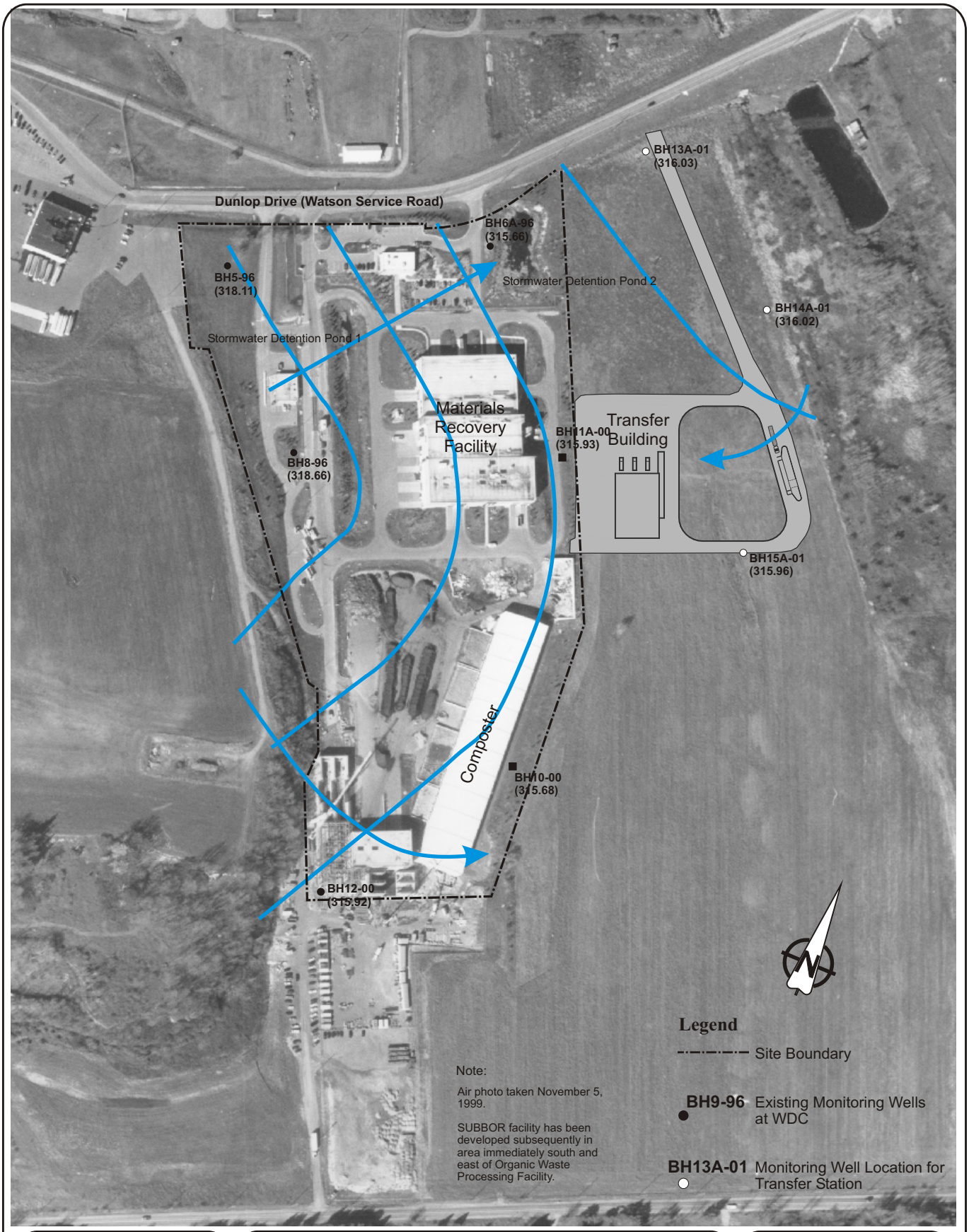
SHALLOW GROUNDWATER FLOW (JUNE, 2007)

Annual Monitoring Program
Waste Resource Innovation Centre
City of Guelph

FIGURE

2

Project 80-134
(2008\133\ShallowF.cdr)



Gartner Lee

Scale 1 : 4,000

BEDROCK GROUNDWATER FLOW (JUNE 2007)

Annual Monitoring Program
Waste Resource Innovation Centre
City of Guelph

FIGURE

3

Project 80-134
(2008\133\BedrockF.cdr)

the transfer station as recommended by Gartner Lee and the MOE. These locations are being completed to better refine groundwater flows in the bedrock but will also include water table monitors in the overburden.

6.2 Groundwater Quality

Groundwater sampling was conducted in March, June and December 2007. Groundwater testing results are tabulated in Appendix B along with time-concentration plots for selected water quality parameters (as requested by the MOE).

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 only sampled in March 2007. The monitor was checked in June but it has insufficient volume of water to sample. In December 2007, the monitor was dry.

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 2007, along with historical ranges for each location, are provided below. The March 2007 alkalinity and magnesium concentrations at monitor 2b-91 and the average 2007 alkalinity at monitor 9-96 were higher than the historic maximum concentrations at these monitors. Other indicator parameter concentrations for these two monitors are within their historic ranges.

Parameter concentrations at monitor 15b-01 are within historic ranges for the parameters presented on the table below. Compared to 2006, the 2007 average chloride concentration has increased to a concentration of 29 mg/L from a 2006 average concentration of 6 mg/L. The 2007 concentration is similar to the 2005 average of 33 mg/L. This monitor has continued to show a general increasing trend in alkalinity, calcium and magnesium in recent years. Sodium, which also had been showing an increasing trend, has an average 2007 concentration of 11 mg/L, similar to the average 2006 sodium concentration of 14 mg/L. This monitor has previously been considered an upgradient background location due to its location east of the WRIC and south of the transfer station. However, about 3 to 4 years ago, a large paved pad was constructed southeast of this monitor location. This pad was originally intended for storage of leaf compost but has not been used since construction. The pad is sloped such that surface water runoff is captured by a catchbasin located near the middle of the pad and directed to the storm sewer. The change in

water quality at this location may be due to a combination of road runoff impacts from the transfer station access road to the northwest as well as a reduction of infiltration (and therefore, dilution) with the installation of the paved pad. As stated earlier, three additional groundwater monitor locations are currently being drilled south of monitoring location 15. These locations will be incorporated into the monitoring program for the site and sampled during 2008. These locations will provide background upgradient groundwater quality data for the site.

Nitrate and nitrite analysis was re-instated into the routine monitoring program for the site as per the MOE's recommendations. Historically, nitrates were included in the monitoring program but were removed since elevated nitrate concentrations were prevalent across the site at all locations. Concentrations of nitrate continue to be elevated as seen in the past. Monitor 15b-01 exceeded ODWS for nitrate in December 2007 with a nitrate concentration of 15 mg/L (compared to an ODWS of 10 mg/L). Elevated nitrates are probably a result of long-term agricultural land use in the area. Of the background outwash monitors, there were no other exceedances of the Ontario Drinking Water Standards (ODWS) in 2007.

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
	March 2007	362	10	2.5	78	39	0.84
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
	2007 Average	308	15	13	93	26	1.1
14b-01	*Historical Range*	267 - 438	22.3 - 143	7.7 – 67	95.4 - 140	26.2 - 38	1 – 2.3
	2007 Average	312	87	43	113	34	1.9
15b-01	*Historical Range*	200 - 533	4 – 56	2 – 16	73.4 - 190	18.7 - 53	0.97 - 2
	2007 Average	481	29	11	163	39	1.1

Note: Historical Ranges include all data up to and including 2006.

6.2.2 Background Organic Results

In their review of the 2005 Annual Monitoring report for the Transfer Station[2], the MOE recommended additional annual VOC sampling of monitors 5-96, 7-96, 9-96 and 12b-00 to assist in interpreting the occasional trace VOCs detected in the monitoring wells on the Transfer station site. Organic analysis (EPA 624, 625 for ATG MISA Groups 16 to 20) of these monitors was conducted in March and June 2007.

Monitor 9-96 shows low concentrations of 1,1,1-Trichloroethane at concentrations of 0.6 μg/L (March 2007) and 0.3 μg/L (June 2007). Low concentrations 1,1,1-Trichloroethane of between 0.5 μg/L and 1.1 μg/L have historically been detected in this monitor in 2001, 2003, 2004 and 2005. The concentrations peaked in 2004 but have since declined. 1,1,1-Trichloroethane is mainly used in metal degreasing and as a solvent in many industrial and consumer products, including adhesives, spot removers, and aerosol cans. There is no ODWS for 1,1,1-Trichloroethane. The June 2007 the trip blank and field blank showed no detection of 1,1,1-Trichloroethane. The source

2. *MOE memorandum from Abdul Quyum to John Cooke, MOE, Re: Annual Monitoring Reports Wet-Dry Recycling Centre and Solid Waste Transfer Station, dated June 26, 2006.*

of this VOC is unknown but could be from a past point source of contamination. Historically it has not been detected in any of the monitors on the transfer station or the wet-dry site. Concentrations will continue to be monitored in the future but were low in 2007 and have declined since 2004.

There were no other VOC detections during either of the 2007 monitoring events at monitors 5-96, 7-96, 9-96 and 12b-00.

6.2.3 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 2007, along with the historical ranges at these locations are provided below. Also, provided in this table are the 2007 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. Since 2003, the water quality at 12a-00 has become similar to that observed in 2001.

Monitor		Alkalinity (ppm)	Chloride (ppm)	Sodium (ppm)	Calcium (ppm)	Magnesium (ppm)	Potassium (ppm)
5-96	*Historical Range* (3)	278 - 380	112 - 474	71.9 - 263	83.7 - 134	24.2 – 38.4	3.9 - 6
	2007 Average.	296	637 (2)	440 (2)	100	25	5.1
8-96	*Historical Range*	264 - 356	37.2 - 332	17.6 – 171	87 - 123	32 - 43.4	1.73 – 3.1
	2007 Average	306	127	73	103	38	2.7
6a-96	*Historical Range*	235 - 420	158 – 345	70 - 176	94.6 - 158	28.3 - 42	2 – 16.4
	2007 Average	248	219 (2)	135 (2)	133	37	3.3
12a-00 (1)	*Historical Range*	319 - 423	24.7 – 82.8	16.4 - 34	98.4 - 123	37 – 44.7	10.1 - 22
	2007 Average	357	36	24	101	35	17
10-00	*Historical Range*	236 - 267	17 – 44.9	8.6 - 12	83 - 95.1	27.7 - 31.5	1 - 2
	2007 Average	245	20	8.5	83	28	1.1
11a-00	*Historical Range*	231 - 263	4 - 10	5.1 - 25.9	62 - 83.2	23.6 - 26	1 - 3
	2007 Average	241	12	5.2	70	25	1.8
13a-01	*Historical Range*	248 - 272	83.9 – 111	38 - 44	94 - 112	33 - 38.8	2 – 2.9
	2007 Average	256	96	42	96	33	2.4
14a-01	*Historical Range*	215 - 263	4.8 – 26.6	9.1 - 27.4	63.5 - 84	22.4 - 29	1 - 2
	2007 Average	244	13	14	76	27	1.1
15a-01	*Historical Range*	245 - 271	47 – 62.4	7.7 – 17	92 - 129	32.5 - 37	1 – 2
	2007 Average	259	52	17	103	33	1.2

Note: Excludes anomalous December 2002 results.
Road salt impact.
Historical Ranges only include data from 1997 up to 2003 due to continued increasing chloride and sodium values after 2003.
Historical Ranges include all data up to and including 2006, except where specified.

As shown on the table above, the average 2007 concentrations fall within the historical ranges, with the following exceptions. The 2007 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 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 sampling periods. As well, there have been historical road salt effects observed at location 6a-96 and 8-96. The 2007 average magnesium concentration at monitor 12a-00 is slightly lower than the historic minimum though no decreasing trend in magnesium concentrations was noted at this monitor. The 2007 average chloride concentration of 12 mg/L at monitor 11a-00 is slightly higher than the historic maximum of 10 mg/L. The chloride concentration at monitor 11a-00 has increased slightly over the past few years but still remains low at 12 mg/L. The average 2007 sodium concentration at monitor 15a-01 is at the upper limit of its historic concentrations and has shown an increasing sodium trend over time though the 2007 average sodium concentration of 17 mg/L still remains relatively 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. Nitrates exceeded ODWS at monitor 6a-96 with a concentration of 34 mg/L compared to an ODWS of 10 mg/L. This monitor has consistently exceeded the nitrate ODWS during all previous sampling events where nitrate was analyzed historically.

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. These 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 these monitors.

6.2.4 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 March and June 2007. Bis(2-ethylhexyl) phthalate (DEHP) was detected during both monitoring events in 2007 at monitor 14b-01. It was also detected at this monitor during the 2006 organics sampling event. Prior to 2006, bis (2-ethylhexyl) phthalate had not previously been detected at this monitor though it has historically been detected at both upgradient and downgradient monitors in 1997, 1998, 2002 and 2003. Historic DEHP detections ranged from 0.73 μg/L to 82.6 μg/L. DEHP is prevalent in the environment due to their use in plastics. There is no ODWS for DEHP. Since DEHP has sporadically been detected at monitor across the site, we have concluded that it is a result of sampling or laboratory artefact.

A low concentration of 4-Bromophenyl phenyl ether was detected at monitor 14a-01 during the June monitoring event. It was below the laboratory detection limit during the March monitoring event. There is no ODWS for 4-Bromophenyl phenyl ether. 4-Bromophenyl phenyl ether has not been detected at any of the monitors in the past.

There were no detections of DEHP or 4-Bromophenyl phenyl ether in the trip blank and field blank collected during the June 2007 monitoring event. However, based on the historic detections of occasional low levels of VOC throughout the site in both upgradient and downgradient monitors, the 2007 detections are concluded to be a result of sampling or laboratory artefact. There are no ODWS for either of the VOC's detected during 2007. No other organics were detected at any of the monitors that are part of the transfer station monitoring program in 2007.

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			
	Historical Range (1997 – 2007)	0.9 – 47	0.72 – 830	101 – 2,610	828 – 9.050	170 – 2,300	36 - 221	109 - 661	14 – 1,410
	Average (1997-2007)	19.5	90	1,580	5,402	1,272	105	418	672
Downgradient									
13b-01	Historical Range	0.01 – 0.1	< 0.001 – 0.012	7 – 132	287 – 506	4.8 – 32	84.7 – 140	29.7 – 45	1 – 2.2
	2007 Average	0.03	< 0.001	101	354.5	52.5	120	36	2.1
Background									
14b-01	Historical Range	<0.01 – 0.05	< 0.001 – 0.013	22.3 -143	267 - 438	7.7 – 67	95.4 - 140	26.2 - 38	1 – 2.3
	2007 Average	0.02	< 0.001	87.3	312	43.3	113	34.3	1.9
15b-01	Historical Range	<0.01 – 0.08	< 0.001 – 0.01	4 – 56	200 - 533	2 – 16	73.4 - 190	18.7 - 53	1 - 2
	2007 Average	0.03	< 0.001	28.7	481	11	163	39.3	1.1

Note: Historical Ranges includes all data up to and including 2006, except where specified.
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. Nitrates at monitor 15b-01 exceeded the ODWS in 2007. There were no other exceedances of ODWS for the shallow groundwater monitors in 2007 for the parameters tested.

BH 13b-01 shows similar water quality to the upgradient monitors with indicator parameter concentrations within the range of the background monitors. Sodium at monitor 13b-01 is elevated with a 2007 average concentration of 52.5 mg/L compared to the maximum background of 32 mg/L for this monitor. Both sodium and chloride 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. Since indicator parameter concentrations at this monitor 13b-01 remain within background ranges, it has been concluded that there are no leachate impacts.

The average 2007 indicator parameter concentrations at background overburden monitors 14b-01 and 15b-01 were within historic background ranges. Higher sodium concentrations at monitor 14b-01 were noted in 2005 and 2006 though the 2007 concentrations appear to have stabilized. At monitor 15b-01, the 2007 sodium, alkalinity and calcium concentrations remain elevated at concentrations similar to 2006. However, at both monitors, boron and phenols remained at low concentrations. As previously discussed in Section 6.2, the installation of a large paved pad near monitor 15b-01 and access road runoff may have affected recharge conditions in the area resulting in changes in water quality. Monitor 14b-01 is not expected to be impacted by site operations as it is interpreted to be upgradient of the site and considered background location.

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 2007.

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. Sodium and chloride exceed ODWS at background bedrock monitor 5-96 due to road salt impacts. Nitrates exceeded ODWS at downgradient bedrock monitor 6a-96 with a concentration of 34 mg/L compared to an ODWS of 10 mg/L. This monitor has consistently exceeded the nitrate ODWS during all previous sampling events where nitrate was analyzed. The elevated nitrates are attributed to long-term agricultural land use in the area and are not a result of leachate impacts. There are no other exceedances of ODWS in 2007 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 weekly during 2007. It was dry for the majority of 2007. 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, September, October and November 2007.

The existing on-site surface water pond ("East Pond" on Figure 1) is also included in the monitoring program. Samples were collected on a quarterly basis concurrent with the groundwater monitoring. East Pond surface water samples (designated EPTS-01) were collected in March, June, August and December 2007. The 2007 surface water results for the leachate indicator parameters are tabulated below, and the testing results are presented in Appendix C.

Location	Date	Critical Leachate Indicators			Other Leachate Indicators				
		Boron (ppm)	Phenols (ppm)	Chloride (ppm)	Alkalinity (ppm)	Sodium (ppm)	Calcium (ppm)	Magnesium (ppm)	Potassium (ppm)
PWQO/		0.2	0.001	-	-	-	-	-	-
Background Overburden[(1)]		0.005 – 0.063	< 0.001 – 0.013	4.8 - 143	166 - 438	1.5 - 67	52 - 140	14.7 - 38	0.3 – 2.3
TP1	**14-Mar-07**	0.03	< 0.001	520	96	410	36	3.6	2.1
	21-Nov-07	0.02	< 0.001	14	56	16	20	2.8	3.5
TP1 (out)	**14-Mar-07**	0.02	< 0.001	220	70	180	26	4	5.7
	29-Mar-07	0.05	0.002	180	170	170	61	9.8	5.8
	12-Sep-07	0.1	0.004	100	107	53	48	0.8	45
	2-Oct-07	0.08	0.002	73	229	47	72	9.6	24
	21-Nov-07	0.02	< 0.001	14	55	15	22	3.1	4.1
EPTS-01	**30-Mar-07**	0.02	< 0.001	44	242	24	82	24	1.3
	14-Jun-07	0.01	< 0.001	35	243	18	76	22	1.3
	16-Aug-07	0.01	< 0.001	27	235	15	75	24	1.5
	5-Dec-07	0.02	< 0.001	51	232	22	96	27	1.7

Note: (1) Range of background overburden water quality from 1997 to 2006 for monitors 2b-91, 9-96 and 14b-01.

Surface water results were compared to Provincial Water Quality Objectives (PWQO) and background overburden water quality. For the SWM pond samples, the PWQO was exceeded for total phosphorus (all events), phenols (March 29, September and October at TP1(out) only), iron (December at TP1 and March 29, October and November at TP1(out)) and zinc (both 2007 events at TP1 and March 14 and November at TP1(out)). 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 is a result of agricultural land use and not a result of operations at the WRIC. Of the indicator parameters, the March chloride and sodium concentrations were elevated at both locations compared to the maximum background overburden concentrations. The elevated spring concentrations are likely a result of road salt impacted runoff from the adjacent access road to the southwest. The potassium concentration at TP1 in November and at TP1(out) in all 2007

monitoring events was also elevated compared to maximum background overburden concentrations. The 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.

Of the seasonal samples collected in 2007 at EPTS-01, the PWQO for zinc was exceeded during all monitoring events. The 2007 zinc concentrations at EPTS-01 ranged from 0.05 mg/L to 0.17 mg/L compared to a PWQO of 0.02 mg/L. Zinc has consistently exceeded PWQO in the past at this location. All the leachate indicator parameters concentrations were within background overburden ranges. The East Pond shows no indications of impacts as a result of site operations.

Organic samples were collected from the SWM pond in September and October 2007 and the East Pond (EPTS-01) in March and June 2007. No organics were detected in the SWM pond locations in 2007 but chloroform was detected during both 2007 sampling events of the East Pond. Chloroform was detected in March and June of 2007 at EPTS-01 at low concentrations. Chloroform was previously detected at a low level at this location in June 2004. There is no PWQO for chloroform. The low level detections of chloroform at this location are likely a result of sampling or laboratory artefact.

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')
Dec 2006	87 cm (34.25")
Mar 2007	116.2 cm (45.75")
Jun 2007	108.6 cm (42.75")
Aug 2007	92.7 cm (36.5")
Dec 2007	63.5 cm (25")

Sometime after the April 2006 monitoring event, this area around the pond became flooded as a result of beaver activity. This accounts for the significant increase in water level in late 2006 and throughout 2007.

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 in recent years; however, the change in water quality in the area is likely a result of the installation of a large paved pad adjacent to the monitor location.

The 2007 organic groundwater sampling showed bis(2-ethylhexyl) phthalate at monitor 14b-01 and a low concentration of 4-Bromophenyl phenyl ether at monitor 14a-01. These detections are likely a result of sampling or laboratory artifact. Monitor 9-96 shows 1,1,1-Trichloroethane at low concentrations during both organic sampling events in 2007. The source of this VOC is unknown but could be from a past point source of contamination. Concentrations will continue to be monitored in the future but were low in 2007 and have declined since 2004. No other organics were detected at any of the monitors that are part of the transfer station monitoring program in 2007 or the additional monitors 5-96, 7-96, 9-96 and 12b-00, requested by the MOE.

The 2007 surface water monitoring program shows that there have been no leachate impacts to the SWM pond or the East Pond as a result of operations at the waste transfer station. The SWM Pond shows elevated spring sodium and chloride concentrations suggest road salt impacts from the adjacent access road. No organics were detected in the SWM pond locations in 2007 but chloroform at low concentrations were detected during both 2007 sampling events of the East Pond. The low level chloroform detections in the East Pond are probably due to sampling or laboratory artifact.

It is concluded that the current monitoring program, as described in Section 2, is adequate for the site.

7. Public Concerns

There were no public complaints recorded by the City attributed to the operation of the Transfer Station during 2007.

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.*

A compliance statement from the City of Guelph (Appendix E) reports that the waste transfer facility operated in compliance with all Terms and Conditions of Provisional Certificate of Approval number 9241-5DTRD9 including the inspection and reporting requirements of the conditions as presented in this report for the 2007 period.

9. Conclusions and Recommendations

Based on the 2007 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 2007.

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 2008 for the site with the inclusion of the three new monitoring locations currently being drilled south of the Transfer station. As recommended by the MOE, additional annual VOC sampling of monitors 5-96, 7-96, 9-96, 12b-00 and nitrate and nitrite analysis should be included in the monitoring program for the site.

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Report Reviewed By:

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Senior Geologist

10. References

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Appendix A

Groundwater Elevations and Hydrographs

Routine Groundwater Elevations at the Waste Resources Innovation Centre

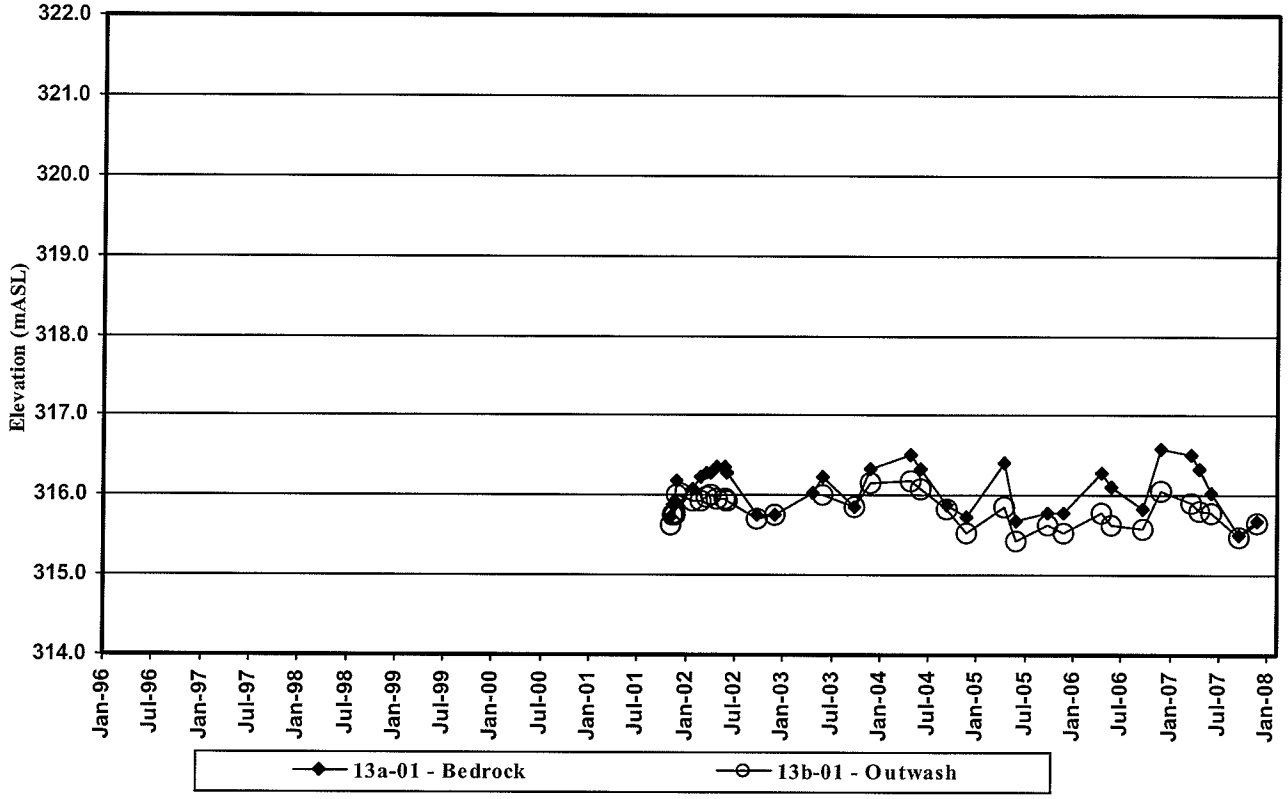
Date	2a-91	2b-91	5-96	6a-96	6b-96	7-96	8-96	9-96	10-00	11a-00	11b-00	12a-00	12b-00	13a-01	13b-01	14a-01	14b-01	15a-01	15b-01
4-Apr-91	316.00	316.02																	
14-Apr-91	315.88	315.89																	
12-May-91	315.67	315.59																	
17-May-91	315.60	315.58																	
17-May-94	316.32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

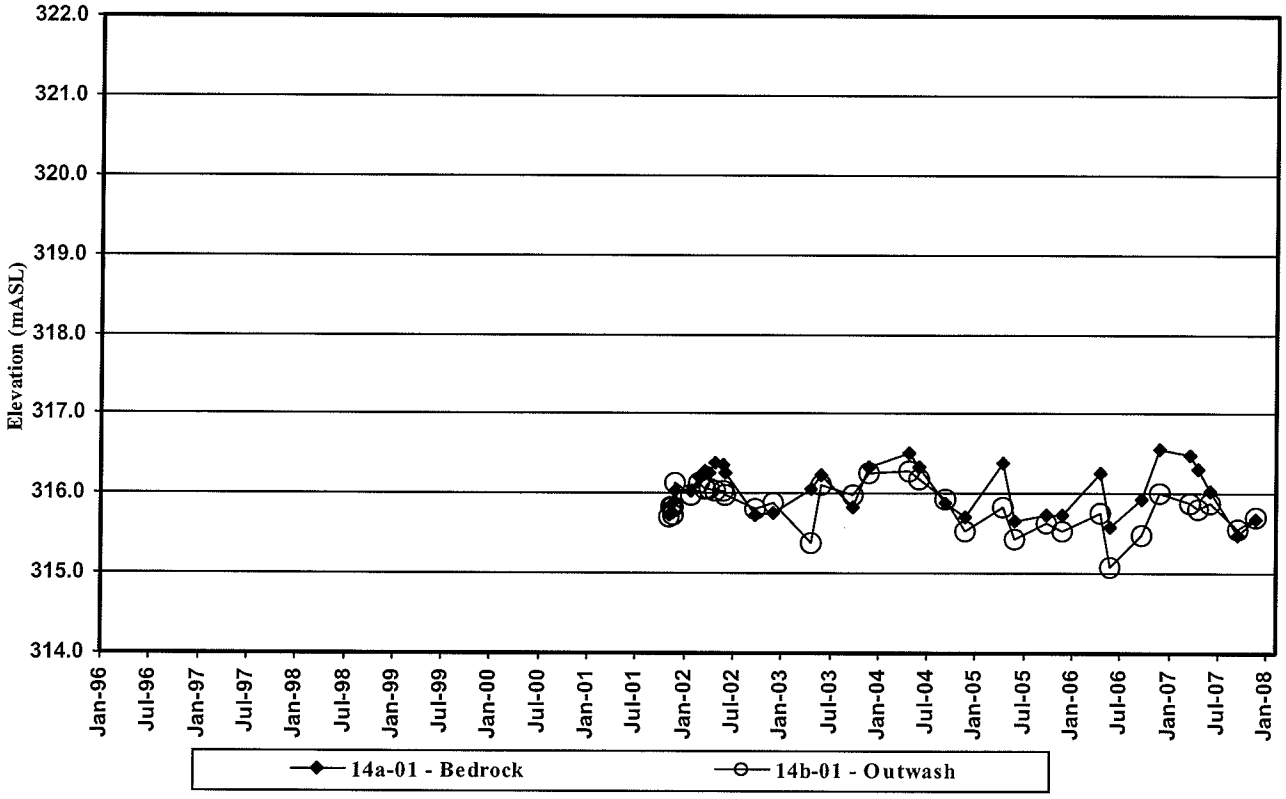
Routine Groundwater Elevations at the Waste Resources Innovation Centre

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
30-Mar-07	316.28	316.28	320.23	316.17	316.25	316.32	319.22	316.30	316.15	316.40	316.26	316.44	316.44	316.52	315.90	316.49	315.87	316.48	316.37
26-Apr-07	316.14	316.15	319.03	315.98	316.01	316.17	318.95	316.16	316.00	316.22	316.10	316.27	316.28	316.32	315.80	316.31	315.80	316.27	316.19
14-Jun-07	315.77	315.79	318.11	315.66	315.67	315.81	318.66	315.81	315.68	315.93	315.75	315.92	315.95	316.03	315.78	316.02	315.88	315.96	315.99
27-Sep-07	315.18	Dry	318.11	315.12	315.14	315.21	317.90	315.18	315.08	315.39	315.18	315.30	315.33	315.51	315.49	315.49	315.55	315.45	315.52
5-Dec-07	315.36	Dry	320.31	315.36	315.37	315.40	318.65	315.35	315.26	315.58	315.37	315.57	315.72	315.69	315.65	315.68	315.70	315.65	315.72





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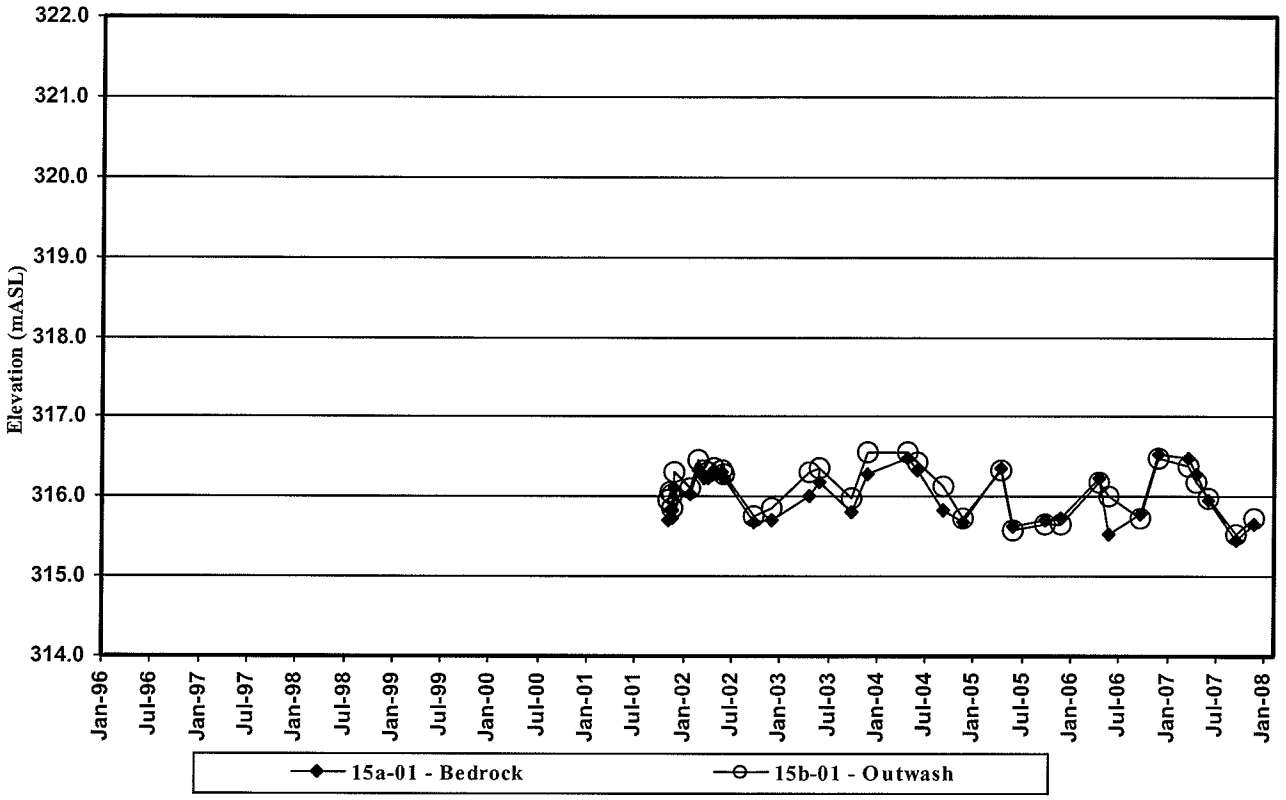
Waste Resource Innovation Centre

Hydrographs

FIGURE
A - 5

80-133
9 Rpt Hydrographs



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Hydrographs

FIGURE
A - 6

80-133
9 Rpt Hydrographs

Appendix B

Groundwater Chemistry and Time-Concentration Plots – 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	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-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
1a-91	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
Lower Till	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	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
1b-91	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
Outwash	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	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
2a-91	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
Lower Till	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				0.16		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	0.02	< 0.011	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	0.09	< 0.011	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	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	0.18	< 0.011	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	0.11	< 0.011	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			0.21		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			0.18		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	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	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	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	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	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	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	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	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	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
	30-Mar-07	MAX	8.3	477	241	22	1.2	< 2	4	0.4	0.21	< 0.02	16	< 1	6	32	39	< 0.02	0.06	< 0.05	< 0.005
	14-Jun-07	MAX	8.3	501	249	28	1.4	2	5	0.3	0.16	0.04	19	< 1	6	37	42	< 0.02	0.07	< 0.05	< 0.005
	05-Dec-07	MAX	8.3	448	229	23	1.3	< 2	8	0.2	0.12	< 0.02	13	< 1	4	24	40	< 0.02	0.05	< 0.1	< 0.005

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	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				0.02		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	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			< 0.02		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	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	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	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																			
	30-Mar-07	MAX	8.1	764	362	39	0.84	< 2	5	0.3	0.06	< 0.02	15	< 1	10	2.5	78	< 0.02	0.02	< 0.05	< 0.005
	14-Jun-07	INS																			
	05-Dec-07	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	0.04	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			< 0.02		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			< 0.02		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/Outwas	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

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	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
5-96 Bedrock	11-Feb-97	WBL	7.32			34.8	4.83	< 0.34	< 7	0.24	0.02	0.012	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	0.05	< 0.011	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	0.04	< 0.011	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	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	0.02	< 0.011	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			0.06		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			0.06		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	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	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	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	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	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	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	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	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	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
	30-Mar-07	MAX	8	2610	297	22	4.6	< 2	11	0.4	0.12	< 0.02	38	< 1	630	410	97	< 0.02	0.02	< 0.05	1.5
	14-Jun-07	MAX	8.1	2900	284	29	5.3	< 2	12	0.3	0.1	< 0.02	40	< 1	700	490	110	< 0.02	0.02	< 0.05	2.2
	05-Dec-07	MAX	8.1	2460	307	23	5.4	< 2	24	0.2	0.06	< 0.02	39	< 1	580	420	94	< 0.02	0.02	< 0.1	1.7

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	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
6a-96 Bedrock	11-Feb-97	WBL	7.55			26.4	3.58	0.87	17	0.25	< 0.01	< 0.011	32.4	< 0.72	16.3	68.8	111	0.04	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	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	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	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	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			< 0.02		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			< 0.02		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	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	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	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	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	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	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	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	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	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
	30-Mar-07	MAX	8.1	1530	270	34	3.1	< 2	5	0.3	0.15	< 0.02	55	< 1	180	110	130	< 0.02	0.02	< 0.05	< 0.005
	14-Jun-07	MAX	8.2	1330	206	38	3.4	< 2	5	< 0.1	0.1	< 0.02	56	< 1	190	130	130	< 0.02	0.03	< 0.05	0.04
	05-Dec-07	MAX	8	1610	267	38	3.3	< 2	17	0.3	< 0.05	< 0.02	46	< 1	230	140	140	< 0.02	0.02	< 0.1	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	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	0.06	< 0.011	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	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	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	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	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			< 0.02		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			0.05		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	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	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	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	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	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	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	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	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	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
	30-Mar-07	MAX	7.9	2440	356	31	9.2	8	12	0.8	0.11	< 0.02	54	< 1	460	280	120	< 0.02	0.03	< 0.05	< 0.005
	14-Jun-07	MAX	8	1820	344	36	11	< 2	9	0.3	0.09	< 0.02	55	< 1	240	230	140	< 0.02	0.05	< 0.05	0.09
	05-Dec-07	MAX	8.1	1450	282	29	11	< 2	17	0.4	< 0.05	< 0.02	44	< 1	240	130	120	< 0.02	0.04	< 0.1	0.07

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	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	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	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	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	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	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			< 0.02		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			< 0.02		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	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	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	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	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	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	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	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	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	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
	30-Mar-07	MAX	8.1	1650	276	45	16	< 2	12	< 0.1	0.08	< 0.02	65	< 1	160	100	180	< 0.02	0.06	< 0.05	0.23
	14-Jun-07	MAX	8	1370	278	39	15	< 2	8	0.1	0.09	< 0.02	70	< 1	140	110	140	< 0.02	0.06	< 0.05	0.18
	05-Dec-07	MAX	8	1310	289	36	15	< 2	20	0.5	0.06	< 0.02	57	< 1	100	72	150	< 0.02	0.05	< 0.1	0.2

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	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
8-96 Bedrock	11-Feb-97	WBL	7.78			39.9	2.08	< 0.34	28	0.21	< 0.01	0.034	73.5	< 0.72	33	19.3	94.9	0.05	0.05	< 0.03	0.02
	27-Mar-97	WBL	7.77	864	302	36.9	1.73	< 0.34	46	0.3	< 0.01	< 0.011	53.9	< 0.72	49.8	18.8	107	0.01	0.03	< 0.03	0.67
	25-Jun-97	WBL	7.84	882	308	33.6	1.77	< 0.34	< 7	< 0.07	0.02	< 0.011	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	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	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			< 0.02		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			< 0.02		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	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	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	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	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	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	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	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	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	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
	30-Mar-07	MAX	8.2	1030	308	36	2.6	< 2	5	0.4	0.08	< 0.02	55	< 1	120	71	100	< 0.02	0.02	< 0.05	1.1
	14-Jun-07	MAX	8.1	1010	303	40	2.7	< 2	5	0.5	0.11	< 0.02	54	< 1	110	79	100	< 0.02	0.02	< 0.05	1.1
	05-Dec-07	MAX	8	1130	306	37	2.8	< 2	12	0.2	< 0.05	< 0.02	62	< 1	150	68	110	< 0.02	0.01	< 0.1	1.2

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	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 9-96 Outwash	11-Feb-97	WBL	7.81			16.4	0.99	0.69	7	0.19	< 0.01	< 0.011	17.6	2.23	7.17	4.37	61.6	0.12	0.02	< 0.03	0.008
	26-Mar-97	WBL	8.04	474	186	18.7	0.86	< 0.34	14	0.24	< 0.01	< 0.011	23.4	< 0.72	6.34	7.96	68.6	0.07	0.04	< 0.03	0.03
	25-Jun-97	WBL	8.01	582	205	20.7	0.95	< 0.34	< 7	< 0.07	< 0.01	< 0.011	26.7	< 0.72	6.93	7.38	71	0.03	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	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	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			0.02		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			< 0.02		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	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	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	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	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	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	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	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	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	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
	30-Mar-07	MAX	8.2	691	296	22	1.1	< 2	< 4	0.4	0.06	< 0.02	27	< 1	23	15	81	< 0.02	0.04	< 0.05	< 0.005
	14-Jun-07	MAX	8.1	703	322	30	1.3	< 2	4	0.4	0.09	< 0.02	22	< 1	17	18	100	< 0.02	0.05	< 0.05	< 0.005
	05-Dec-07	MAX	8.1	653	305	26	1	< 2	12	0.3	< 0.05	< 0.02	27	< 1	6	6.7	97	< 0.02	0.03	< 0.1	< 0.005
Monitor 10-00 Bedrock	27-Jun-01	Philip	7.84	662	259	31.5	< 1	< 0.5	< 5	0.14	0.07	0.009	103	< 1	22	9.9	93.7	0.02	0.02	< 0.1	0.02
	03-Dec-01	Philip	8.01	666	267	30.7	< 1	0.8	< 5	0.19	0.04	0.01	85.8	< 1	25.8	12	95.1	0.04	0.02	< 0.1	0.06
	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	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
	30-Mar-07	MAX	8.2	648	249	27	1.1	< 2	< 4	0.5	0.12	< 0.02	75	< 1	19	7.7	79	0.02	0.01	< 0.05	< 0.005
	14-Jun-07	MAX	8.1	656	246	29	1.1	< 2	5	0.2	0.15	< 0.02	81	< 1	21	8.9	84	0.03	0.02	< 0.05	< 0.005
	05-Dec-07	MAX	8.2	652	239	28	1.1	< 2	11	0.2	0.07	< 0.02	81	< 1	21	8.8	86	< 0.02	< 0.01	< 0.1	< 0.005

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	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	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	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	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
	30-Mar-07	MAX	8.3	523	244	23	1.8	< 2	< 4	0.4	0.26	< 0.02	29	< 1	11	4.3	64	< 0.02	0.03	< 0.05	< 0.005
	14-Jun-07	MAX	8.3	539	242	27	1.8	< 2	< 4	0.4	0.24	< 0.02	32	< 1	12	5.2	77	< 0.02	0.03	< 0.05	0.02
	05-Dec-07	MAX	8.2	534	236	25	1.9	< 2	11	0.2	0.12	< 0.02	33	< 1	12	6	69	< 0.02	0.03	< 0.1	< 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	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	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	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
	30-Mar-07	MAX	8.3	780	274	12	1	< 2	7	0.4	0.09	< 0.02	34	< 1	61	95	44	< 0.02	1.5	< 0.05	< 0.005
	14-Jun-07	MAX	8.2	756	264	15	1.3	< 2	7	0.4	0.08	< 0.02	36	< 1	54	96	60	< 0.02	1.8	< 0.05	0.02
	05-Dec-07	MAX	8.2	755	259	16	1.5	< 2	12	0.3	< 0.05	5.2	27	< 1	66	77	65	< 0.02	0.58	< 0.1	0.01
Monitor 12a-00 Bedrock	27-Jun-01	Philip	7.5	888	390	43.6	14	1.2	7	0.92	0.45	0.006	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	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	46.3	10	55.5	36.2	103	< 0.01	0.02		1.17
	01-Dec-03	No A																			
	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
	30-Mar-07	MAX	8.1	938	376	33	23	< 2	5	1.1	0.47	< 0.02	40	< 1	35	26	110	< 0.02	0.02	< 0.05	1.3
	14-Jun-07	MAX	8	947	353	37	17	< 2	8	3.5	0.24	< 0.02	45	< 1	40	29	100	< 0.02	0.02	< 0.05	1.1
	05-Dec-07	MAX	8	796	343	34	11	< 2	12	0.4	0.1	0.03	39	< 1	34	17	94	< 0.02	0.03	< 0.1	0.92

Routine Groundwater Quality - General Analysis -Waste Resource Innovation Centre

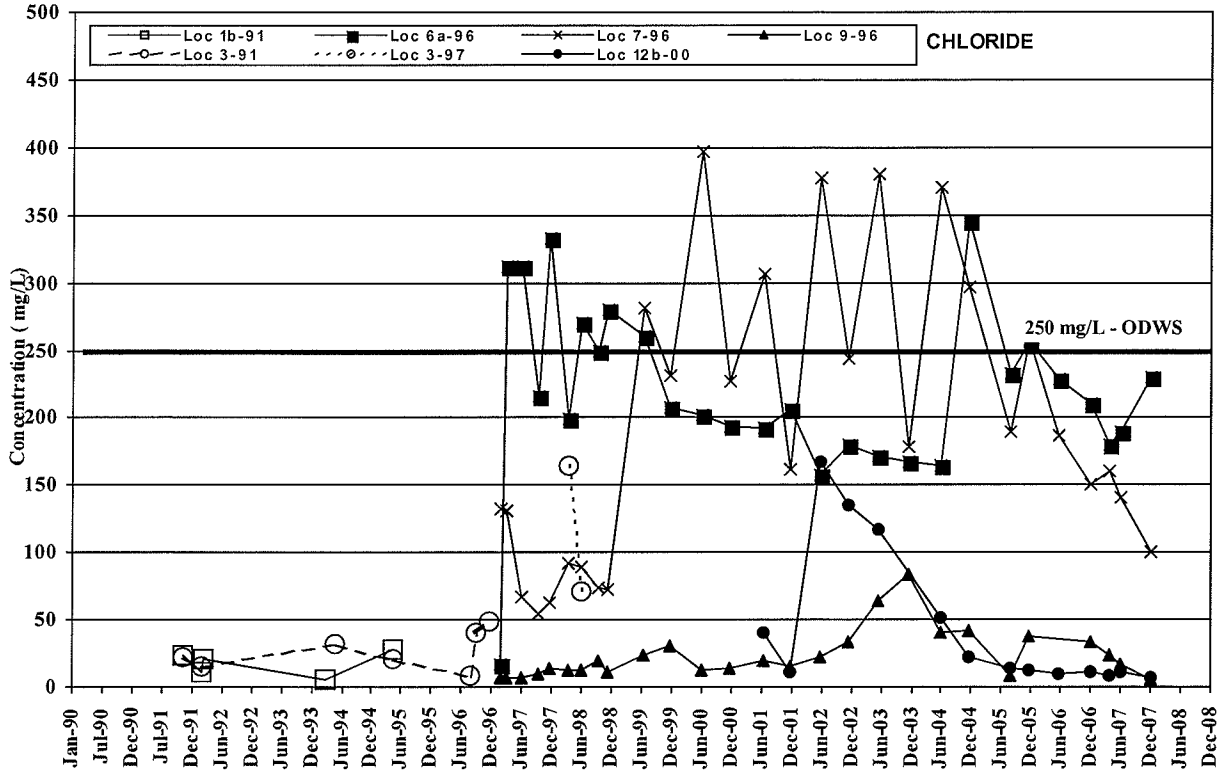
	Date	Lab	pH	Cond-uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L
Monitor 12b-00 Outwash	27-Jun-01	Philip	7.77	760	354	27.2	4	0.9	11	0.45	0.13	0.026	48.9	< 1	40	25.2	106	0.62	0.1	< 0.1	0.37
	03-Dec-01	Philip	7.83	435	204	12.8	3.5	1.2	12	0.26	< 0.03	0.042	21.3	< 1	11.7	12.3	54.8	0.02	0.07	< 0.1	0.21
	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	4.5	157	117	66	118	22.7	0.11		0.02
	01-Dec-03	No A																			
	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
	30-Mar-07	MAX	8.1	526	257	15	2.2	< 2	8	0.7	0.39	< 0.02	18	< 1	8	10	76	1.1	0.04	< 0.05	0.22
	14-Jun-07	MAX	8	685	337	22	3	< 2	16	0.6	0.44	< 0.02	30	< 1	11	13	93	4.5	0.05	< 0.05	0.22
	05-Dec-07	MAX	7.9	657	305	22	2.8	< 2	11	0.3	< 0.05	0.02	27	< 1	7	8.4	95	< 0.02	0.04	< 0.1	0.58
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	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	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
	30-Mar-07	MAX	8.1	958	260	32	2.4	< 2	5	0.3	0.21	< 0.02	103	< 1	94	39	90	0.5	0.04	< 0.05	< 0.005
	14-Jun-07	MAX	8.2	967	258	34	2.5	< 2	4	0.4	0.21	< 0.02	110	< 1	97	44	100	0.43	0.04	< 0.05	< 0.005
	05-Dec-07	MAX	8.1	939	251	34	2.4	< 2	8	0.2	0.17	< 0.02	103	< 1	97	42	98	0.42	0.04	< 0.1	< 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	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	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
	30-Mar-07	MAX	8.1	977	419	38	1.9	< 2	< 4	0.4	0.08	< 0.02	22	< 1	65	40	130	< 0.02	0.03	< 0.05	0.07
	14-Jun-07	MAX	8.1	971	383	35	2	< 2	5	0.4	0.09	< 0.02	24	< 1	79	38	130	< 0.02	0.03	< 0.05	0.07
	05-Dec-07	MAX	8	1260	363	36	2	< 2	14	0.2	< 0.05	< 0.02	49	< 1	160	88	120	< 0.02	0.02	< 0.1	0.07

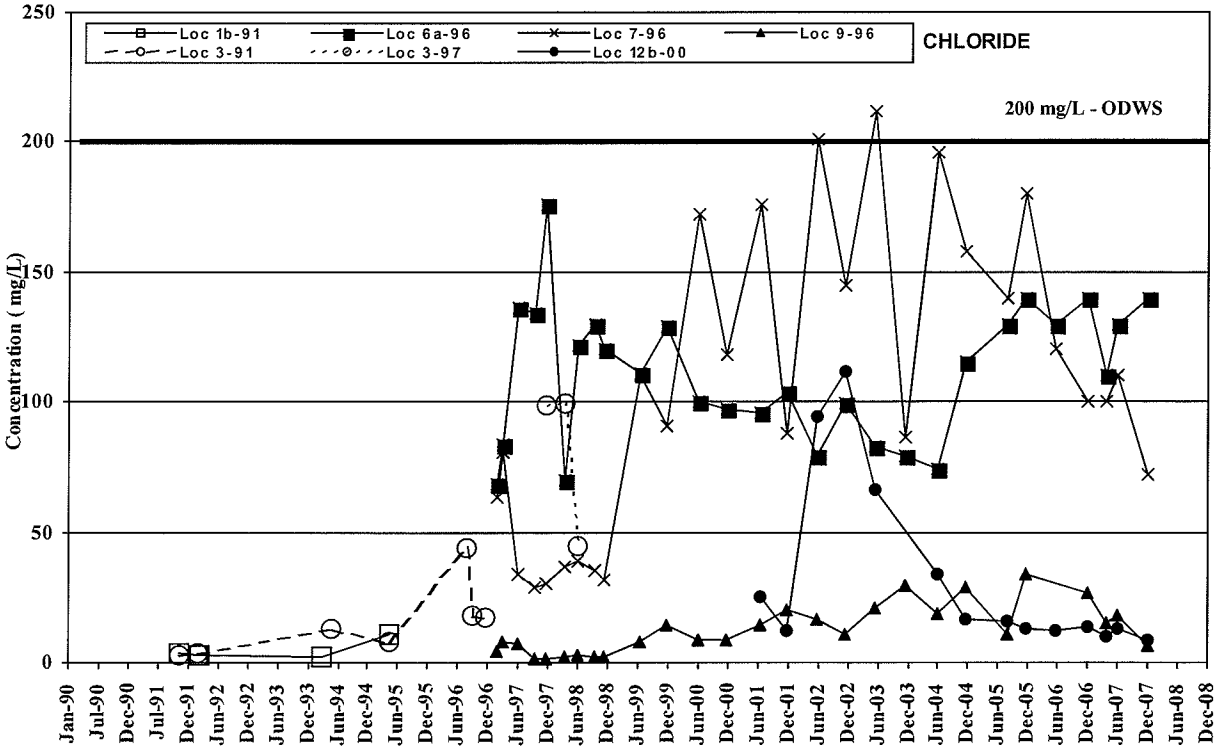
Routine Groundwater Quality - General Analysis -Waste Resource Innovation Centre

	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	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 14a-01 Bedrock	04-Dec-01	Philip	7.95	674	263	27.9	< 1	2	10	0.23	< 0.03	0.011	64.8	< 1	26.6	27.4	84	0.25	0.04	< 0.1	0.13
	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	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
	30-Mar-07	MAX	8.2	599	249	24	0.99	< 2	< 4	0.2	0.06	< 0.02	61	< 1	13	13	72	< 0.02	0.02	< 0.05	< 0.005
	14-Jun-07	MAX	8.1	601	243	29	1.1	< 2	< 4	0.2	0.1	< 0.02	63	< 1	14	12	80	< 0.02	0.02	< 0.05	0.01
	05-Dec-07	MAX	8.2	603	241	27	1.2	< 2	12	0.1	< 0.05	< 0.02	62	< 1	12	16	77	< 0.02	0.01	< 0.1	< 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	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	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
	30-Mar-07	MAX	8.1	901	347	32	1.7	< 2	15	0.3	0.07	< 0.02	46	< 1	67	49	110	0.03	0.02	< 0.05	0.42
	14-Jun-07	MAX	8.1	909	295	36	2	< 2	8	0.2	0.09	< 0.02	87	< 1	75	39	110	0.13	0.03	< 0.05	0.18
	05-Dec-07	MAX	8.1	1040	294	35	1.9	< 2	13	0.3	< 0.05	< 0.02	88	< 1	120	42	120	< 0.02	0.01	< 0.1	0.35
Monitor 15a-01 Bedrock	04-Dec-01	Philip	7.95	754	259	35.1	< 1	0.6	< 5	0.16	< 0.03	0.006	92.4	< 1	48.3	7.7	104	0.27	< 0.01	< 0.1	< 0.005
	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	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
	30-Mar-07	MAX	8.1	808	263	29	1	< 2	< 4	0.3	0.1	< 0.02	92	< 1	54	15	88	0.56	0.01	< 0.05	< 0.005
	14-Jun-07	MAX	8.1	799	258	36	1.3	< 2	< 4	0.4	0.11	< 0.02	95	< 1	51	18	110	0.4	0.01	< 0.05	< 0.005
	05-Dec-07	MAX	8.2	799	255	35	1.2	< 2	13	0.2	0.09	< 0.02	100	< 1	51	19	110	0.47	0.01	< 0.1	< 0.005

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	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
15b-01 Outwash	04-Dec-01	Philip	8.16	646	252	27	< 1	4.4	13	0.27	< 0.03	0.014	26.2	< 1	24.4	6.2	77.7	< 0.01	0.08	< 0.1	0.14
	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	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
	30-Mar-07	MAX	8.1	955	484	38	0.92	< 2	< 4	0.4	0.09	< 0.02	28	< 1	13	9.2	150	< 0.02	0.03	< 0.05	0.008
	14-Jun-07	MAX	8.1	996	478	38	1	< 2	7	0.3	0.1	< 0.02	25	< 1	35	8.7	160	< 0.02	0.02	< 0.05	0.04
	05-Dec-07	MAX	8	1130	481	42	1.3	< 2	17	0.4	< 0.05	< 0.02	28	< 1	38	15	180	< 0.02	0.04	< 0.1	0.05





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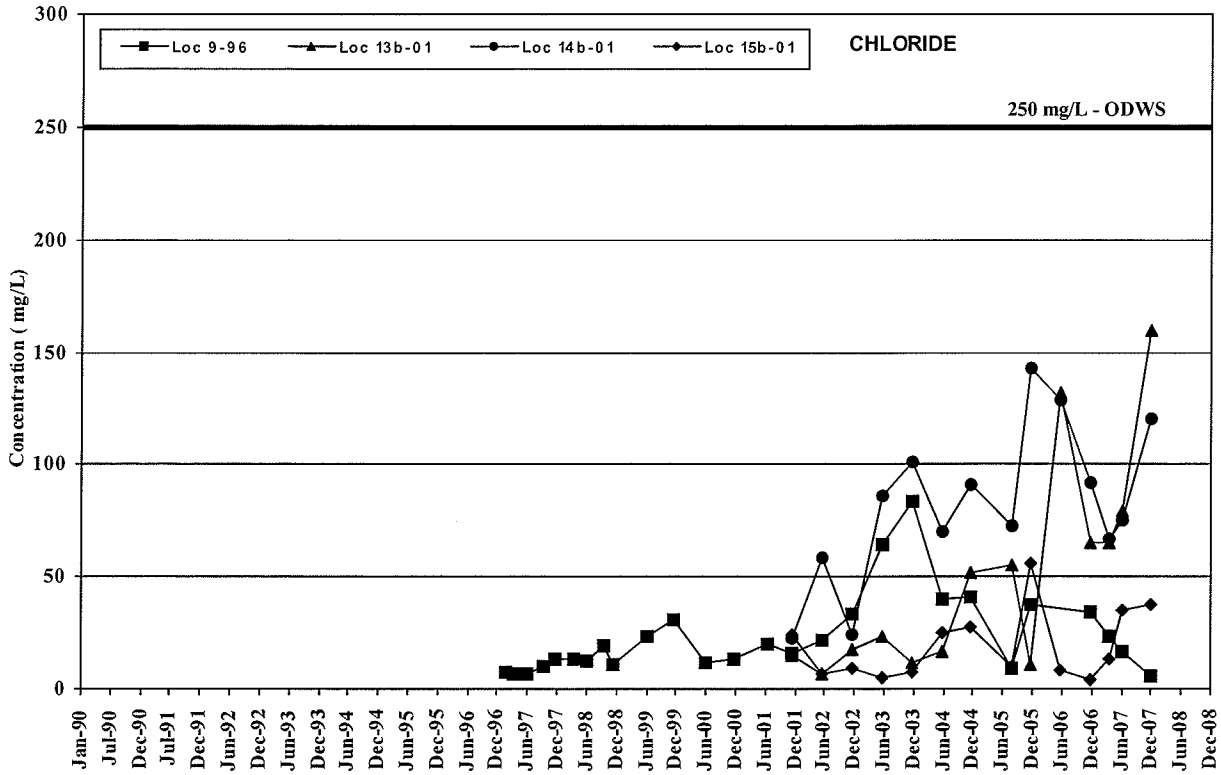
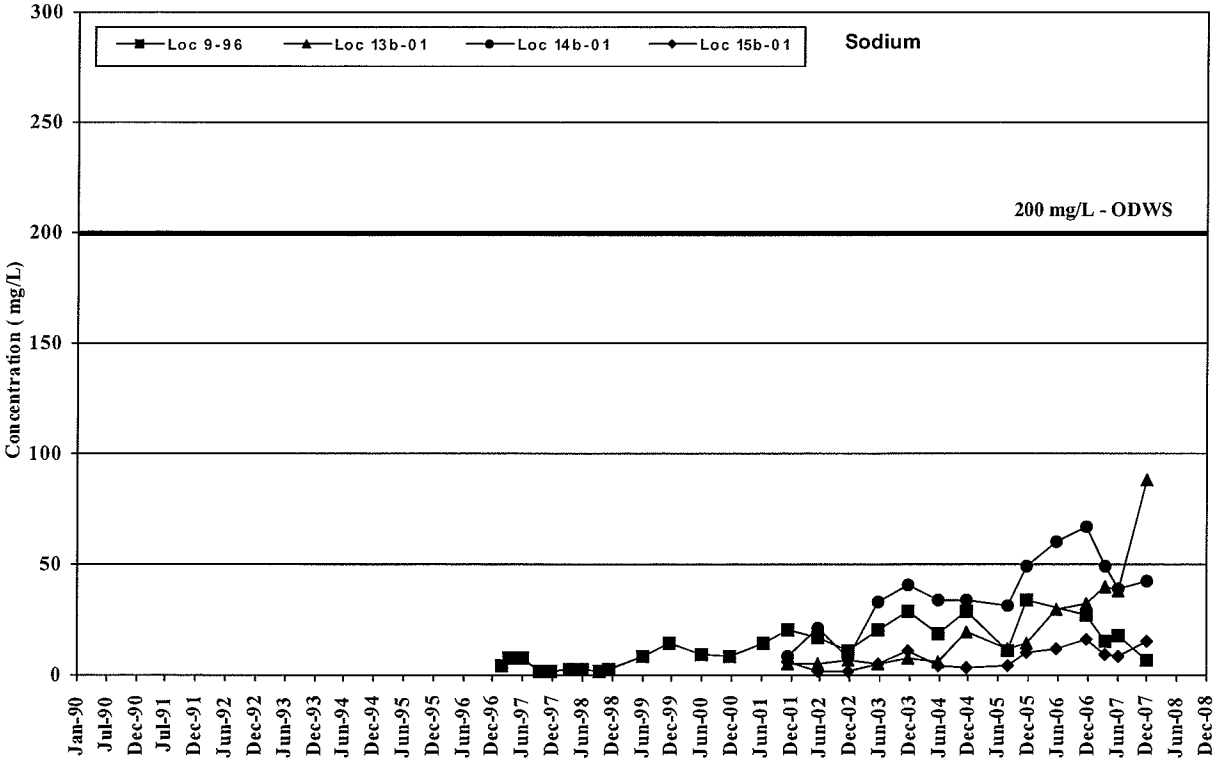
Ground Water Chemistry Trends
Overburden Locations on Wet/Dry Facility

FIGURE
B1

80-133
12 Cl-NA Location WestOB





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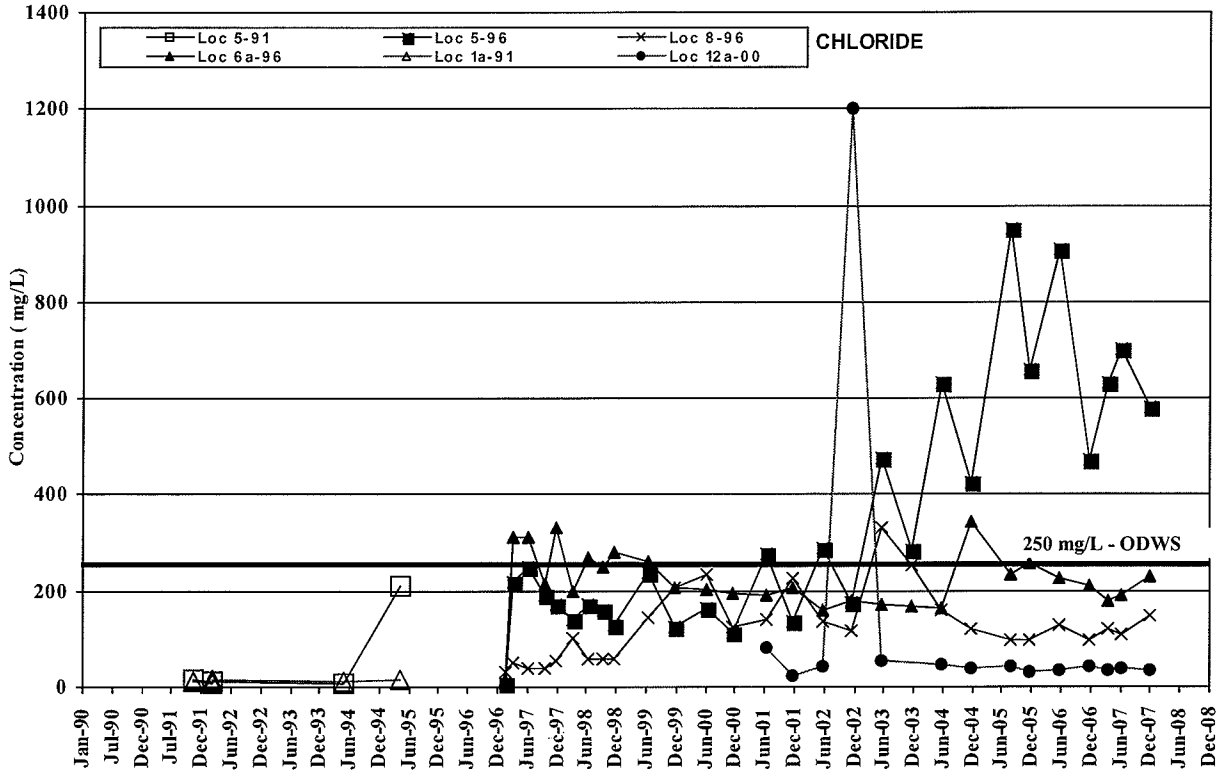
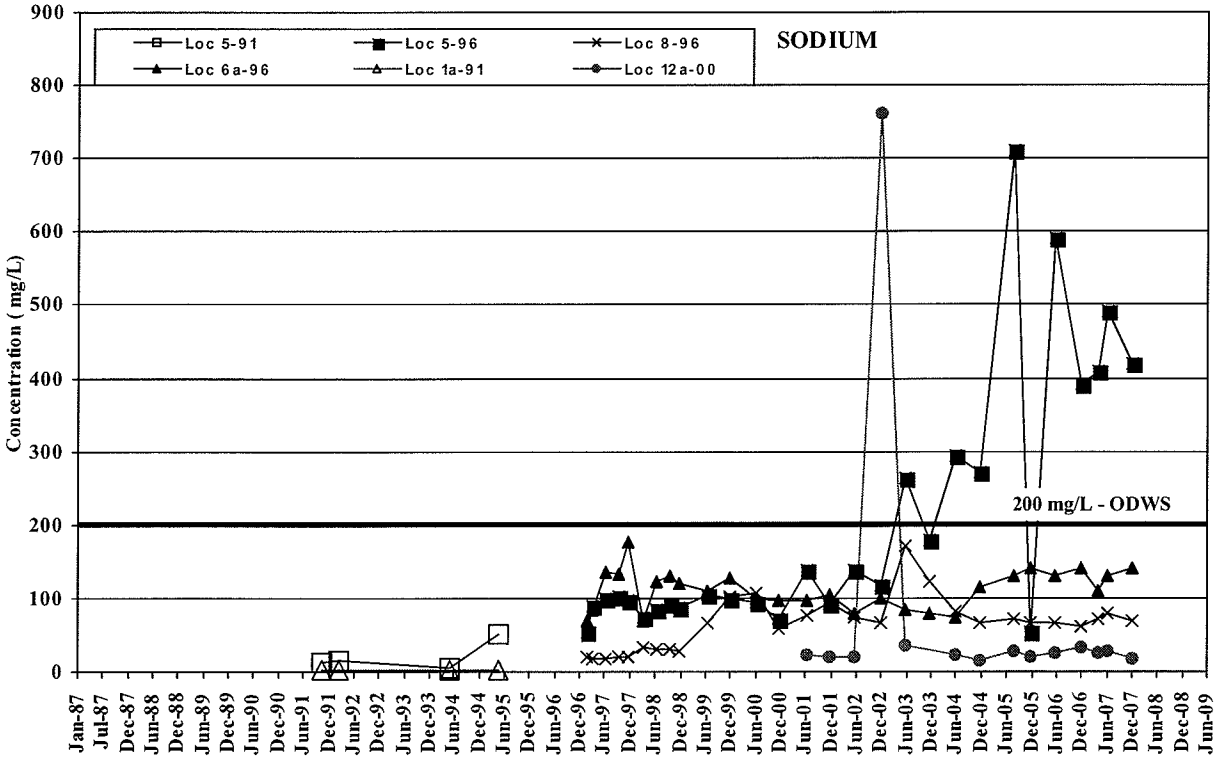
Ground Water Chemistry Trends
Overburden Locations East of Wet/Dry or Transfer Station Property

FIGURE
B2

80-133
12 Cl-NA Location EastOB





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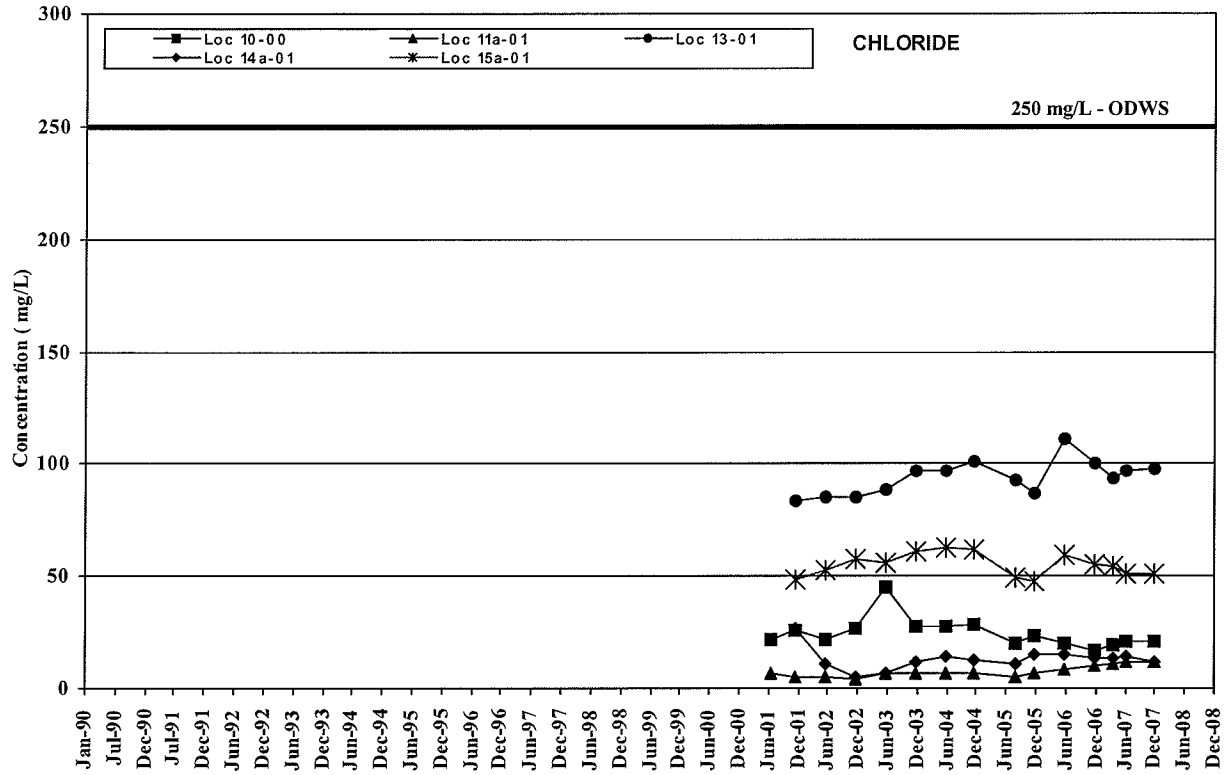
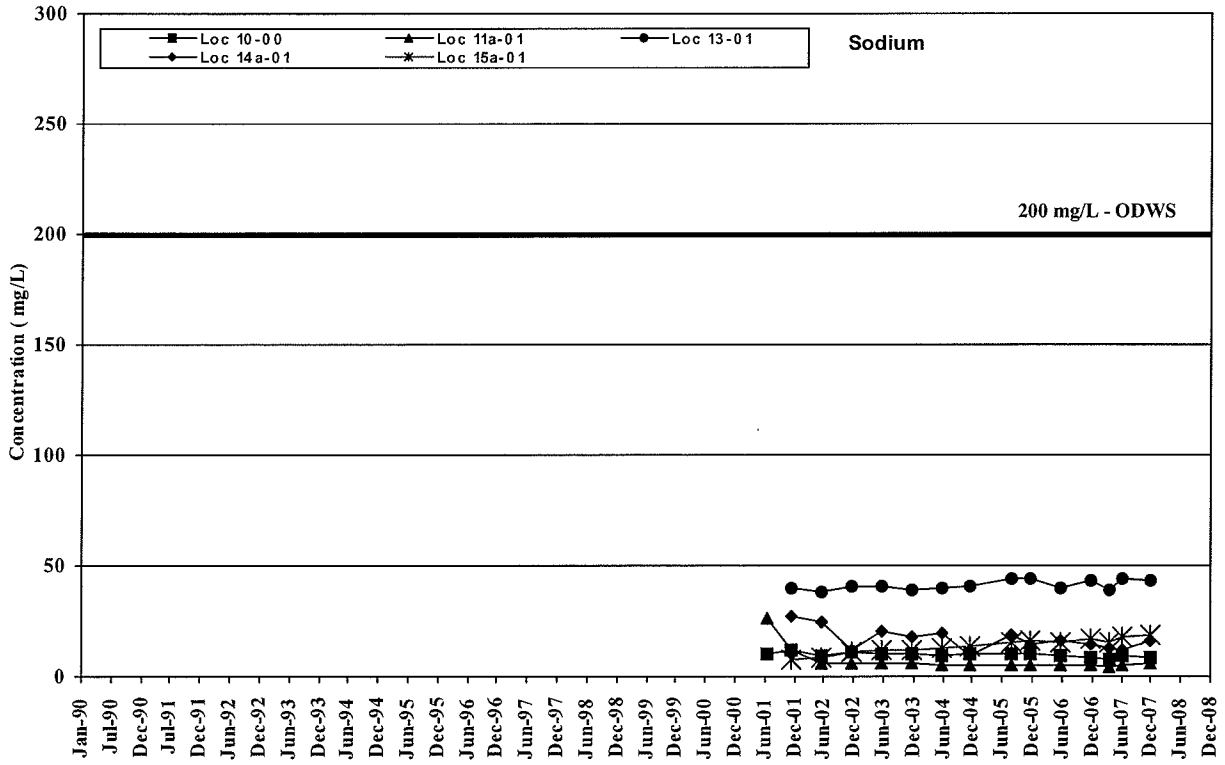
Ground Water Chemistry Trends
Bedrock Locations West or on Wet/Dry Facility

FIGURE
B3

80-133
12 Cl-NA Location WestBed





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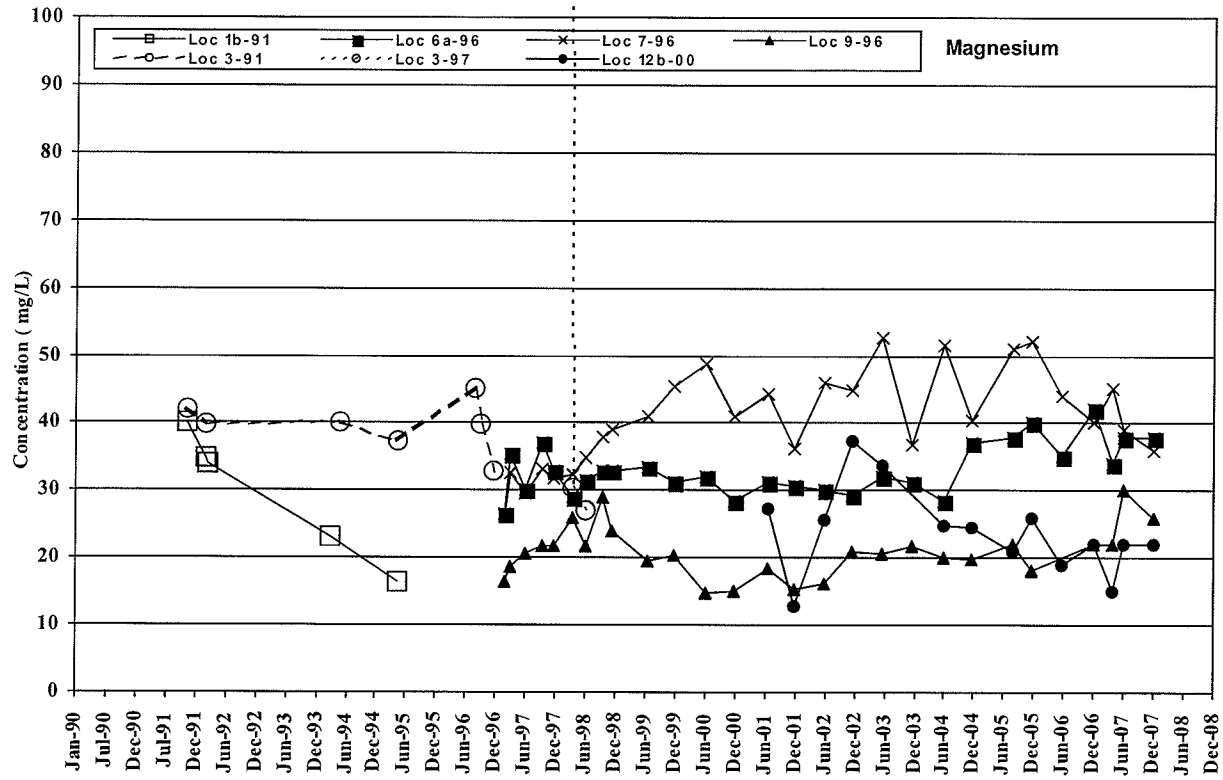
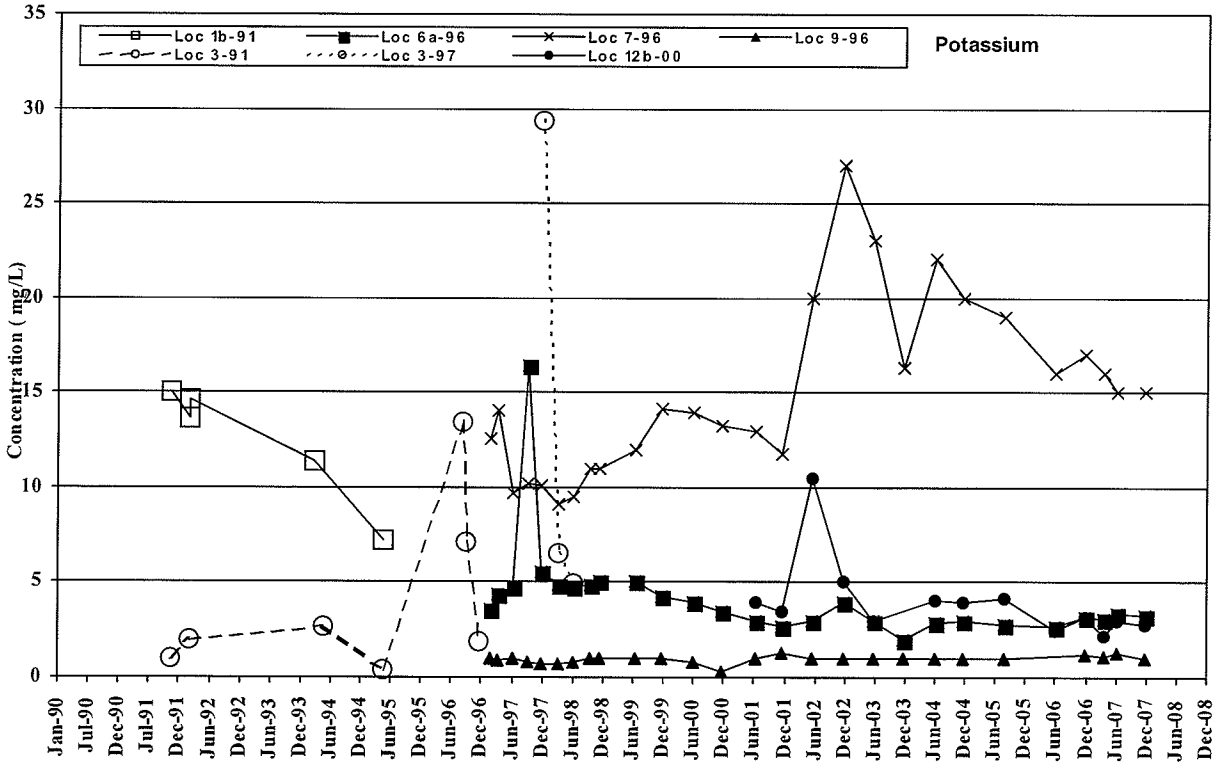
Ground Water Chemistry Trends
Bedrock Locations East of Wet/Dry or on Transfer Station Property

FIGURE
B4

80-133
12 Cl-NA Location EastBed





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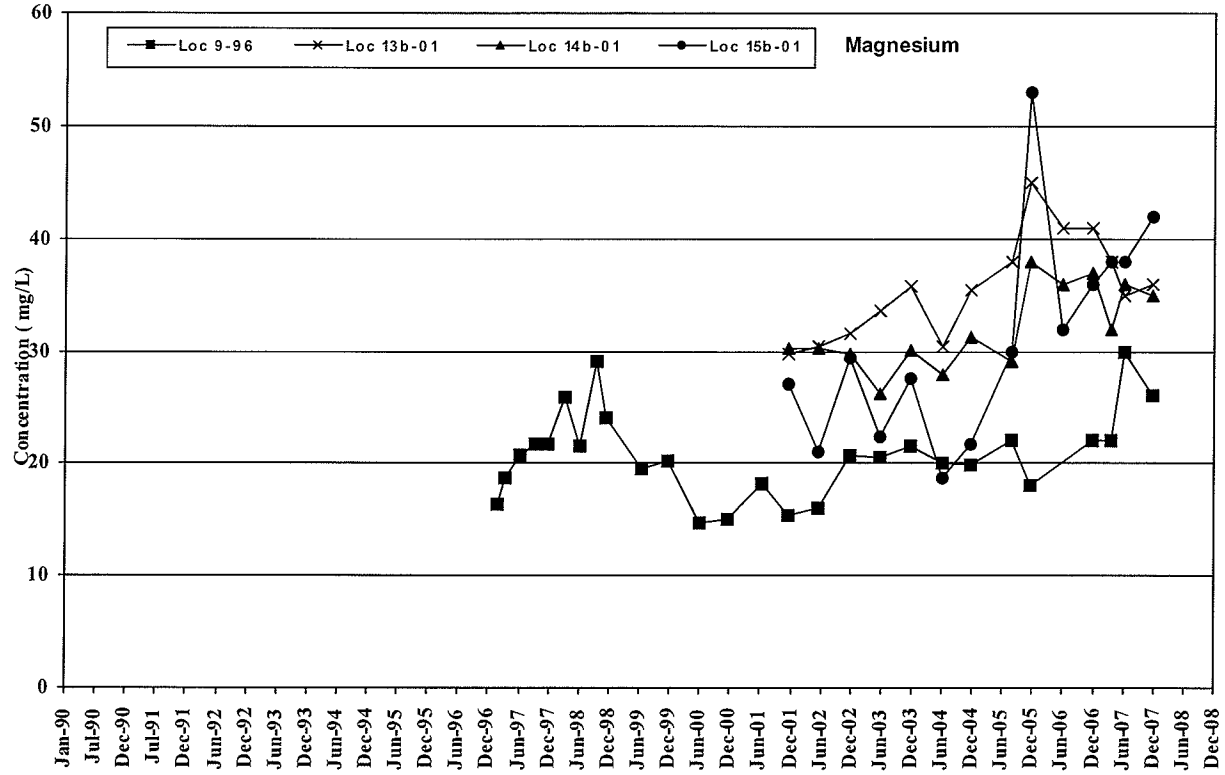
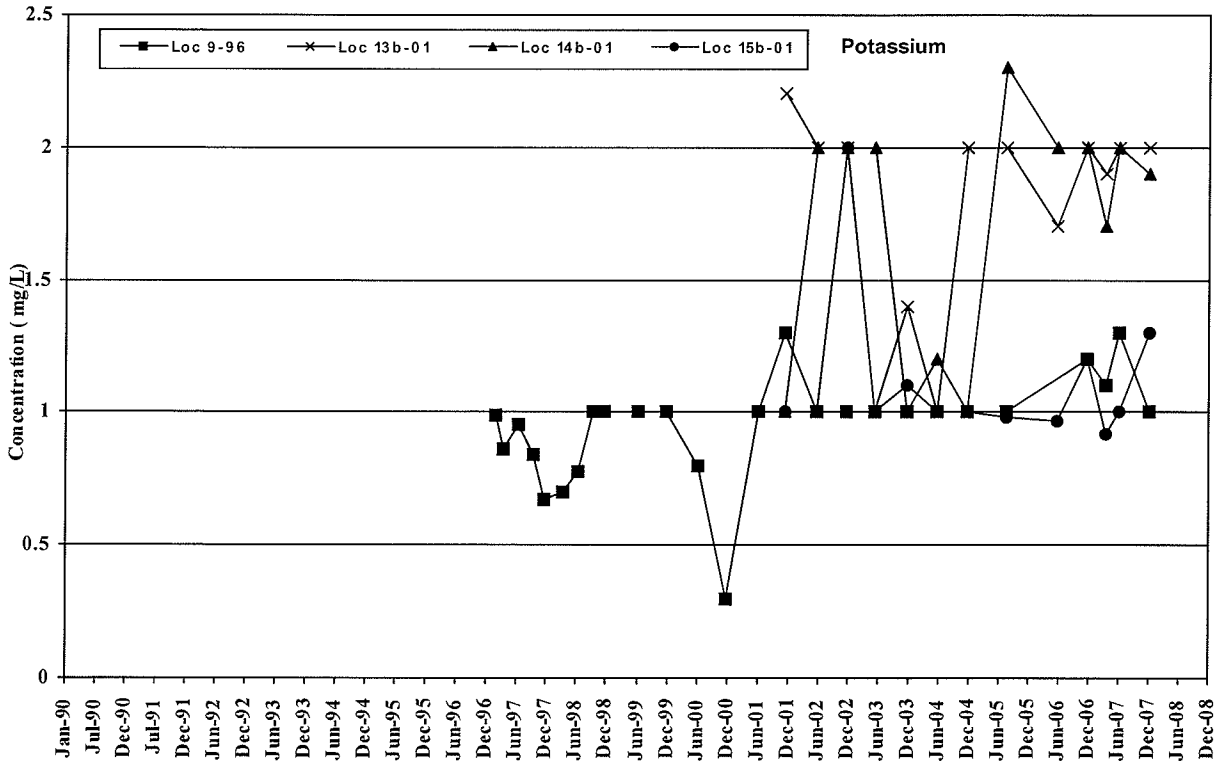
Ground Water Chemistry Trends
Overburden Locations on Wet/Dry Facility

FIGURE
B5

80-133
12 Mg-K Location WestOB





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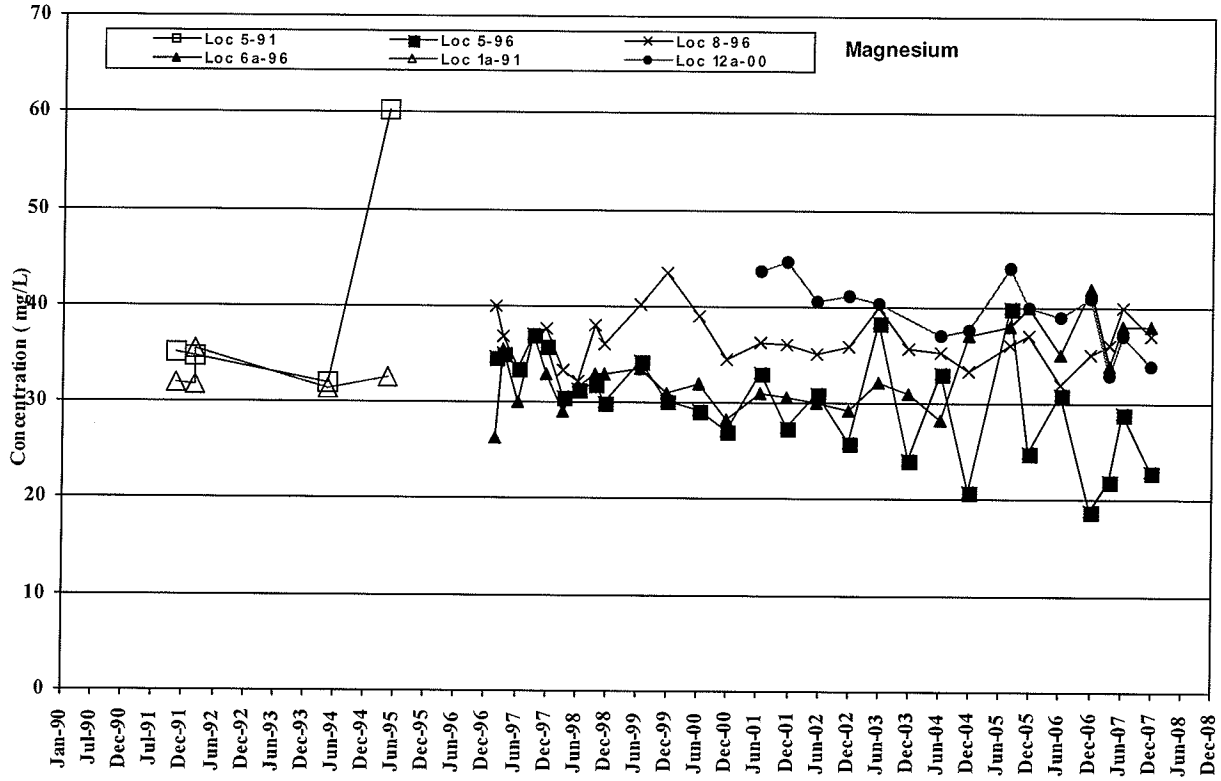
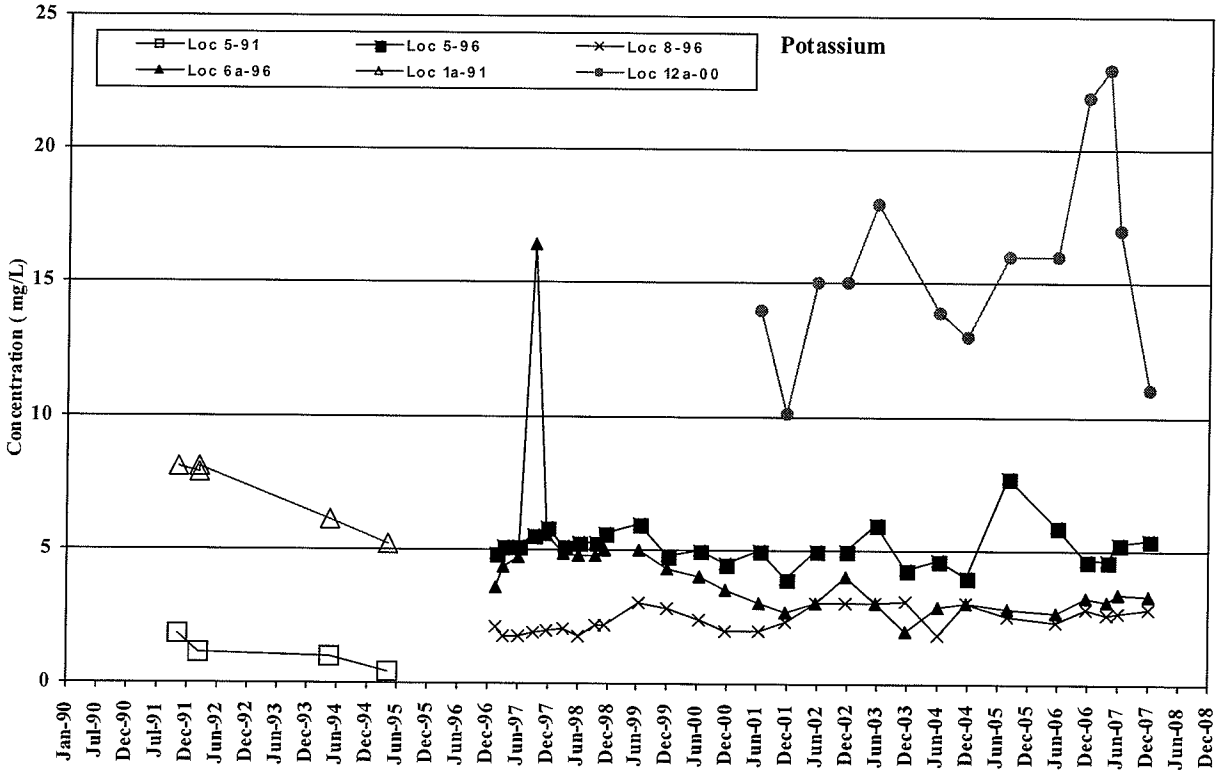
Ground Water Chemistry Trends
Overburden Locations East of Wet/Dry or Transfer Station Property

FIGURE
B6

80-133
12 Mg-K Location EastOB





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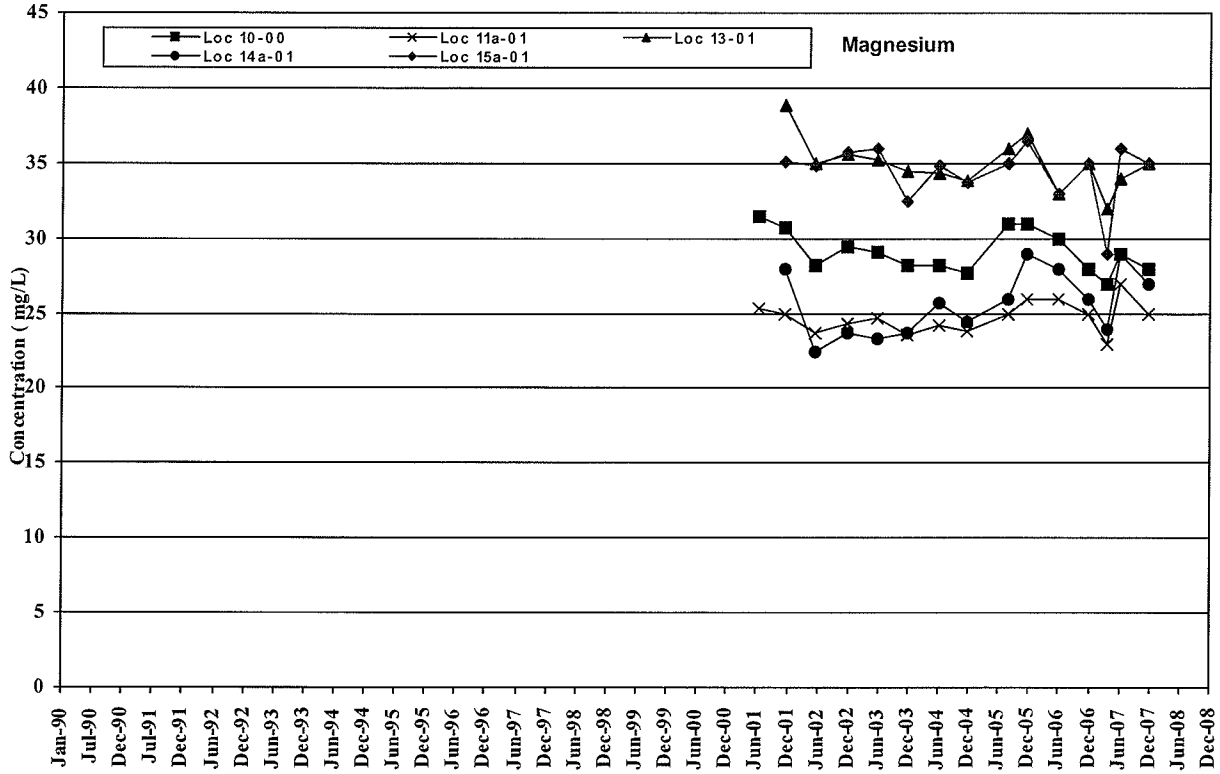
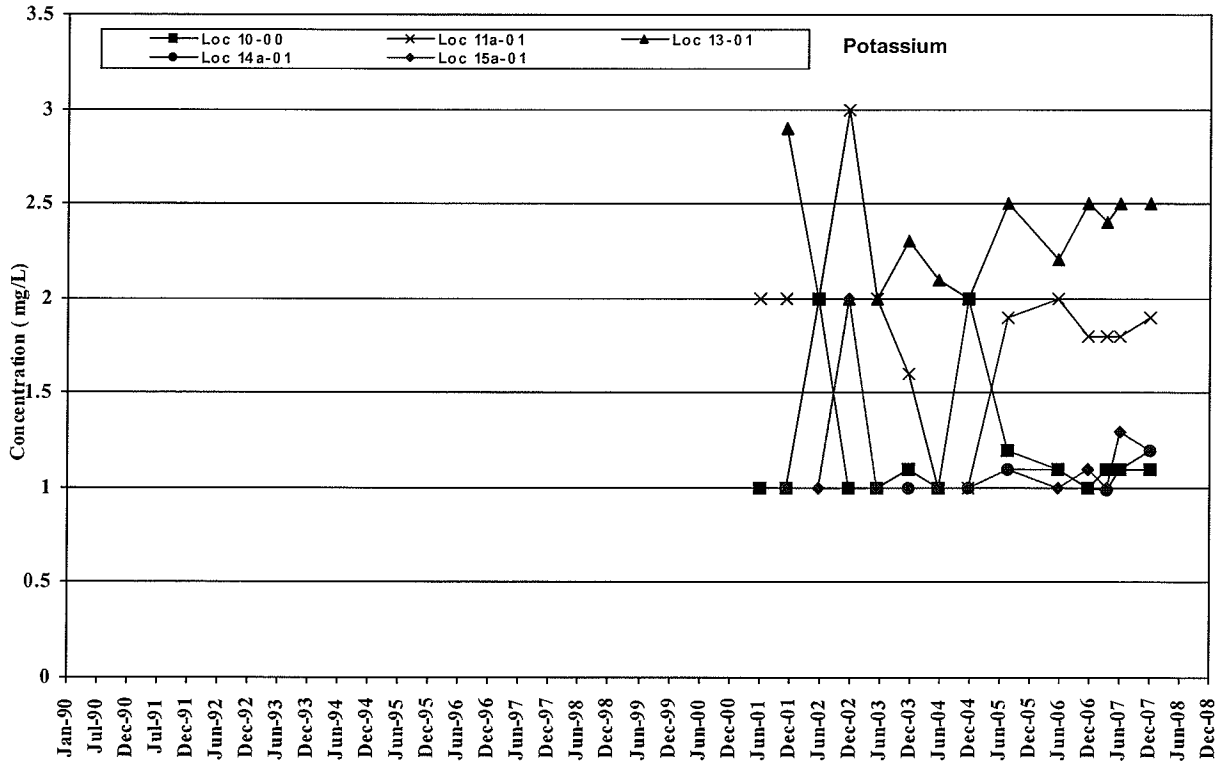
Ground Water Chemistry Trends
Bedrock Locations West or on Wet/Dry Facility

FIGURE
B7

80-133
12 Mg-K Location WestBed





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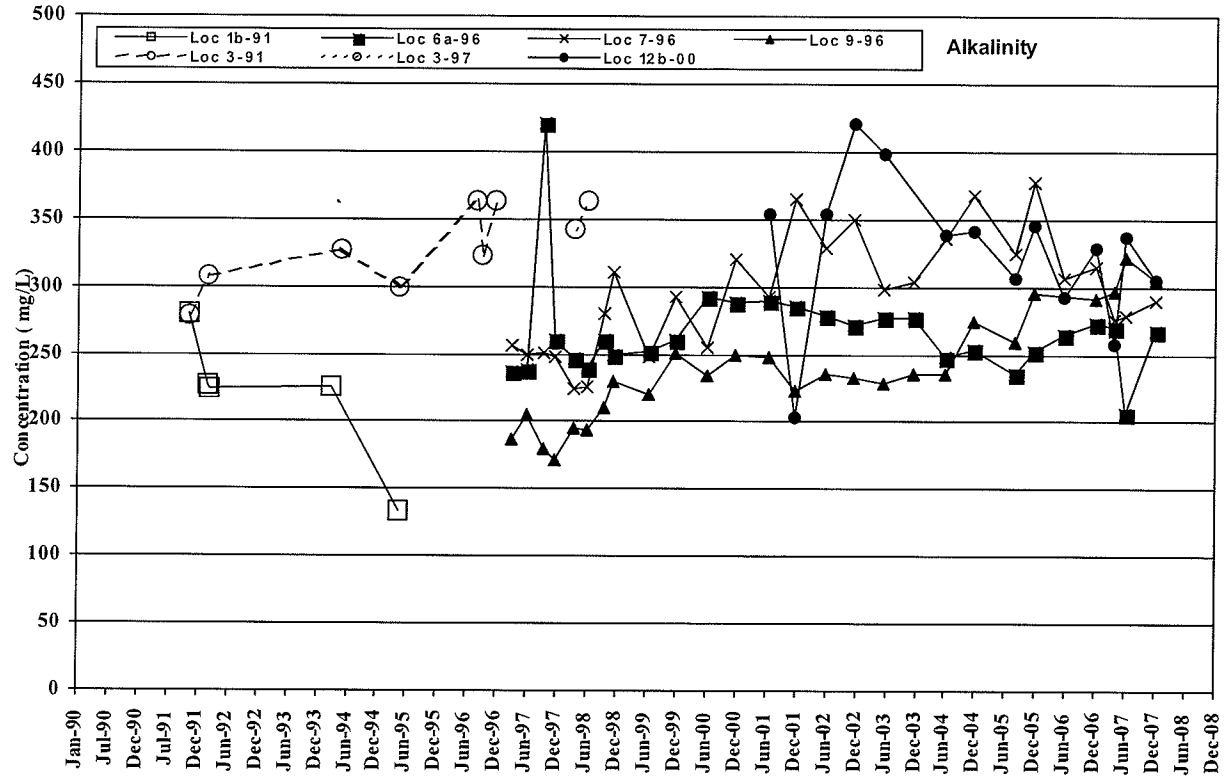
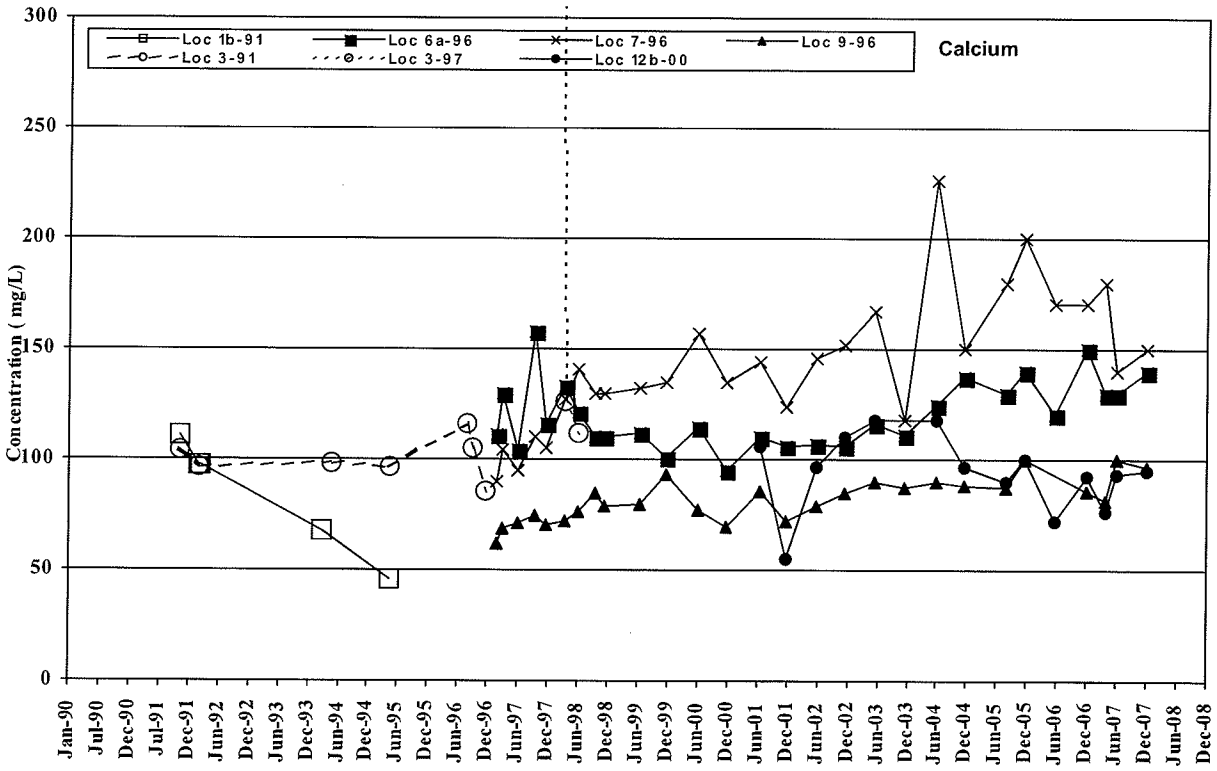
Ground Water Chemistry Trends
Bedrock Locations East of Wet/Dry or on Transfer Station Property

FIGURE
B8

80-133
12 Mg-K Location EastBed





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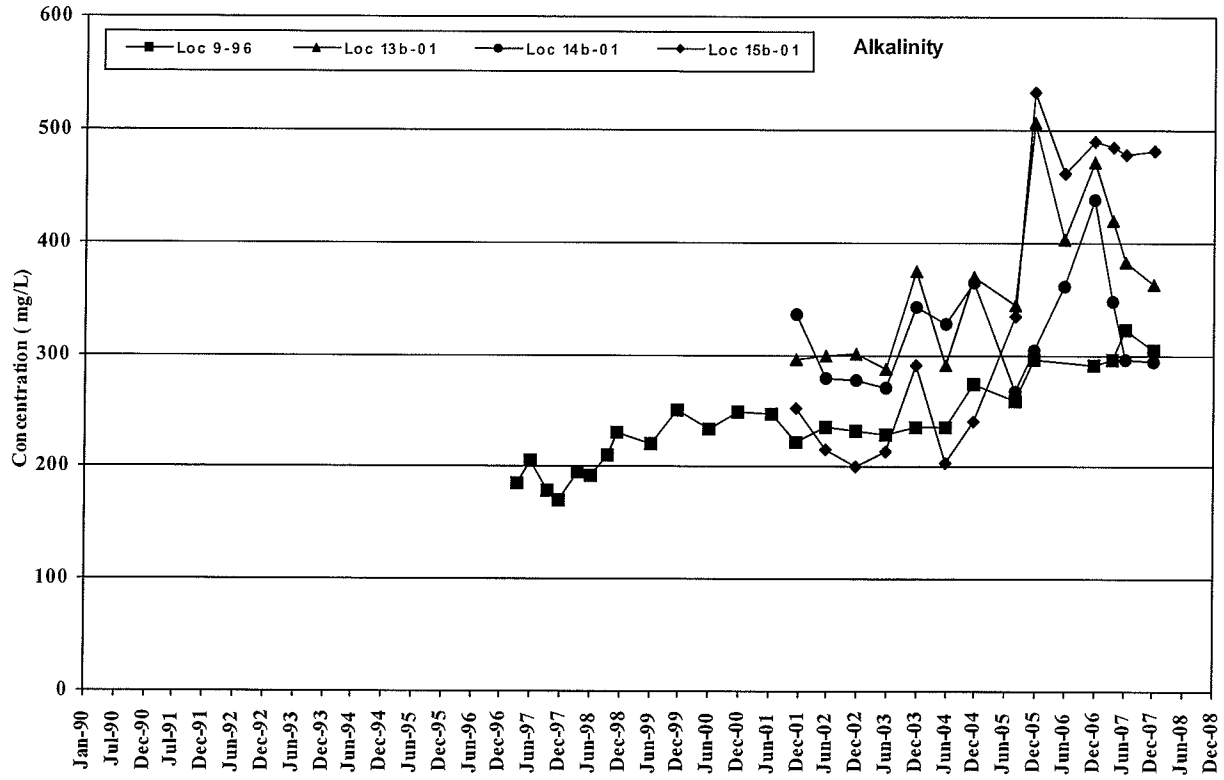
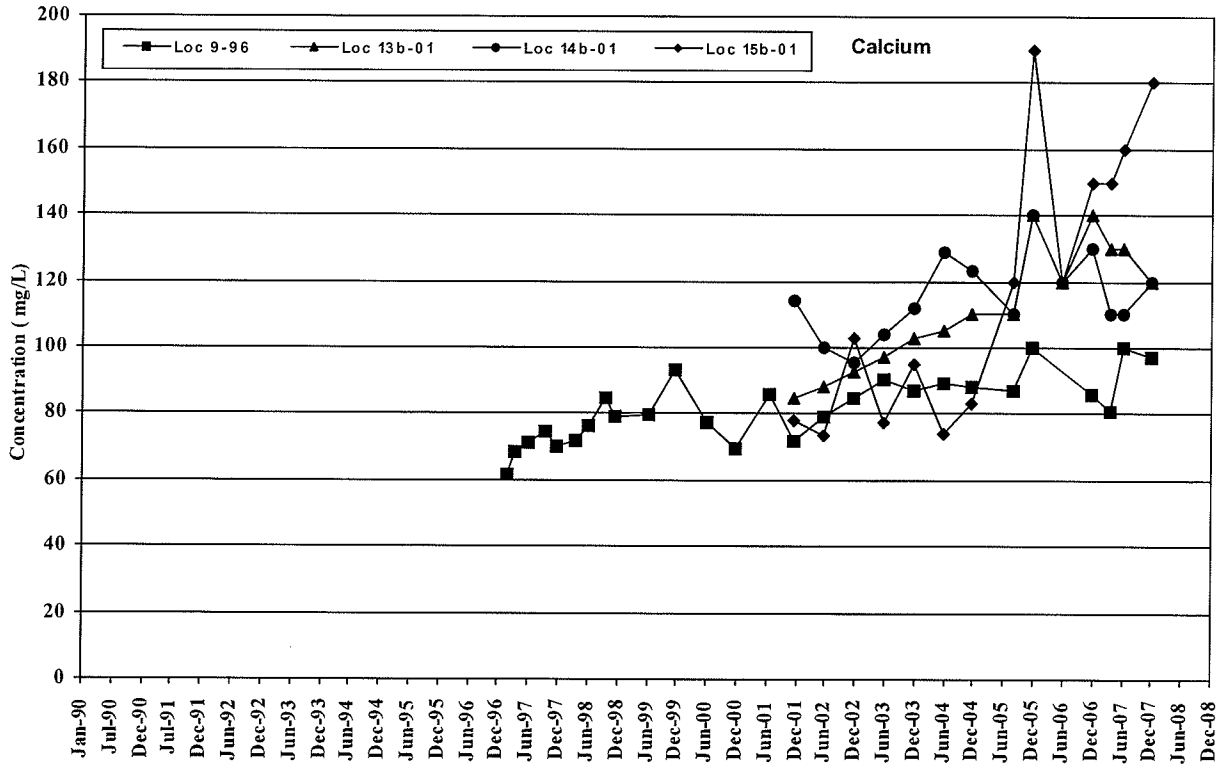
Ground Water Chemistry Trends
Overburden Locations on Wet/Dry Facility

FIGURE
B9

80-133
12 Alk-Ca Location WestOB





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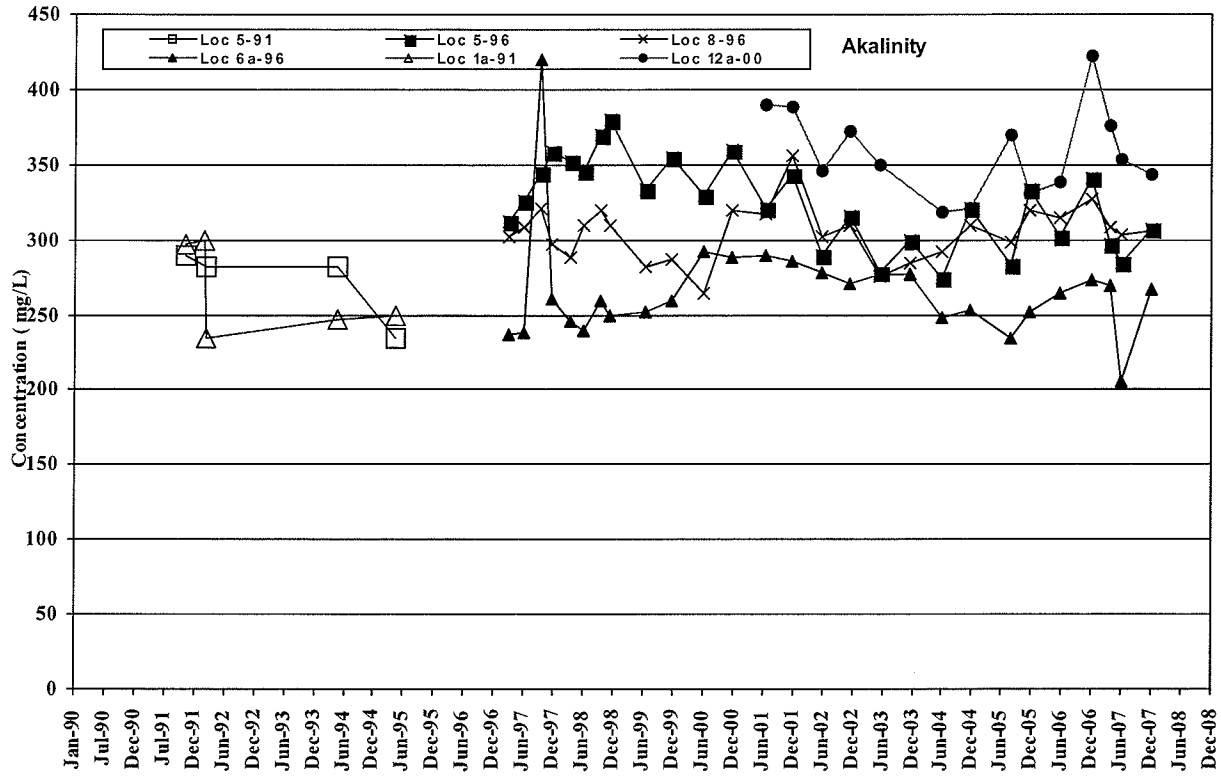
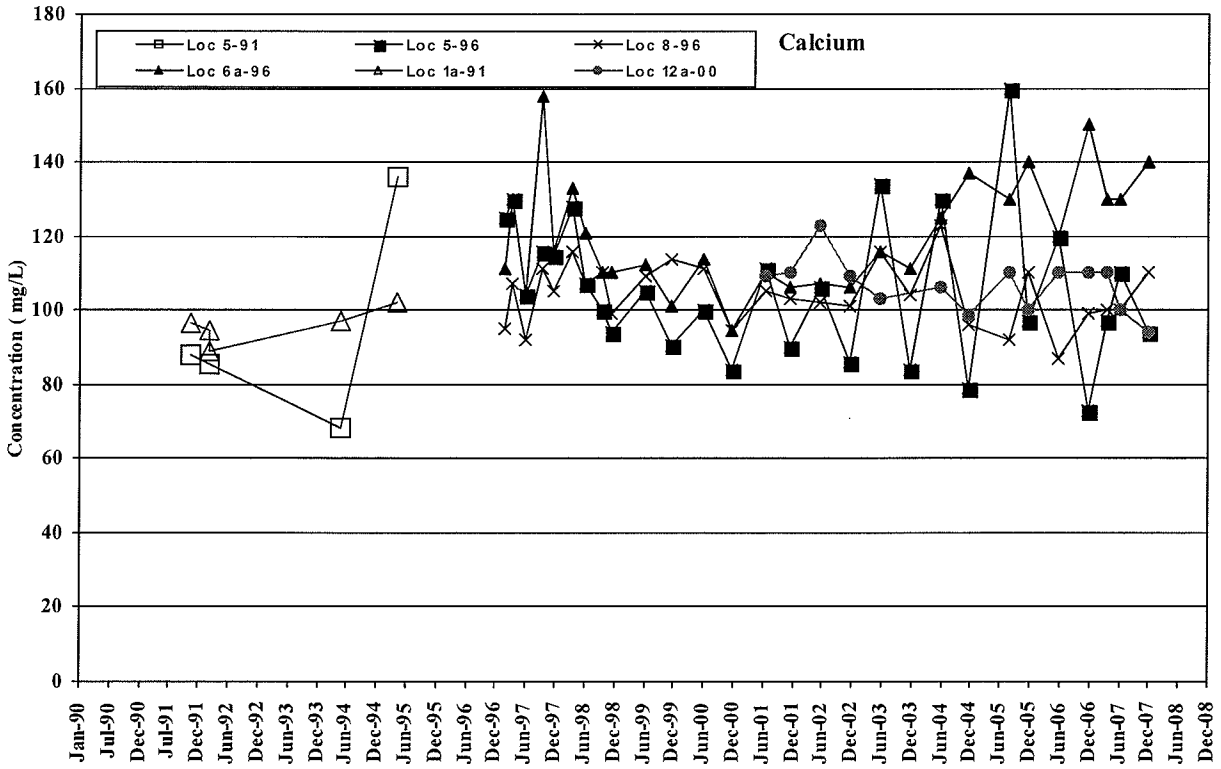
Ground Water Chemistry Trends
Overburden Locations East of Wet/Dry or Transfer Station Property

FIGURE
B10

80-133
12 Alk-Ca Location EastOB





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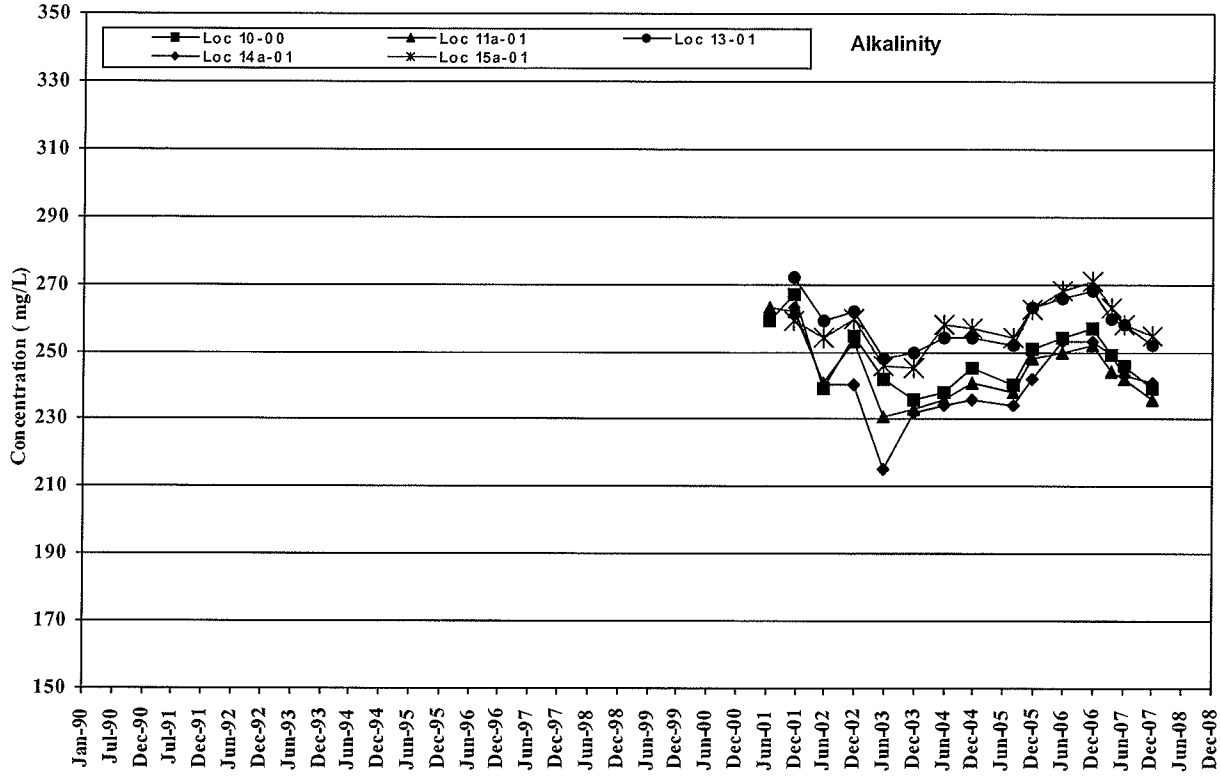
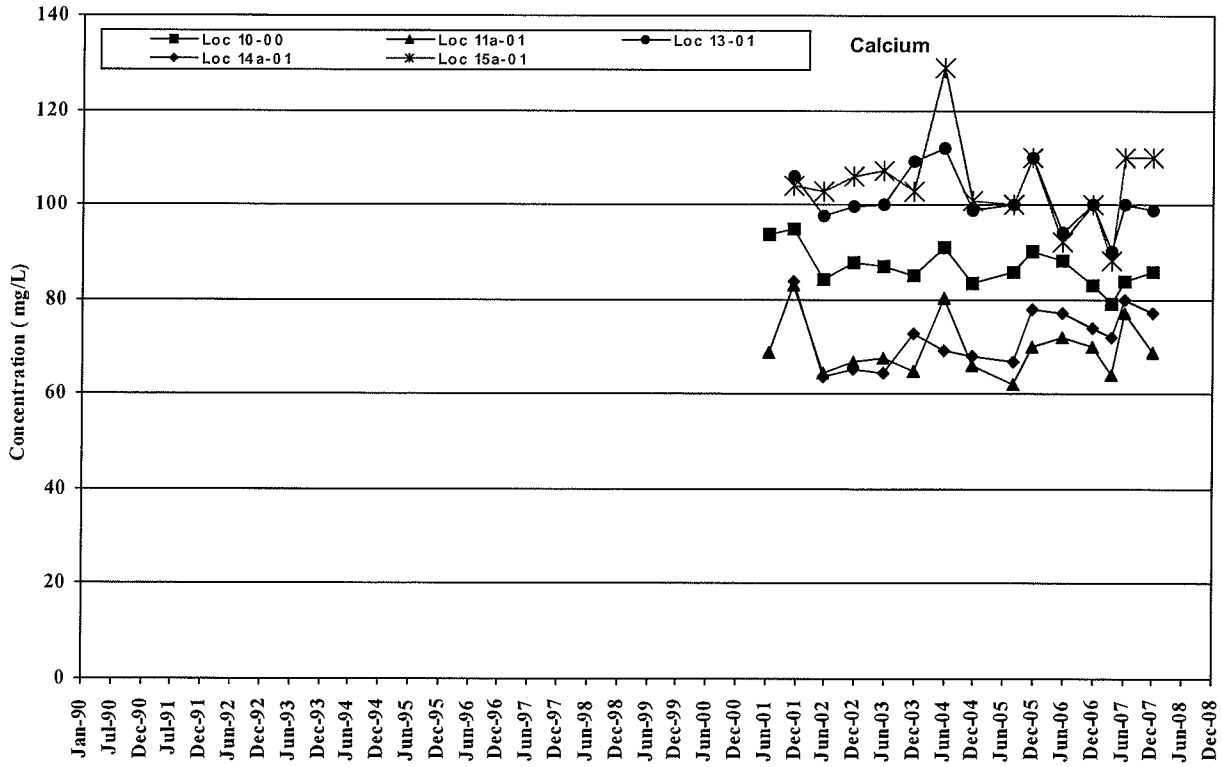
Ground Water Chemistry Trends
Bedrock Locations West or on Wet/Dry Facility

FIGURE
B11

80-133
12 Alk-Ca Location WestBed





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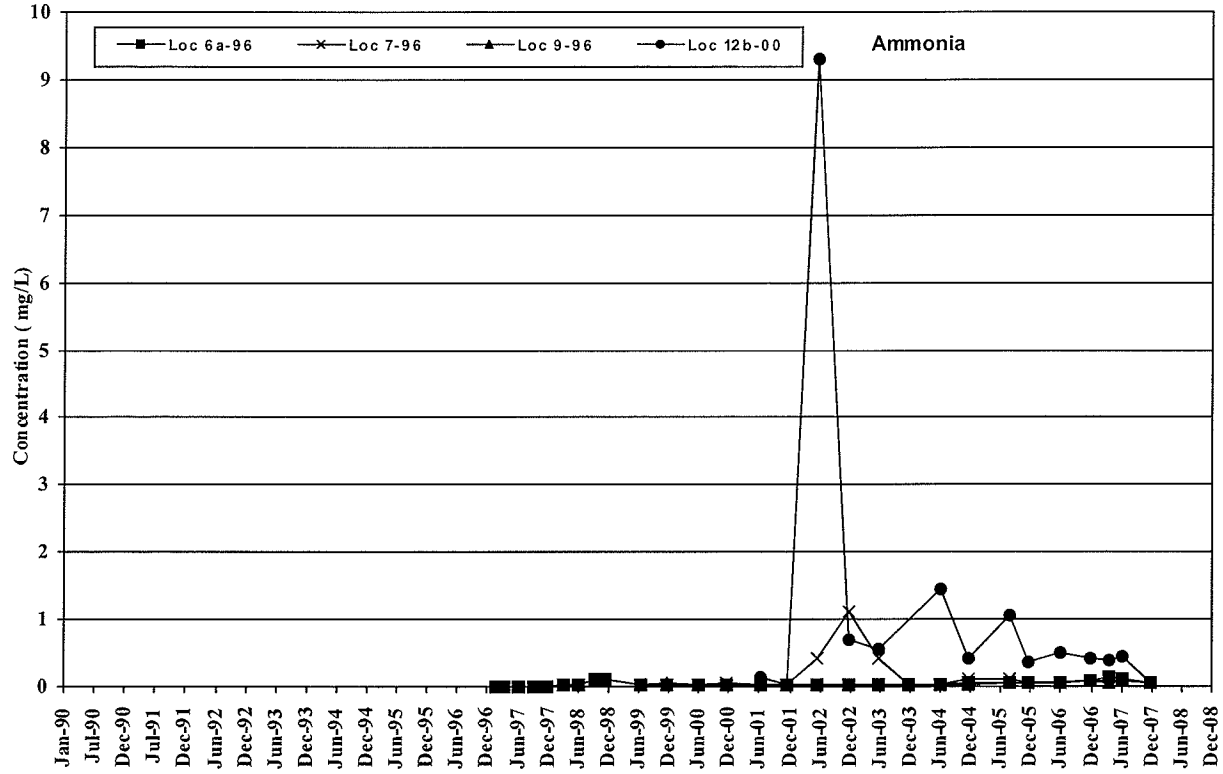
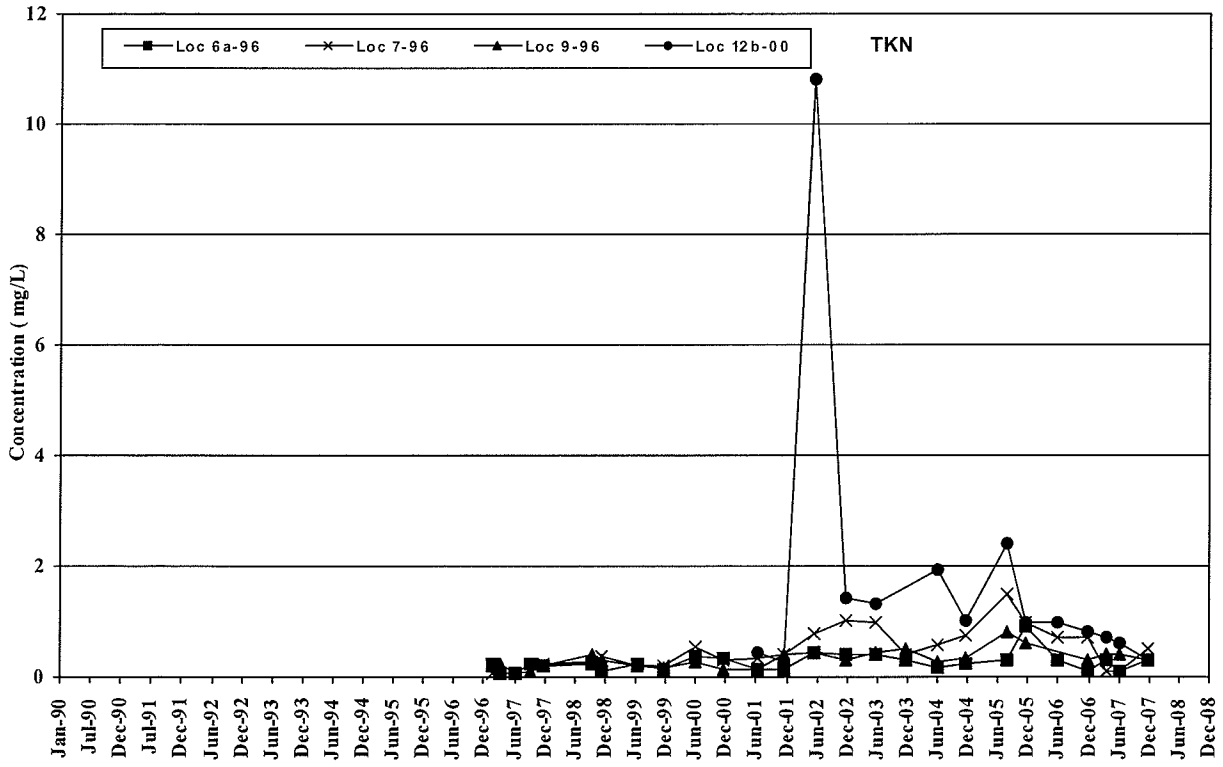
Ground Water Chemistry Trends
Bedrock Locations East of Wet/Dry or on Transfer Station Property

FIGURE
B12

80-133
12 Alk-Ca Location EastBed





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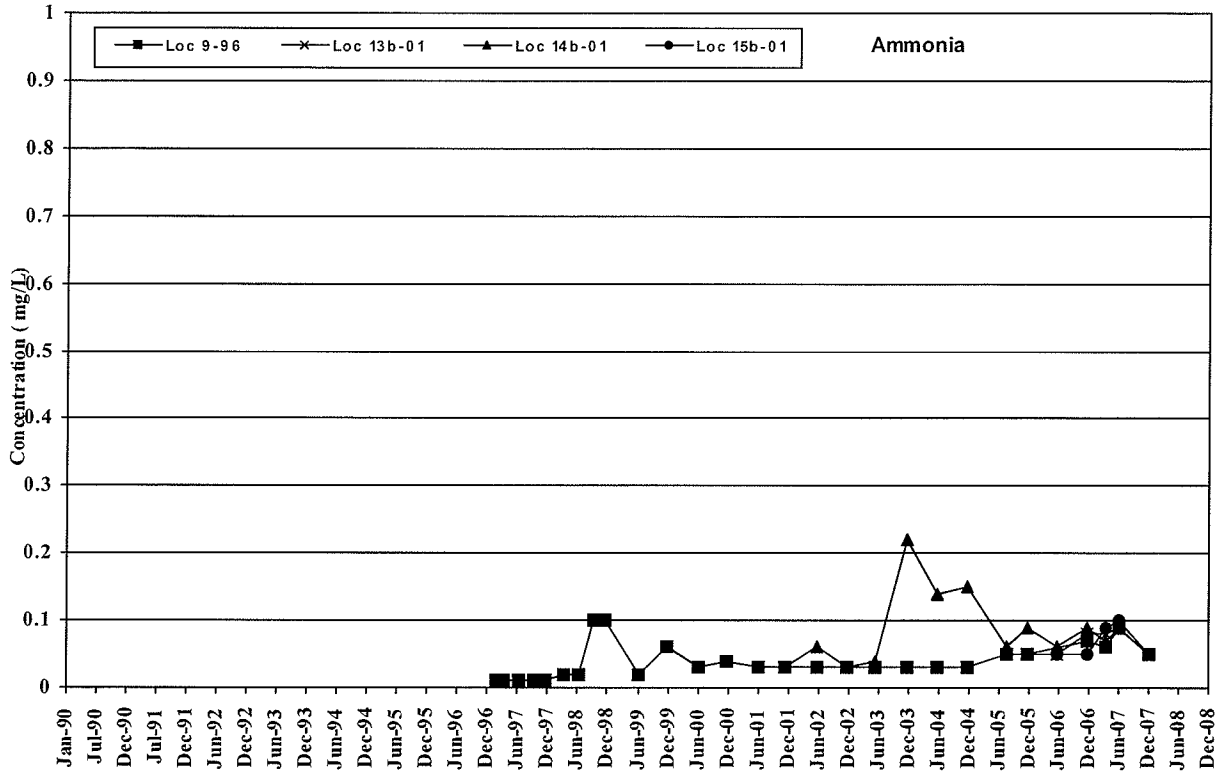
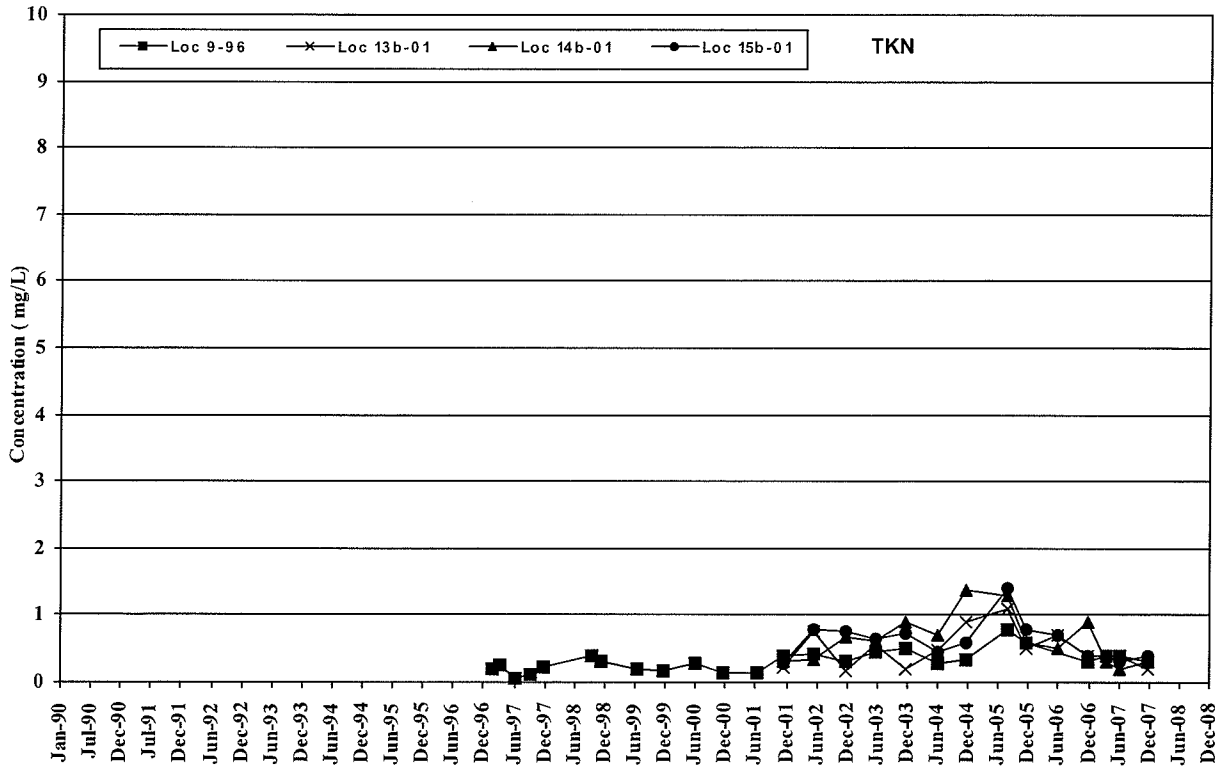
Ground Water Chemistry Trends
Overburden Locations on Wet/Dry Facility

FIGURE
B13

#Error
12 NH3-TKN Location WestOB





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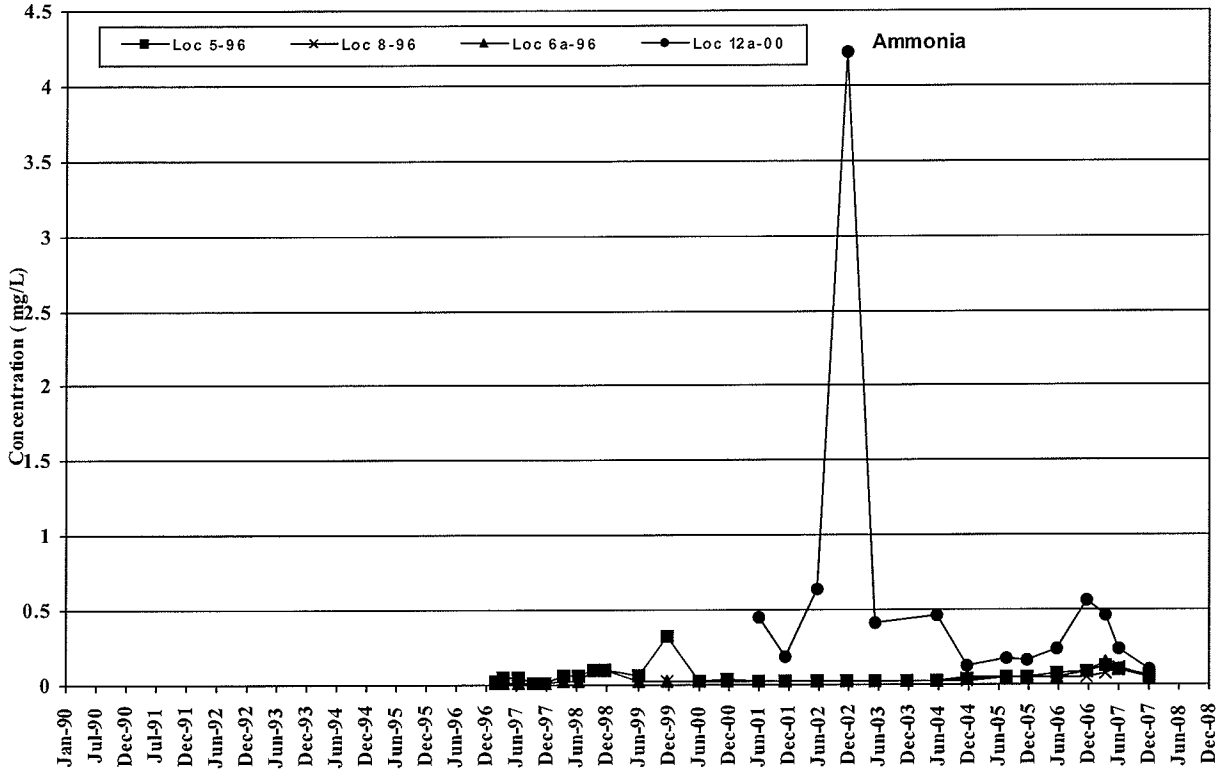
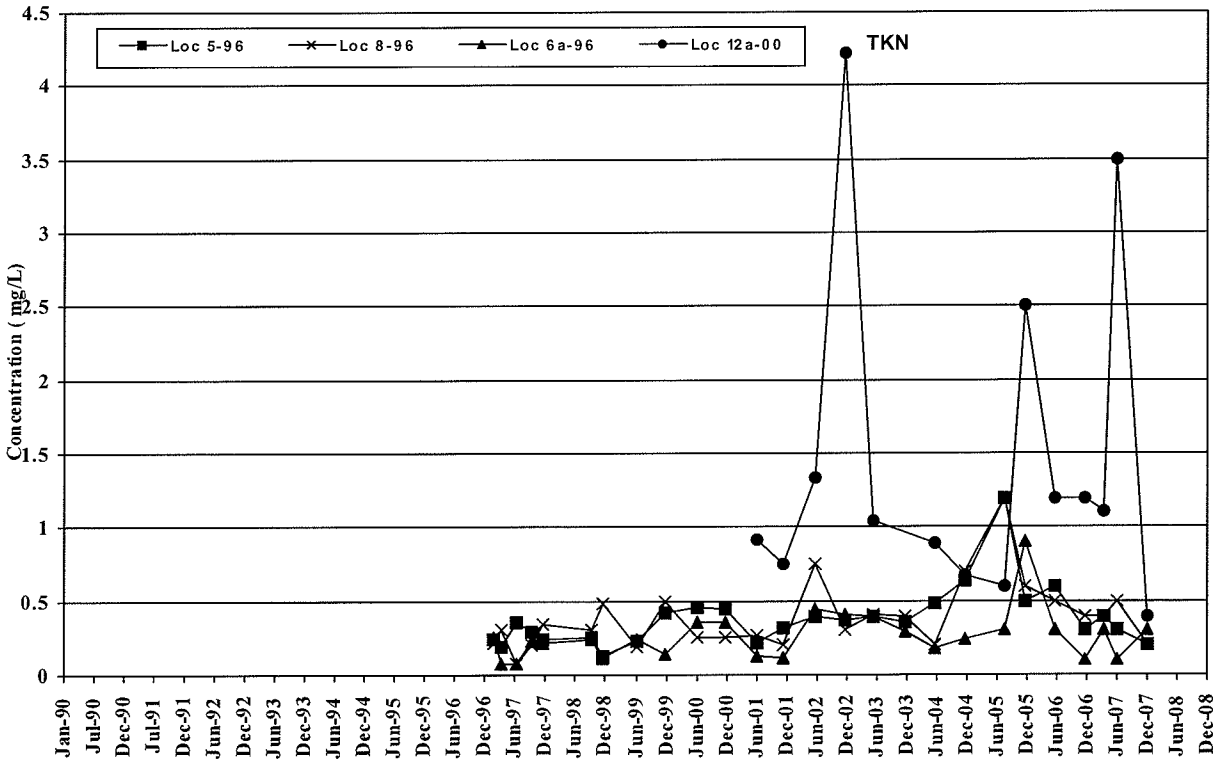
Ground Water Chemistry Trends
Overburden Locations East of Wet/Dry or Transfer Station Property

FIGURE
B14

80-133
12 NH3-TKN Location EasttOB





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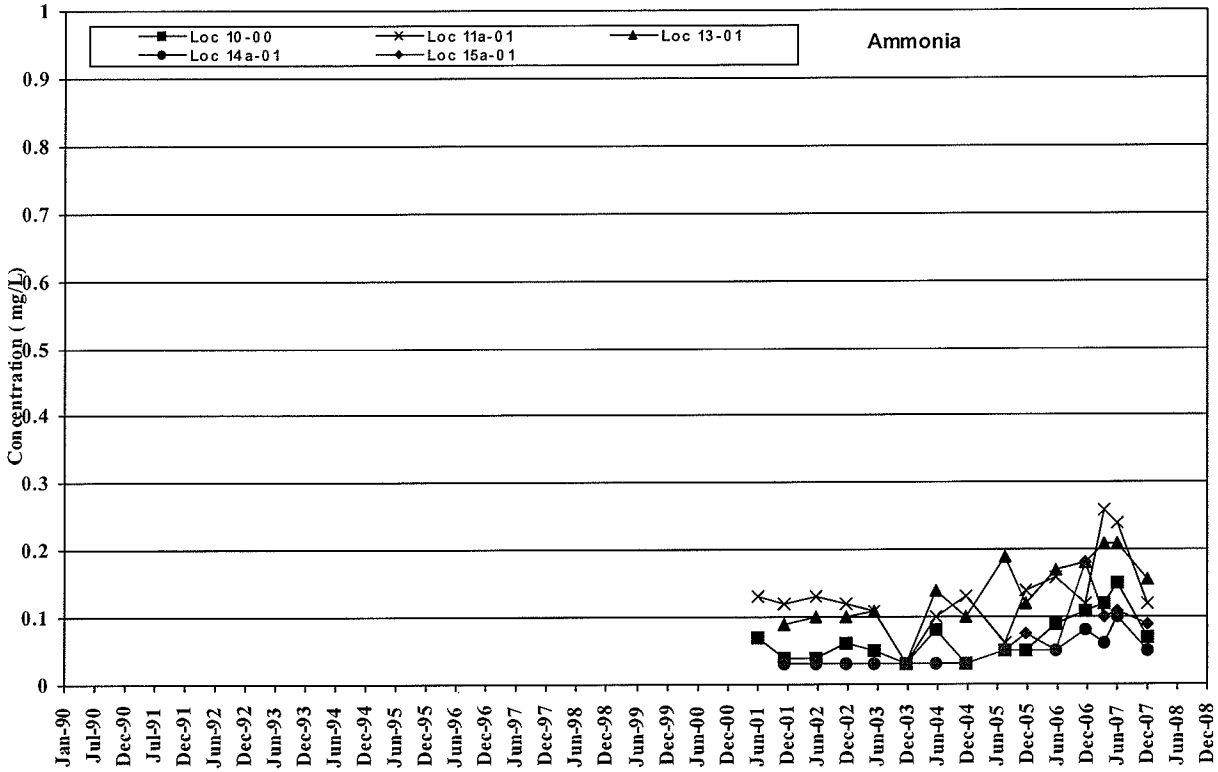
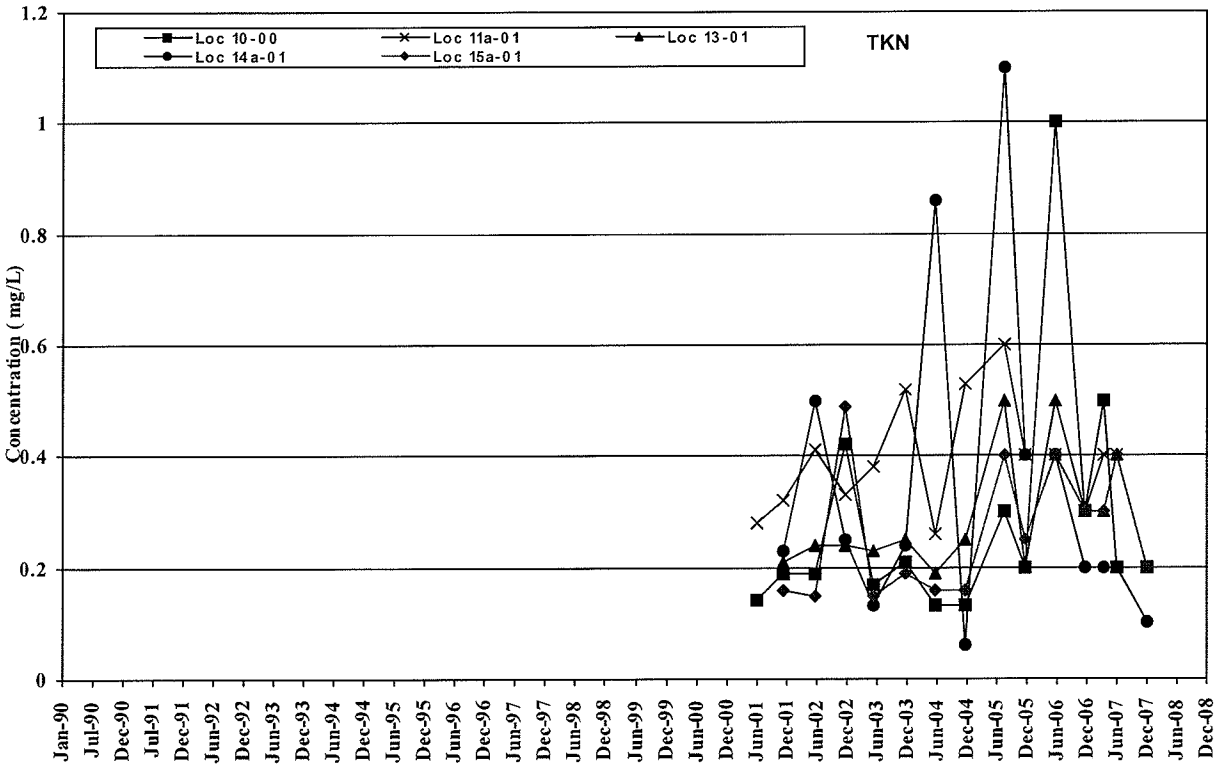
Ground Water Chemistry Trends
Bedrock Locations West or on Wet/Dry Facility

FIGURE
B15

80-133
12 NH3-TKN Location WestBed





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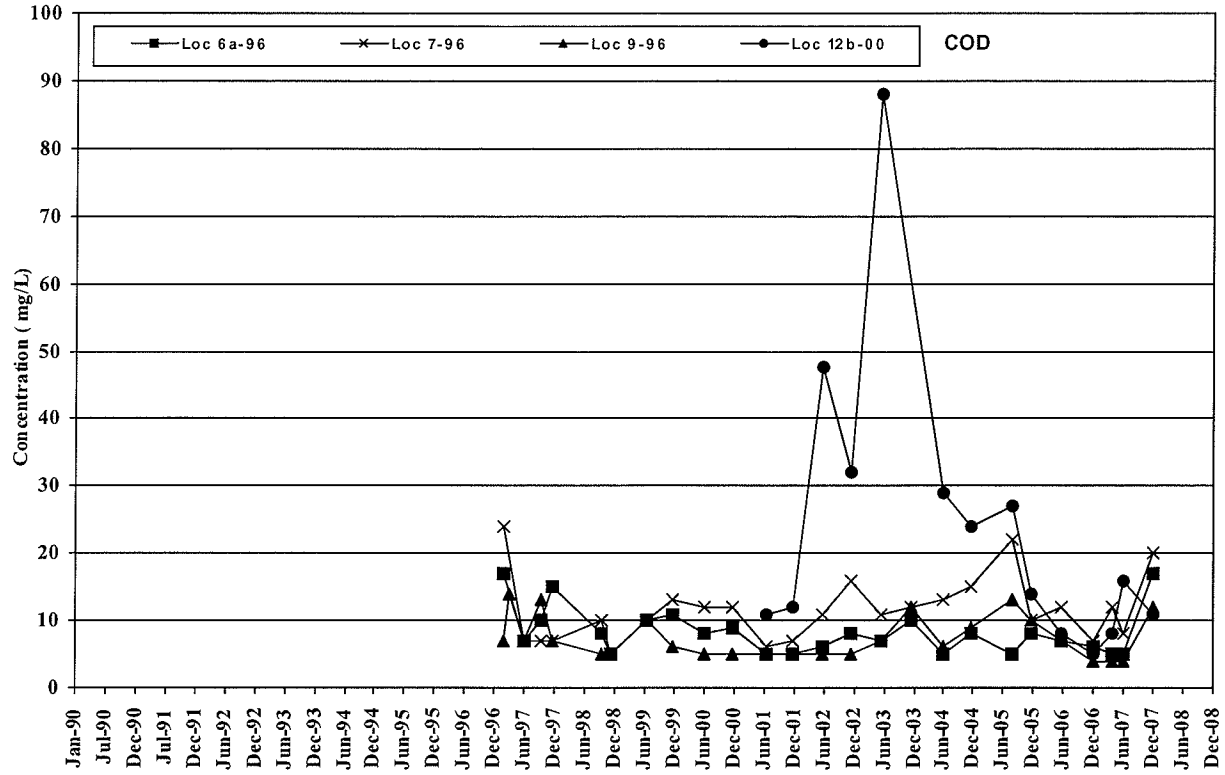
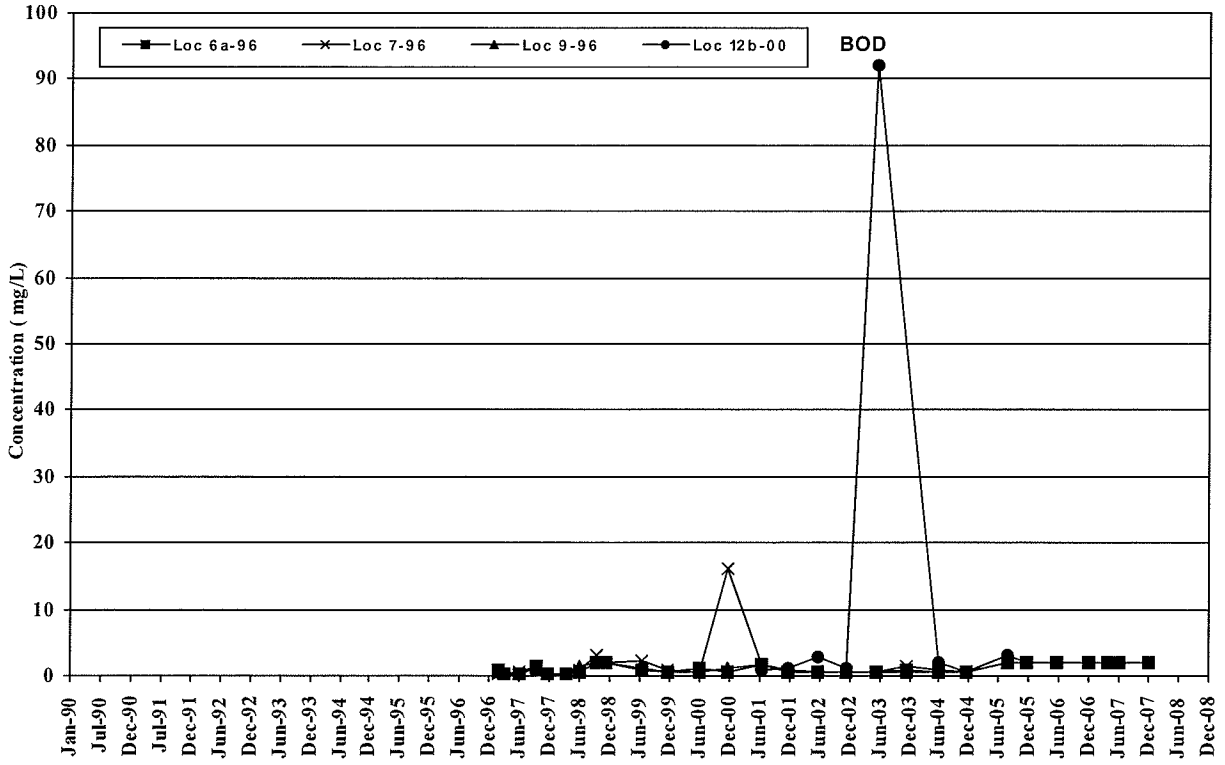
Ground Water Chemistry Trends
Bedrock Locations East of Wet/Dry or on Transfer Station Property

FIGURE
B16

80-133
12 NH3-TKN Location EasttBed





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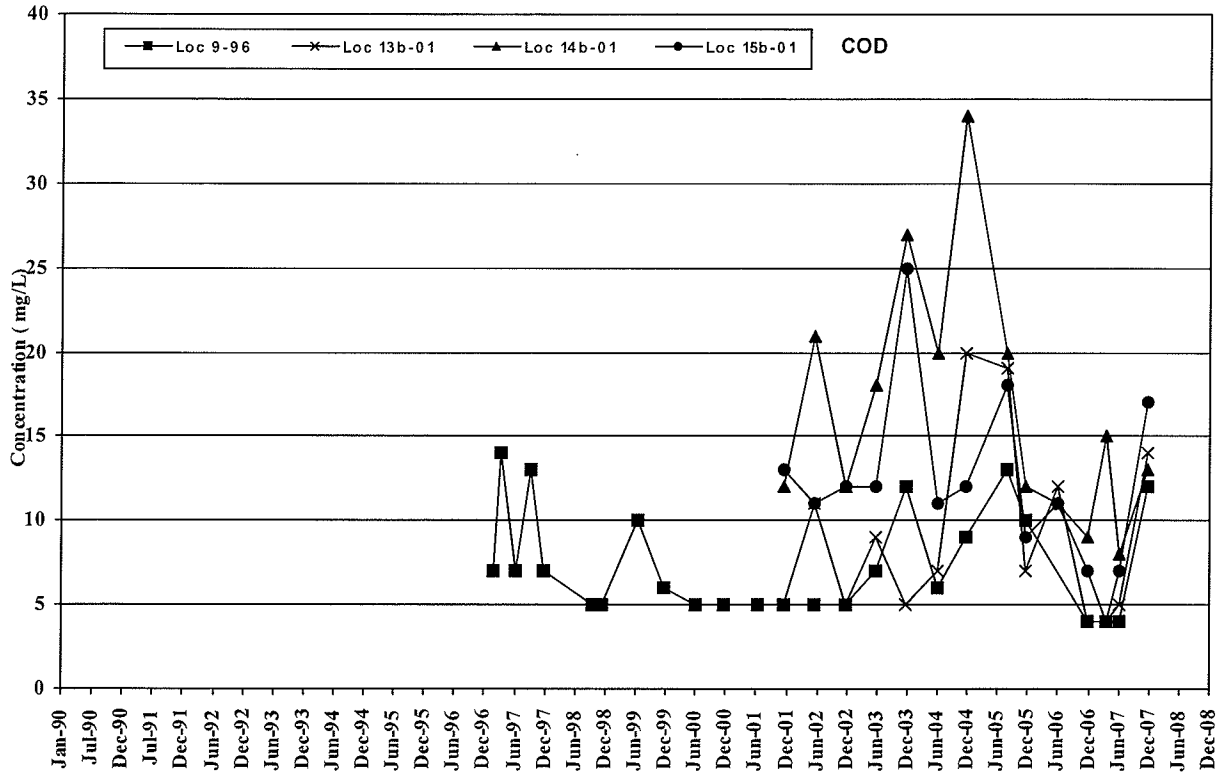
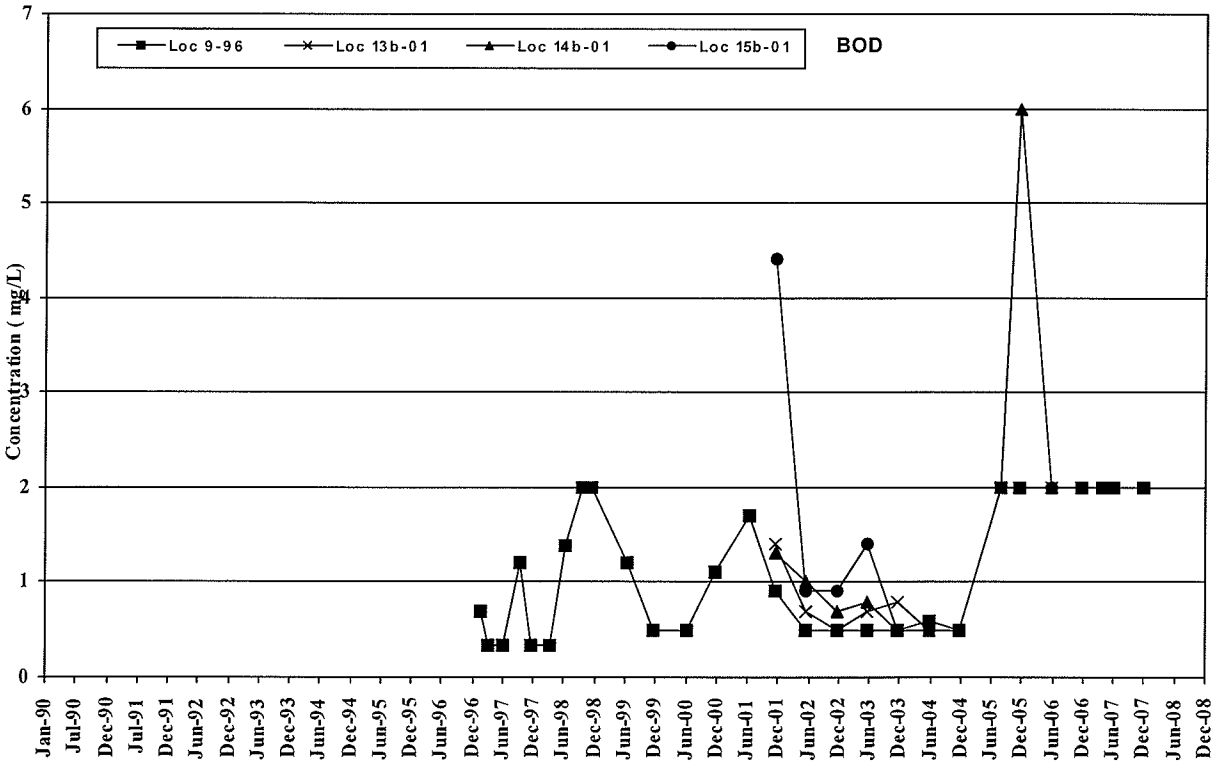
Ground Water Chemistry Trends
Overburden Locations on Wet/Dry Facility

FIGURE
B17

80-133
12 COD-BOD Location WestOB





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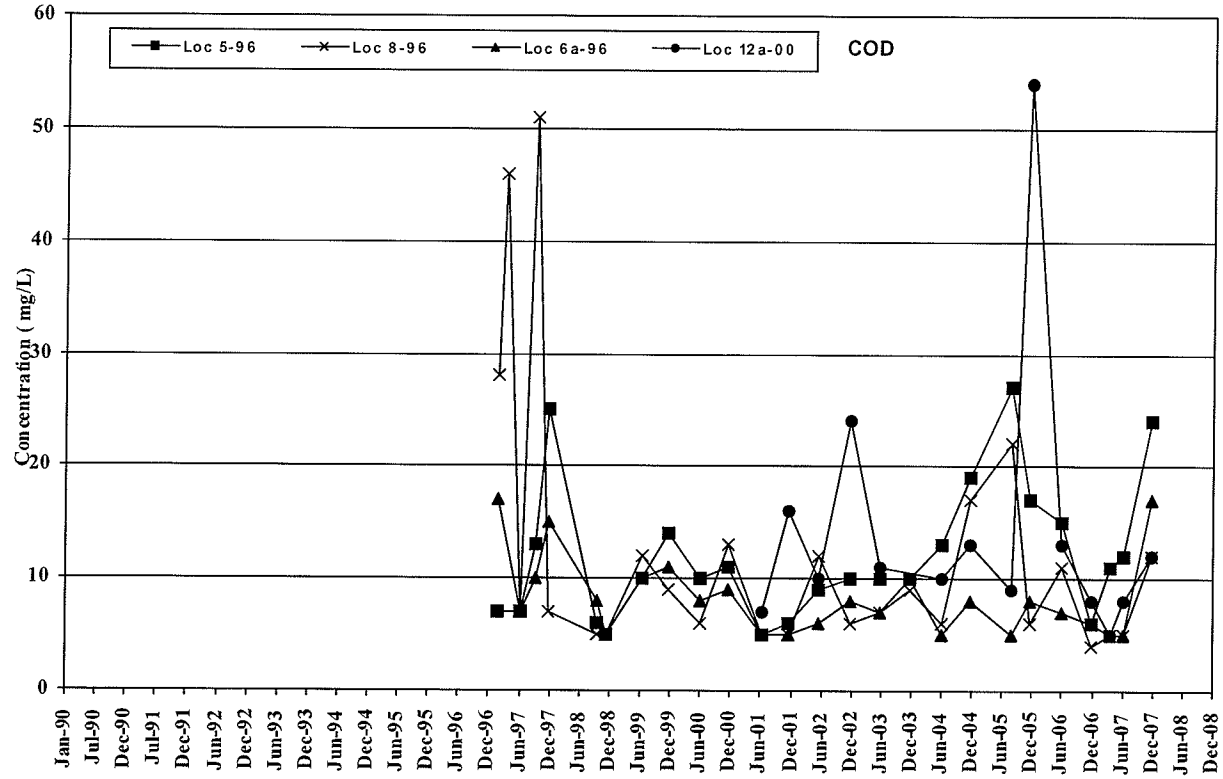
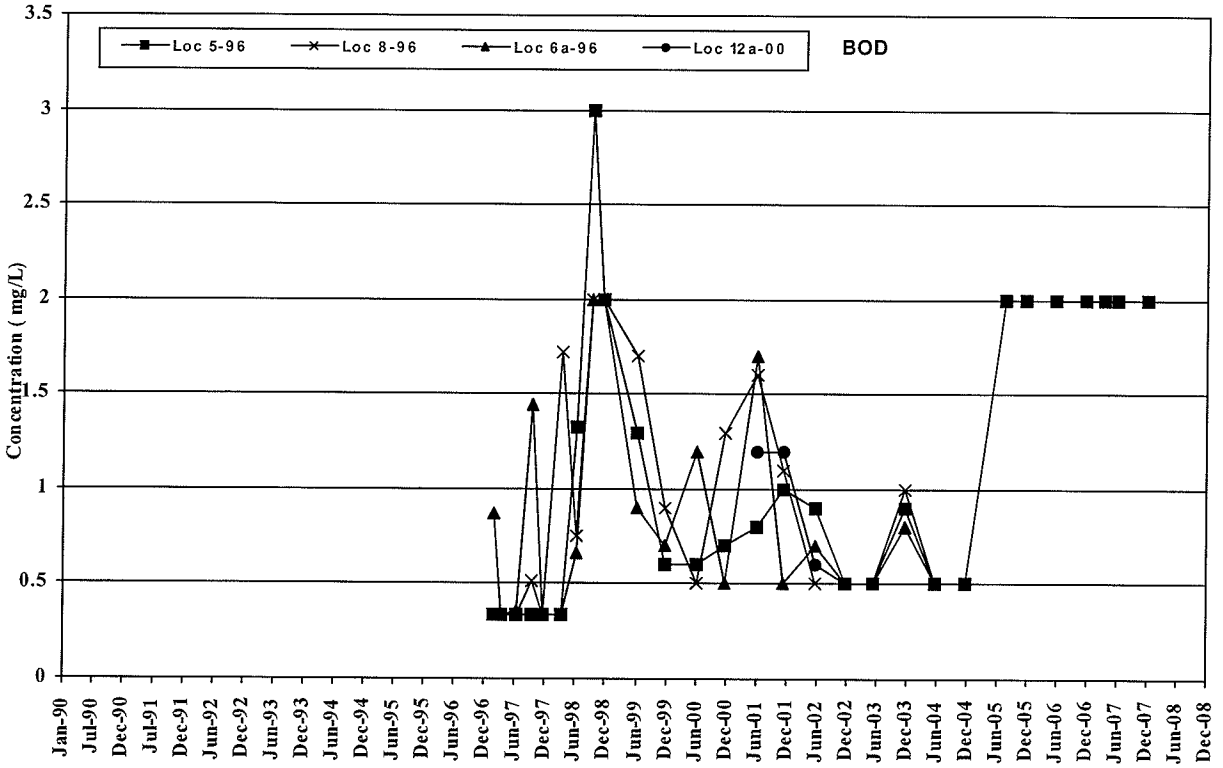
Ground Water Chemistry Trends
Overburden Locations East of Wet/Dry or Transfer Station Property

FIGURE
B18

80-133
12 COD-BOD Location EastOB





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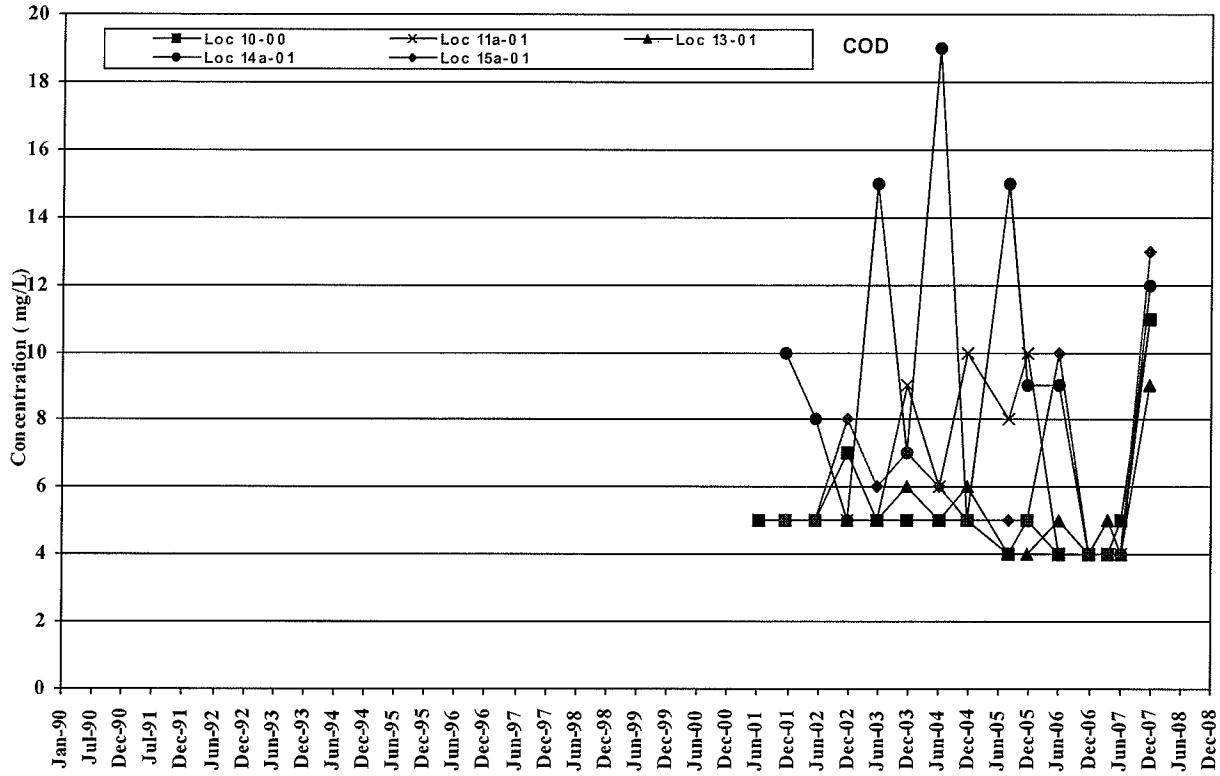
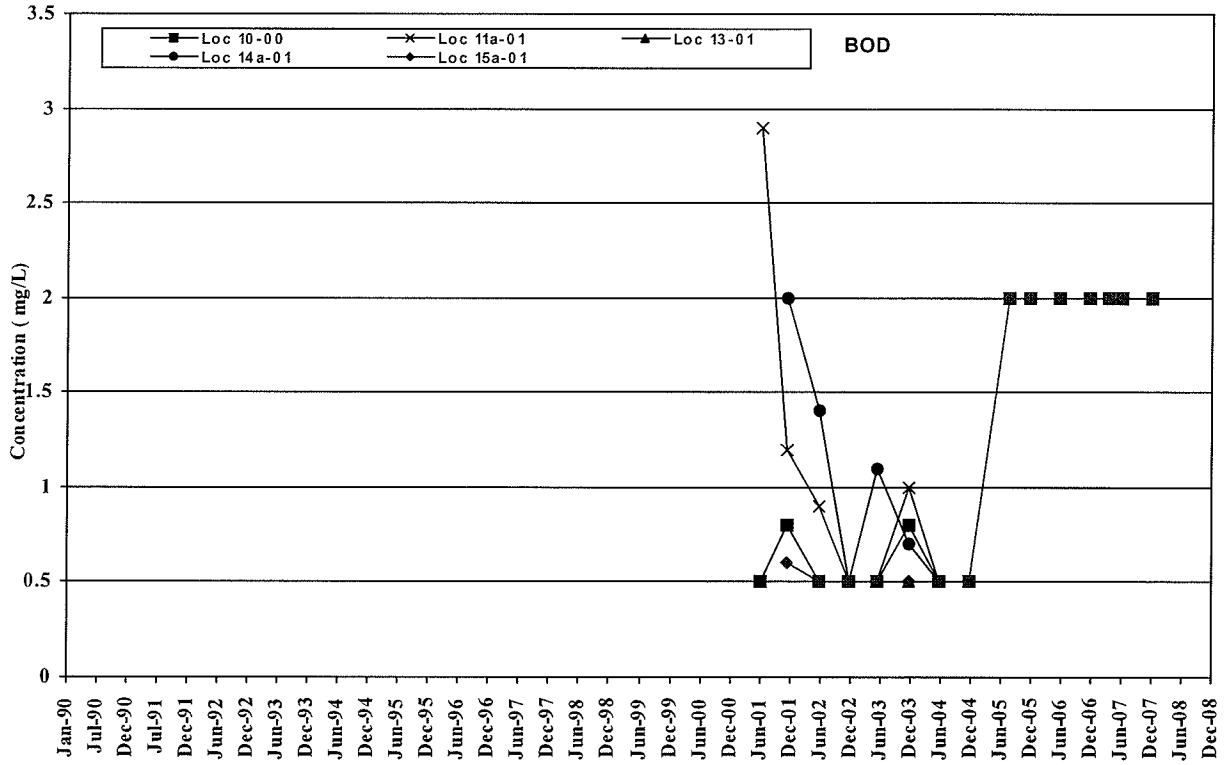
Ground Water Chemistry Trends
Bedrock Locations West or on Wet/Dry Facility

FIGURE
B19

80-133
12 COD-BOD Location WestBed





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

FIGURE
B20

80-133
12 COD-BOD Location EastBed

ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 - Waste Transfer Station -2007

Parameter	13a-01 30-Mar-07	13a-01 14-Jun-07	13b-01 30-Mar-07	13b-01 14-Jun-07
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	< 0.2	< 0.1	< 0.2
1,1,2-Trichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1-Dichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dibromoethane:*	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloroethane:	< 0.1	< 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:	< 0.5	< 0.5	< 0.5	< 0.5
Cis-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Cis-1,3-Dichloropropylene:	< 0.2	< 0.2	< 0.2	< 0.2
Dibromochloromethane:	< 0.2	< 0.2	< 0.2	< 0.2
Methylene Chloride:	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
trans-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Trans-1,3-Dichloropropylene:	< 0.2	< 0.2	< 0.2	< 0.2
Trichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Trichlorofluoromethane:	< 0.2	< 0.2	< 0.2	< 0.2
Vinyl chloride:	< 0.2	< 0.2	< 0.2	< 0.2
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 -2007

Parameter	14a-01 30-Mar-07	14a-01 14-Jun-07	14b-01 30-Mar-07	14b-01 14-Jun-07
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	< 0.2	< 0.1	< 0.2
1,1,2-Trichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1-Dichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dibromoethane:*	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloroethane:	< 0.1	< 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:	< 0.5	< 0.5	< 0.5	< 0.5
Cis-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Cis-1,3-Dichloropropylene:	< 0.2	< 0.2	< 0.2	< 0.2
Dibromochloromethane:	< 0.2	< 0.2	< 0.2	< 0.2
Methylene Chloride:	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
trans-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Trans-1,3-Dichloropropylene:	< 0.2	< 0.2	< 0.2	< 0.2
Trichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Trichlorofluoromethane:	< 0.2	< 0.2	< 0.2	< 0.2
Vinyl chloride:	< 0.2	< 0.2	< 0.2	< 0.2
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

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ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 - Waste Transfer Station -2007

Parameter	15a-01 30-Mar-07	15a-01 14-Jun-07	15b-01 30-Mar-07	15b-01 14-Jun-07
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	< 0.2	< 0.1	< 0.2
1,1,2-Trichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1-Dichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dibromoethane:*	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloroethane:	< 0.1	< 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:	< 0.5	< 0.5	< 0.5	< 0.5
Cis-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Cis-1,3-Dichloropropylene:	< 0.2	< 0.2	< 0.2	< 0.2
Dibromochloromethane:	< 0.2	< 0.2	< 0.2	< 0.2
Methylene Chloride:	< 0.5	< 0.5	< 0.5	< 0.5
Tetrachloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
trans-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Trans-1,3-Dichloropropylene:	< 0.2	< 0.2	< 0.2	< 0.2
Trichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Trichlorofluoromethane:	< 0.2	< 0.2	< 0.2	< 0.2
Vinyl chloride:	< 0.2	< 0.2	< 0.2	< 0.2
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 19 and 20) - Waste Transfer Station -2007

Parameter	13a-01 30-Mar-07	13a-01 14-Jun-07	13b-01 30-Mar-07	13b-01 14-Jun-07
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
Nitrosodiphenylamine /Diphenylamine:	< 1	< 1	< 1	< 1
N-Nitrosodi-N-propylamine:	< 0.5	< 0.5	< 0.5	< 0.5
MISA Group 20				
2,3,4,5-Tetrachlorophenol:				
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-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 -2007

Parameter	14a-01 30-Mar-07	14a-01 14-Jun-07	14b-01 30-Mar-07	14b-01 14-Jun-07
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	8	120
Di-N-butylPhthalate:	< 2	< 2	< 2	< 2
Di-N-octylPhthalate:	< 0.8	< 0.8	< 0.8	< 0.8
4-Bromophenyl phenyl Ether:	< 0.3	0.8	< 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
Nitrosodiphenylamine /Diphenylamine:	< 1	< 1	< 1	< 1
N-Nitrosodi-N-propylamine:	< 0.5	< 0.5	< 0.5	< 0.5
MISA Group 20				
2,3,4,5-Tetrachlorophenol:				
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-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 -2007

Parameter	15a-01 30-Mar-07	15a-01 14-Jun-07	15b-01 30-Mar-07	15b-01 14-Jun-07
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
Nitrosodiphenylamine /Diphenylamine:	< 1	< 1	< 1	< 1
N-Nitrosodi-N-propylamine:	< 0.5	< 0.5	< 0.5	< 0.5
MISA Group 20				
2,3,4,5-Tetrachlorophenol:				
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-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

Appendix C

Surface Water Chemistry – Routine

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
EPTS-01		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02
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	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
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																				
30-Mar-07	MAX	8.3	621	242	24	1.3	< 2	4	0.6	0.11	< 0.02		14	< 1	44	24	82	< 0.02	0.02	< 0.05	0.1
14-Jun-07	MAX	8.3	592	243	22	1.3	< 2	10	0.9	0.13	< 0.02		16	< 1	35	18	76	< 0.02	0.01	< 0.05	0.17
16-Aug-07	MAX	8.2	558	235	24	1.5	< 2	12	0.6	0.19	< 0.02		16	< 1	27	15	75	< 0.02	0.01	< 0.05	0.05
05-Dec-07	MAX	8.2	650	232	27	1.7	< 2	6	0.4	0.18	< 0.02		26	< 1	51	22	96	0.06	0.02	< 0.1	0.1

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																				
31-Jan-07	Snow																				
28-Feb-07	Snow																				
14-Mar-07	MAX	7.9	2000	96	3.6	2.1	4	33	1.8	0.32	0.22	2	17	< 1	520	410	36	0.2	0.03		0.09
29-Mar-07	Dry																				
30-Apr-07	Dry																				
31-May-07	Dry																				
30-Jun-07	Dry																				
31-Jul-07	Dry																				
31-Aug-07	Dry																				
28-Sep-07	Dry																				
02-Oct-07	Dry																				
21-Nov-07	MAX	7.6	181	56	2.8	3.5	7	38	1	0.08	0.26	20	10	< 1	14	16	20	0.82	0.02		0.06
31-Dec-07	Snow																				

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																				
31-Jan-07	Snow																				
28-Feb-07	Snow																				
14-Mar-07	MAX	7.6	972	70	4	5.7	4	28	1.7	0.66	0.3	3	11	< 1	220	180	26	0.2	0.02		0.03
29-Mar-07	MAX	8.2	951	170	9.8	5.8	4	38	2.1	< 0.05	0.12	4	23	2	180	170	61	0.48	0.05		0.02
30-Apr-07	Dry																				
31-May-07	Dry																				
30-Jun-07	Dry																				
31-Jul-07	Dry																				
31-Aug-07	Dry																				
12-Sep-07	MAX	7.7	659	107	0.8	45	14	140	3	0.13	0.75	15	48	4	100	53	48	7.2	0.1		0.02
02-Oct-07	MAX	7.9	695	229	9.6	24	7	120	4	0.19	0.26	10	24	2	73	47	72	0.96	0.08		0.02
21-Nov-07	MAX	7.8	191	55	3.1	4.1	5	5	1	0.1	0.22	19	15	< 1	14	15	22	0.77	0.02		0.05
31-Dec-07	Snow																				

Surface Water ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 - Waste Transfer Station -2007

Parameter	EPTS-01 30-Mar-07	EPTS-01 14-Jun-07	TP1-Out 12-Sep-07	TP1-Out 02-Oct-07
MISA Group 16				
1,1,1,2-Tetrachloroethane:	< 0.1	< 0.1	< 0.4	< 0.5
1,1,1-Trichloroethane:	< 0.1	< 0.1	< 0.4	< 0.5
1,1,2,2-Tetrachloroethane:	< 0.1	< 0.2	< 0.8	< 1
1,1,2-Trichloroethane:	< 0.2	< 0.2	< 0.8	< 1
1,1-Dichloroethane:	< 0.1	< 0.1	< 0.4	< 0.5
1,1-Dichloroethylene:	< 0.1	< 0.1	< 0.4	< 0.5
1,2-Dichlorobenzene:	< 0.2	< 0.2	< 0.8	< 1
1,2-Dibromoethane:*	< 0.2	< 0.2	< 0.8	< 1
1,2-Dichloroethane:	< 0.1	< 0.1	< 0.4	< 0.5
1,2-Dichloropropane:	< 0.1	< 0.1	< 0.4	< 0.5
1,3-Dichlorobenzene:	< 0.2	< 0.2	< 0.8	< 1
1,4-Dichlorobenzene:	< 0.2	< 0.2	< 0.8	< 1
Bromodichloromethane:	< 0.1	< 0.1	< 0.4	< 0.5
Bromoform:	< 0.2	< 0.2	< 0.8	< 1
Bromomethane:	< 0.5	< 0.5	< 2	< 3
Carbon Tetrachloride:	< 0.1	< 0.1	< 0.4	< 0.5
Chlorobenzene:	< 0.1	< 0.1	< 0.4	< 0.5
Chloroform:	0.3	0.6	< 0.4	< 0.5
Chloromethane:	< 0.5	< 0.5	< 2	< 3
Cis-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.4	< 0.5
Cis-1,3-Dichloropropylene:	< 0.2	< 0.2	< 0.8	< 1
Dibromochloromethane:	< 0.2	< 0.2	< 0.8	< 1
Methylene Chloride:	< 0.5	< 0.5	< 2	< 3
Tetrachloroethylene:	< 0.1	< 0.1	< 0.4	< 0.5
trans-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.4	< 0.5
Trans-1,3-Dichloropropylene:	< 0.2	< 0.2	< 0.8	< 1
Trichloroethylene:	< 0.1	< 0.1	< 0.4	< 0.5
Trichlorofluoromethane:	< 0.2	< 0.2	< 0.8	< 1
Vinyl chloride:	< 0.2	< 0.2	< 0.8	< 1
MISA Group 17				
Benzene:	< 0.1	< 0.1	< 0.4	< 0.5
Ethylbenzene:	< 0.1	< 0.1	< 0.4	< 0.5
Styrene:	< 0.1	< 0.1	< 0.4	< 0.5
Toluene:	< 0.2	< 0.2	< 0.8	< 1
o-Xylene:	< 0.1	< 0.1	< 0.4	< 0.5
m-Xylene and p-Xylene:	< 0.1	< 0.1	< 0.4	< 0.5
MISA Group 18				
Acrolein:	< 10	< 10	< 40	< 50
Acrylonitrile:	< 5	< 5	< 20	< 30

Surface Water ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 - Waste Transfer Station -2007

Parameter	Field Blank 14-Jun-07	Trip Blank 14-Jun-07
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:	< 0.2	< 0.2
1,1,2-Trichloroethane:	< 0.2	< 0.2
1,1-Dichloroethane:	< 0.1	< 0.1
1,1-Dichloroethylene:	< 0.1	< 0.1
1,2-Dichlorobenzene:	< 0.2	< 0.2
1,2-Dibromoethane:*	< 0.2	< 0.2
1,2-Dichloroethane:	< 0.1	< 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:	< 0.5	< 0.5
Cis-1,2-Dichloroethylene:	< 0.1	< 0.1
Cis-1,3-Dichloropropylene:	< 0.2	< 0.2
Dibromochloromethane:	< 0.2	< 0.2
Methylene Chloride:	< 0.5	< 0.5
Tetrachloroethylene:	< 0.1	< 0.1
trans-1,2-Dichloroethylene:	< 0.1	< 0.1
Trans-1,3-Dichloropropylene:	< 0.2	< 0.2
Trichloroethylene:	< 0.1	< 0.1
Trichlorofluoromethane:	< 0.2	< 0.2
Vinyl chloride:	< 0.2	< 0.2
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 -2007

Parameter	EPTS-01 30-Mar-07	EPTS-01 14-Jun-07	TP1-Out 12-Sep-07	TP1-Out 02-Oct-07
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
Nitrosodiphenylamine /Diphenylamine:	< 1	< 1	< 1	< 1
N-Nitrosodi-N-propylamine:	< 0.5	< 0.5	< 0.5	< 0.5
MISA Group 20				
2,3,4,5-Tetrachlorophenol:			< 0.4	< 0.4
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	< 0.5	< 0.5
2,3,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,6-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dinitrophenol:	< 2	< 2	< 2	< 2
2,4-Dimethylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
2,6-Dichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
4,6-Dinitro-o-Cresol:				
2-Chlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloro-3-methylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
4-Nitrophenol:	< 1	< 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

Surface Water ORGANIC ANALYSIS (ATG MISA Groups 19 and 20) - Waste Transfer Station -2007

Parameter	Field Blank 14-Jun-07	Trip Blank 14-Jun-07
MISA Group 19		
Acenaphthene:	< 0.2	< 0.2
5-Nitroacenaphthene:	< 1	< 1
Acenaphthylene:	< 0.2	< 0.2
Anthracene:	< 0.2	< 0.2
Benzo(a)anthracene:	< 0.2	< 0.2
Benzo(a)Pyrene:	< 0.2	< 0.2
Benzo(b)Fluoranthene:	< 0.2	< 0.2
Benzo(g,h,i)perylene:	< 0.2	< 0.2
Benzo(k)Fluoranthene:	< 0.2	< 0.2
Biphenyl:	< 0.5	< 0.5
Camphene:	< 1	< 1
1-Chloronaphthalene:	< 1	< 1
2-Chloronaphthalene:	< 0.5	< 0.5
Chrysene:	< 0.2	< 0.2
Dibenzo(a,h)Anthracene:	< 0.2	< 0.2
Fluoranthene:	< 0.2	< 0.2
Fluorene:	< 0.2	< 0.2
Indeno(1,2,3-cd)Pyrene:	< 0.2	< 0.2
Indole:	< 1	< 1
1-Methylnaphthalene:	< 0.2	< 0.2
2-Methylnaphthalene:	< 0.2	< 0.2
Naphthalene:	< 0.2	< 0.2
Perylene:	< 0.2	< 0.2
Phenanthrene:	< 0.2	< 0.2
Pyrene:	< 0.2	< 0.2
Benzyl Butyl Phthalate:	< 0.5	< 0.5
bis(2-ethylhexyl)Phthalate:	< 2	< 2
Di-N-butylPhthalate:	< 2	< 2
Di-N-octylPhthalate:	< 0.8	< 0.8
4-Bromophenyl phenyl 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
Nitrosodiphenylamine /Diphenylamine:	< 1	< 1
N-Nitrosodi-N-propylamine:	< 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
2,3,5-Trichlorophenol:	< 0.5	< 0.5
2,4,5-Trichlorophenol:	< 0.5	< 0.5
2,4,6-Trichlorophenol:	< 0.5	< 0.5
2,4-Dinitrophenol:	< 2	< 2
2,4-Dimethylphenol:	< 0.5	< 0.5
2,4-Dichlorophenol:	< 0.3	< 0.3
2,6-Dichlorophenol:	< 0.5	< 0.5
4,6-Dinitro-o-Cresol:		
2-Chlorophenol:	< 0.3	< 0.3
4-Chloro-3-methylphenol:	< 0.5	< 0.5
4-Nitrophenol:	< 1	< 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

Ministry of the Environment | Ministère de l'Environnement

Ontario

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 ~~37~~ 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. OP. PROBLEMS CORREC.

(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
JC
(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:

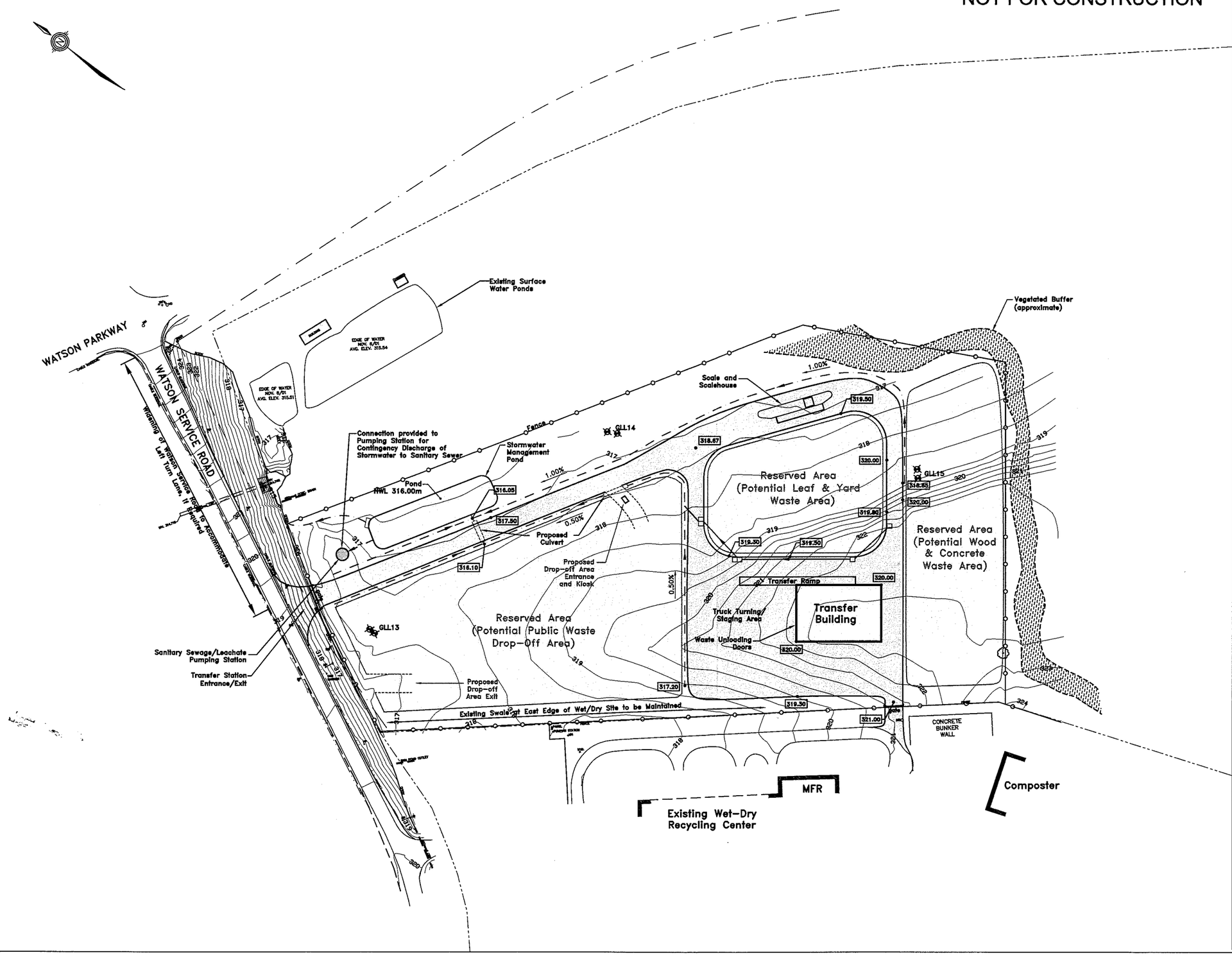
a) up-to-date site plans for all major facility elements including the building, road network, sewer and drainage systems;

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

SCALE: 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

Appendix E

City of Guelph Compliance Statement

The 2007 annual summary as to compliance with all terms and conditions of the Transfer Station C. of A. and with the inspection and reporting requirements of the conditions.
As per condition 30(c) of C. of A. # 9241-5DTRD9 – Annual reporting requirement

The City is not aware of any adverse environmental impacts from the operation of the Transfer Station in 2007. We're proud to report that for the second consecutive year there were no odour complaints received about the facility in 2007. Two regular odour patrols a day have confirmed that there were no odours emanating from this facility in 2007.

The Transfer Site continues to strive to comply with its Certificate of Approval, including its inspection and reporting requirements, and to look for opportunities for continuous improvement. Detailed monthly summaries of the types, quantities, origins and destination of wastes and recyclable materials are provided in Section 3 of this report.

The Director of Environmental Services and the Manager of Solid Waste Resources continue to put a very high priority on compliance with applicable laws. In 2007, the main focus was on staff training. In total, more than 3000 staff hours were devoted to environmental compliance training in 2007. Training was provided both in-house and by external providers, and included inspections, reporting, due diligence, environmental regulations, competent person, contingency plans, emergency procedures, certificate of approval conditions, spills, TDGA, lab packing and other relevant topics. As a result, staff now have a better appreciation of the complex legal and regulatory environment within which the facility operates.

The facility also made improvements to its documentation, such as record-keeping of routine maintenance.