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Report

City of Guelph

2008 Annual Report, Guelph Wet-Dry Recycling Centre, Certificate of Approval (Waste Disposal Site) No. A170128

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Prepared by:

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Project Number:

111409

Date:

March, 2009

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March 27, 2009 Project Number: 111409

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

Dear Mr. Wyman:

Re: 2008 Annual Report, Guelph Wet-Dry Recycling Centre, Certificate of Approval (Waste Disposal Site) No. A170128

Enclosed, please find our final report for this project, addressing the requirements of the site's Certificate of Approval.

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

Sincerely,
AECOM Canada Ltd.

Stephen C. Hollingshead, M.Sc.(Eng.), P.Eng.
Steve.Hollingshead@aecom.com

SCH:pc
Attach.

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Signature Page

Report Prepared By:

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Executive Summary

The following table presents a summary of the 2008 Annual Report for the City of Guelph Wet-Dry Recycling Centre. The Recycling Centre is operated under Ministry of Environment Provisional Certificate of Approval (Waste Disposal Site) No. A170128. Conditions 22, 27 and 30 of the Certificate of Approval (C of A) specify annual reporting requirements. In addition, the site has also been issued an amended C of A for Municipal and Private Sewage Works. Condition 6 of the sewage works C of A specifies monitoring and reporting requirements. The reporting requirements 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. A170128

Hazardous Household Waste (HHW) Transfer Station (Condition 22)

C of A Reporting Requirement	Report Reference and Summary
(k) The City shall annually review and update the existing waste screening measures for all incoming waste, to ensure only waste approved by this Certificate are received at this facility. *(l) The updated report on the waste screening measures shall be submitted to the District Manager on an annual basis.*	• The City (HHW) waste screening measures are discussed in Section 4.1. Only authorized HHW (as described in the C of A) is accepted from homeowners from the City of Guelph and County of Wellington. All materials must be clearly labelled. The City will reject materials that are not acceptable under the C of A.

Contingency Plans (Condition 27)

C of A Reporting Requirement	Report Reference and Summary
(i) Measures to be undertaken in the event of a spill.	• Section 7.1 summarizes the Spills Handling and Reporting procedure. The procedure defines spills: minor, major, moderate and hazardous materials. The Spills procedure then outlines how to clean up a minor spill and who must be notified in the case of moderate or major spills.
(ii) Fire protection systems, control and safety devices.	• Section 7.2 summarizes the Fire Safety Plan The Fire Safety Plan includes site mapping, floor plans for each of the on-site buildings (including locations of fire alarms and extinguishers), procedures to be followed in the event of a fire/emergency, staff responsibilities and contacts in the event of a fire/emergency, procedures for fire drills, prevention and monitoring equipment maintenance.
(iii) An emergency plan outlining the action to be undertaken in the event of a fire or other such emergency.	• Section 7.2 summarizes the Emergency Plan. The Emergency Plan includes many of the elements incorporated into the Fire Safety Plan plus emergency communications procedures, locations of emergency supplies, emergency equipment information and procedures related to specific emergency situations.
(iv) Measures to be undertaken in the event of a composter process upset and/or failure.	• The Organic Waste Processing Facility ceased service in May 2006. A comprehensive contingency plan will be developed in the event that the facility re-opens.
(v) Measures to be undertaken in the event of a power and/or equipment failure.	• Section 7.4 summarizes the procedures as related to power or equipment failure. If electricity is unavailable for

C of A Reporting Requirement	Report Reference and Summary
	more than a 24-hour period, the WRIC would be required to re-direct waste materials.
(vi) Measures to be undertaken in the event of a biological filter upset and/or failure.	• The Organic Waste Processing Facility ceased service in May 2006. A comprehensive contingency plan will be developed in the event that the facility re-opens.
(vii) Measures to be undertaken in the event odour problems develop at the Site.	• Section 7.5 summarizes the procedures as related to an odour problem. Odour complaints from the public are investigated through the WRIC Environmental Complaint Investigation Procedure in compliance with Condition 31 of the C of A. Control measures may include closing doors, cleaning up standing water and/or spills, other housekeeping measures, making changes to the processes or removal of the odour source to the landfill. If the odour persists, a portion of the operation or the entire site may be closed until the issue is resolved.
(viii) Measures to be undertaken in the event fog problems develop from the composter or the processed compost piles (curing piles).	• The Organic Waste Processing Facility ceased service in May 2006. A comprehensive contingency plan will be developed in the event that the facility re-opens.
(viii) Measures to be undertaken in the event hazard to aircraft problems develop or there is a net increase in birds at the Site.	• Section 7.6 summarizes the procedures as related to aircraft hazards. The most obvious aircraft hazard, as it relates to the operation of the WRIC, is the nuisance bird population. Daily bird monitoring occurs as part of the site inspections. Continual housekeeping measures, such as litter pick up around the site, occur at the site to deter the attraction of birds and vermin. Should nuisance birds become an issue at the site, trained birds-of-prey or other mitigative measures will be considered. If necessary, the site operations may cease until the issue is resolved. Dust, steam, smoke or any airborne vapour may pose an aircraft hazard due to decreased visibility. Operations are conducted in a manner to minimize emissions.
(x) Measures to be undertaken in the event any unauthorized non-hazardous or hazardous waste appears at the Site.	• Section 7.7 summarizes the procedures undertaken regarding un-authorized waste. Non-compliant loads are rejected at all areas of the site, if found. If un-authorized, hazardous or inappropriate waste is inadvertently accepted, the material will be loaded back on the vehicle (if it has not left the site) or the material will be placed in the appropriate bin for removal by a licensed hauler to an appropriate disposal site. The waste will be transported off-site as soon as arrangements can be made with a certified disposal company. If possible, the vehicle that brought the non-compliant load will be charged for the disposal fee.
(xi) Measures to be undertaken in the event of groundwater and/or surface water contamination.	• Section 7.8 summarizes the procedures to be undertaken in the event of ground or surface water contamination. Should water quality results suggest that there are impacts to the ground or surface water, the monitor locations/surface water stations will be re-sampled within a reasonable period of time to confirm results. As well, an inspection of the area immediately adjacent and upgradient of the impacted location will be inspected for possible contaminant sources. Equipment and floor drains may also be inspected to determine if repairs are required. These repairs will be completed immediately. Should the repairs be such that normal operation is not possible, this portion of the operation will be shut down until maintenance is complete. If the contamination is a result of failure in the infrastructure that cannot be repaired under normal maintenance procedures, a remedial plan will be developed to prevent further impacts.

C of A Reporting Requirement	Report Reference and Summary
(xii) Measures to be undertaken in the event of quality/fungal contamination.	• Section 7.9 discusses air quality or fungal contamination. The appropriate qualified professional will be contracted to investigate the cause and recommend remedial measures, as required. Remedial measures may include a change/alteration of operations or suspension of operations in the affected area(s).

Annual Report (Condition 30)

C of A Reporting Requirement	Report Reference and Summary
(a) A monthly summary of wastes and/or recyclable materials received at the site, including quantity, source, and Ontario Regulation 347 waste classes.	• Table 1 (Section 4.2) provides details on the incoming materials. 48,139 tonnes of material was received by the WRIC. Of the materials received, organic yard waste materials constituted 7,781 tonnes (16%), recyclables and mixed dry materials constituted 31,801 tonnes (66%) and non-recyclable materials made up the remaining 8,558 tonnes (18%). Materials were accepted from the City of Guelph and the County of Wellington. The Regulation 347 waste classes received at the site are summarized on Table 2 (Section 4.3).
(b) A monthly summary of wastes and/or recyclable materials processed at the site, including quantity, and Ontario Regulation 347 waste classes.	• Section 4.4 of the report provides details on the processed wastes. There were 46,677 tonnes of materials processed and transferred off the site. 834 tonnes of material remained in inventory at the end of 2008. Materials that are accepted by the site are either diverted to be re-used or sent to the landfill for disposal.
(c) A monthly summary of wastes and/or recyclable materials transferred off-site, including quantity, destination, and Ontario Regulation 347 waste classes.	• Table 3 (Section 4.3) provides details on the outgoing materials. Of the 26,992 tonnes of marketable material transferred off the site in 2008, 7,781 tonnes (29%) was brush, yard waste and leaves, 14,773 tonnes (55%) was paper-based recyclables and 4,438 tonnes (16%) was other recyclable materials. During 2008, a total of 19,685 tonnes of non-recyclable materials was sent to the Solid Waste Transfer Station for disposal. HHW materials were shipped by the haulers identified in Section 4.3 for disposal or re-use.
(d) A monthly summary description of the composting facility operations including: *i) A colloquial description of the temperature of the compost material(daily readings) and the curing piles (weekly readings). Temperature graphs are not to be included in the report, but are to be kept on file and provided to the Ministry upon request;* *ii) the quantity, by weight and volume of compost and residues produced and the quantity of compost and residues removed from the facility; and* *iii) a description of the compost distribution/ markets*	• The composting facility suspended operations in 2006. No composting was conducted on-site during 2008.
(e) An annual summary of the analytical results for the groundwater, surface water and leachate monitoring program including an interpretation of the results and any remedial/mitigative action undertaken.	• Section 5 discusses the results of the groundwater, surface water and leachate monitoring programs. There were no observable effects attributed to the WRIC on the groundwater quality beneath the site. Surface water at the site is impacted by runoff from the areas immediately surrounding the surface water stations.
(f) An annual summary of any deficiencies, items of non-compliance or process aberrations that occurred and remedial/mitigative action taken to correct them.	• Section 8 of the report briefly discusses site compliance. A compliance statement from the City of Guelph is presented in Appendix D.

B. Amended C of A Municipal and Private Sewage Works No. 9970-7EVLBH

Monitoring and Reporting (Condition 6)

C of A Reporting Requirement	Report Reference and Summary
1. *All samples and measurements taken for the purpose of this Certificate are to be taken at a time and in a location characteristic of the quality and quantity of the effluent streams over the time period being monitored.*	• Section 6 discusses the 2008 sample collection. A sample was collected from the Detention Pond 2 outlet on July 20, 2008 when a 25 mm rainfall event occurred. This sample was collected at the same location using the same methodologies as the routine monthly surface water monitoring.
2. *All samples shall be collected and analyzed at the following sampling points, at the sampling frequencies and using the sample type specified for each parameter listed (refer to Table 1 and 2 of the C of A)*	• Section 6 summarizes the water quality results of the stormwater effluent sample collected on July 20, 2008. This sample was collected and analyzed as per Table 2 of the C of A. Since composting was suspended in 2006, no compost material is currently stored on the pad. Nevertheless, during the 2008 monitoring period, there were no 2-year return storm events therefore no sampling as per Table 1 of the C of A was conducted.
3. *The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following:* *(a) the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" (August 1994), ISBN 0-7778-1880-9, as amended from time to time by more recently published editions; and* *(b) the publication "Standard Methods for the Examination of Water and Wastewater " (21st edition), as amended from time to time by more recently published editions.*	• Sampling protocols consistent with approved methodologies were used during all monitoring events.
4. *The Owner shall ensure that surface water monitoring is carried out as per Condition 20 of the Provisional Certificate of Approval for a Waste Disposal Site No. A170128.*	• Section 5 discusses the results of the groundwater, surface water and leachate monitoring programs completed at the site under Provisional C of A (Waste Disposal Site) No. A170128.
5. *The Owner shall prepare and submit a performance report to the District Manager on an annual basis within ninety (90) days following the end of the period being reported on. The first such report will cover the first annual period following the commencement of the operation of the Works and subsequent reports shall be submitted to cover successive annual periods following thereafter. The reports shall contain, but not be limited to, the following information:* *(a) a summary and interpretation of all monitoring data collected in accordance with Condition 6; and* *(b) an overview of the performance, success and adequacy of the Works.*	• This report constitutes the performance report for the site for the 2008 monitoring period. Section 6 presents a summary and interpretation of the data collected under Condition 6 and provides a statement on the performance and adequacy of the works. • A stormwater effluent sample collected from the detention 2 outlet on July 20th showed BOD, TKN and total phosphorus concentrations were higher than the maximum 2008 concentrations but within the range of concentrations measured at this location. Compared to the historic average concentrations at SW1, the July 20th sample was higher than the average BOD, phenolics and total phosphorus concentrations. The higher parameter concentrations measured during the 25 mm rainfall event were likely a result of flushing of the stagnant water that was in the pond. The 25 mm rainfall event sample was also analyzed for total oil and grease. Total oil and grease was below the laboratory detection limit. The discharge sample exceeded PWQO for phenolics and total phosphorus.

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Appendices

1. Introduction and Background

The City of Guelph operates the Wet/Dry Recycling Centre, now the Waste Resource Innovation Centre (WRIC) for the purposes of composting and multi-material recovery for the County of Wellington and the City of Guelph. The 10.85 ha site is located at 110 Dunlop Drive in the southeast part of Guelph. Figure 1 shows the location of the WRIC.

The City carries out a number of waste management operations at the WRIC. These operations include processing of recyclables from the City's "dry" waste stream, transfer of non-compostable materials and non-recyclable waste residues to disposal off-site, a public waste drop-off area, and a household hazardous waste depot. The City discontinued the composting operations during 2006. The site is licensed to handle up to 200 tonnes of residual waste transported for disposal per day under Ministry of the Environment Provisional Certificate of Approval (C of A) #A170128.

As part of the requirements to develop and design the WRIC, a hydrogeological assessment was conducted in 1991 (Jagger Hims Limited; Hydrogeological Assessment, Proposed Wet/Dry Facility, Guelph, Ontario; Report prepared for the City of Guelph, October 1991). Further groundwater sampling at the proposed site was completed in 1992, 1994 and 1995 prior to the construction of the site (Jagger Hims Limited; Groundwater Monitoring Program; Guelph Wet/Dry Recycling Facility; Draft Report completed for the City of Guelph, September 1995).

The main conclusions of these reports were:

a) groundwater flow in the shallow subsurface is towards the northeast to the Correctional Centre pond and Clythe Creek; and

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

In July 1997, the C of A was amended to allow the WRIC service area to be expanded.

This report also addresses the conditions of the Amended Certificate of Approval for municipal and private sewage works (#9970-7EVLBH) issued June 6, 2008. This C of A deals with discharge from the site from the stormwater management ponds.

Notes:
- Base drawing from Lonsdale Consulting Engineers Inc. drawing MW-1 "Monitor Well Locations" Revision B dated Jan 13/09.
- 2006 Orthophotography

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Waste Resource Innovation Centre
City of Guelph
Annual Monitoring Program

Groundwater Monitor Location Map

Legend
- Site Boundary
- Fence
- Monitoring Well
- Surface Water Location

PROJECT NUMBER 111409
DATE March 2009
FIGURE NUMBER 1

A SIZE 8.5" x 11" (215.9mm x 279.4mm)
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2. Annual Reporting Requirements

The Amended Provisional Certificate of Approval contains several conditions that have an annual reporting component. These Conditions, 22(l), 27 and 30, are addressed in this report. The details of the Conditions are reiterated below. Condition 22(k) and (l) of the C of A states:

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

(l) *The updated report on the waste screening measures shall be submitted to the District Manager on an annual basis.*

Condition 27 of the C of A states that *"The City shall annually review and update the existing Contingency Plan for the Site."* Thirteen items are listed in Condition 27 as minimum reporting requirements for the annual report:

i) *Measures to be undertaken in the event of a spill;*

ii) *Fire protection systems, control and safety devices;*

iii) *An emergency plan outlining the action to be undertaken in the event of a fire or other such emergency;*

iv) *Measures to be undertaken in the event of a composter process upset and/or failure;*

v) *Measures to be undertaken in the event of a power and/or equipment failure;*

vi) *Measures to be undertaken in the event of a biological filter upset or failure;*

vii) *Measures to be undertaken in the event odour problems develop at the Site;*

viii) *Measures to be undertaken in the event fog problems develop from the composter or the processed compost piles (curing piles);*

ix) *Measures to be undertaken in the event hazard to aircraft problems develop of there is a net increase in birds at the Site;*

x) *Measures to be undertaken in the event any unauthorized non-hazardous or hazardous waste or unidentifiable waste appears at the Site;*

xi) *Measures to be undertaken in the event of groundwater and/or surface water contamination; and*

xii) *Measures to be undertaken in the event of quality/fungal contamination.*

Condition 30 of the C of A states that *"The City shall submit an annual report on the operation of the site for the previous calendar year to the District Manager by March 31st of each year."* Six items are listed in Condition 30 for the annual report:

a) *a monthly summary of the wastes and/or recyclable materials received at the site, including quantity, source and Ontario Regulation 347 waste classes;*

b) a monthly summary of the wastes and/or recyclable materials processed at the site, including quantity and Ontario Regulation 347 waste classes;

c) a monthly summary of the wastes and/or recyclable materials transferred off the site, including quantity, destination and Ontario Regulation 347 waste classes;

d) a monthly summary description of the composting facility operations including:

i) a colloquial description of the temperature of the compost material (daily readings) and the curing piles (weekly readings). Temperature graphs are not to be included in the report, but are to be kept on file and provided to the Ministry upon request;

ii) the quantity, by weight and volume of compost and residues produced and the quantity of compost and residues removed from the facility; and

iii) a description of the compost distribution/markets.

e) an annual summary of the analytical results for the groundwater, surface water and leachate monitoring program including an interpretation of the results and any remedial/mitigative action taken;

f) an annual summary of any deficiencies, items of non-compliance or process aberrations that occurred and remedial/mitigative action taken to correct them.

As previously mentioned, there was no composting conducted at the site in 2008 therefore, there is no reporting for items iv), vi), vii) and d) above.

3. Monitoring Program

The objectives of the monitoring programs are outlined in the C of A in Conditions 23, 24 and 26 (formerly 18, 19 and 20 in the previous C of A). These conditions provide the objectives for leachate, groundwater and surface water monitoring that is to be undertaken at the WRIC. These are:

Condition 23 (Leachate)

The City shall annually review and update the existing leachate monitoring program, which characterizes the leachate. The updated report on the leachate monitoring program changes shall be submitted to the District Manager on an annual basis.

Leachate shall be sampled and analyzed at least four (4) times per year, and monitored for quality, in accordance with the approved leachate monitoring program.

As recommended in the 1998 annual monitoring report and accepted by the MOE, the sampling frequency of the leachate was reduced to (2) two times per year starting in 1999.

Due to the compost process, very little leachate is actually produced, which makes it problematic to sample. In the past, water collected on the compost pad along with any leachate produced during the composting process was sampled in the holding tank (beneath the pad). With the redesign of the stormwater management system

back to the original design, this water is now diverted from directly entering the sanitary sewer to the central clay-lined Detention Pond 1. Sampling of the water collected in this pond now serves the same purpose as the original sampling conducted in the holding tank where runoff from the pad was historically collected. A surface water station (SW 3) is located within forebay of Detention Pond 1, located at the southern end of the pond. Three samples were collected at SW 3 during 2008. Since composting was suspended in 2006, no compost material is currently stored on the pad. The analytical results are discussed in Section 5.4.

Condition 24 (Groundwater)

Groundwater shall be sampled on semi-annual basis (spring and fall). The analysis shall seek to identify chloride, nitrate and a suite of compounds characteristic of leachate generated at the site. Sampling frequency and parameters for analysis may be adjusted upon the approval of the District Manager, as groundwater and leachate monitoring information becomes available.

In 1999, the analytical parameters were adjusted upon approval from the MOE.

Groundwater monitoring was conducted at all locations in June and December 2008. An additional set of water quality samples was collected in March 2008 from the new monitors drilled in early 2008 (locations 16 to 20). The results of the groundwater monitoring are discussed in Section 5.6.

Condition 26 (Surface Water)

The City shall annually review and update the existing surface water sampling program, designed to detect and quantify any impacts originating from the site

A S*urface water sampling program shall be implemented to ensure early detection of contaminants in the event that such contaminants escape the site. Surface water shall be sampled monthly for the following conventional parameters: BOD, SS, ammonia, nitrogen, TKN, total phosphorus and phenolics (this group of parameters is called the Short List). For all other parameters surface water shall be sampled on a semi-annual basis (spring and fall). The analysis shall seek to identify chloride, nitrate and a suite of organic and inorganic compounds characteristic of leachate generated at the site. Sampling frequency and parameters for analysis may be adjusted upon the approval of the Director, as surface water and leachate monitoring information become available. Surface water shall be sampled at the discharge location of the final surface water detention pond.*

During 2008, monthly monitoring of surface water runoff into Detention Ponds 1 and 2 was completed. However, samples were only collected during January, March and April from Detention Pond 1 and during January, April, June, July and August from Detention Pond 2. For the remaining months in 2008, no water remained in the detention ponds after rain events or they were dry by the end of each month. The results of the surface water monitoring are discussed in Section 5.5.

Condition 6 of the Amended C of A for discharge includes the following monitoring and reporting requirements:

1. *All samples and measurements taken for the purpose of this Certificate are to be taken at a time and in a location characteristic of the quality and quantity of the effluent streams over the time period being monitored.*

2. *All samples shall be collected and analyzed at the following sampling points, at the sampling frequencies and using the sample type specified for each parameter listed:*

Table 1 – Compost Pad Storage Pond Overflow

(Samples to be collected at the ditch inlet catch basin overflow from the CPSP to SDP1)

Frequency	*All rainfall events corresponding to a 2-year return storm or greater during the period between April 15 and September 15 of each calendar year **
Sample Type	*Composite ***
Parameters	*Total Suspended Solids, BOD5, Total Phosphorus, Total Kjeldahl Nitrogen, Oil & Grease, Total Phenolics*

** Sampling will be conducted during the entire rainfall event for a return storm of 2 years or greater.*
*** A composite blend of at least four (4) equal volume grab samples of influent flow, with collection of the aliquots distributed throughout the duration of the rainfall event.*

Table 2 – Stormwater Effuent Monitoring

(Samples of SDP2 effluent collected at the outlet of the Works)

Frequency	*All rainfall events of at least 25 mm during the period between April 15 and September 15 of each calendar year **
Sample Type	*Composite ***
Parameters	*Total Suspended Solids, BOD5, Total Phosphorus, Total Kjeldahl Nitrogen, Oil & Grease, Total Phenolics*

** Sampling will be conducted during an entire rainfall event generating a rain depth of 25 mm or more.*
*** A composite blend of at least four (4) equal volume grab samples of discharge flow, with collection of the aliquots distributed throughout the duration of the rainfall event.*

3. *The methods and protocols for sampling, analysis and recording shall conform, in order of precedence, to the methods and protocols specified in the following:*
   - *(c) the Ministry's publication "Protocol for the Sampling and Analysis of Industrial/Municipal Wastewater" (August 1994), ISBN 0-7778-1880-9, as amended from time to time by more recently published editions; and*
   - *(d) the publication "Standard Methods for the Examination of Water and Wastewater " (21st edition), as amended from time to time by more recently published editions.*

4. *The Owner shall ensure that surface water monitoring is carried out as per Condition 20 of the Provisional Certificate of Approval for a Waste Disposal Site No. A170128.*

5. *The Owner shall prepare and submit a performance report to the District Manager on an annual basis within ninety (90) days following the end of the period being reported on. The first such report will cover the first annual period following the commencement of the operation of*

the Works and subsequent reports shall be submitted to cover successive annual periods following thereafter. The reports shall contain, but not be limited to, the following information:

(c) a summary and interpretation of all monitoring data collected in accordance with Condition 6; and

(d) an overview of the performance, success and adequacy of the Works.

Since composting was suspended in 2006, no compost material is currently stored on the pad. Nevertheless, during the 2008 monitoring period, there were no 2-year return storm events therefore no sampling as per Table 1 of the C of A was conducted. There was one rainfall event on July 20 that generated a rain depth of 25 mm or more. A sample from this event was collected as per Table 2 of the C of A. The results of this sampling are discussed in Section 6.

4. Wet-Dry Recycling Facility Summary

4.1 HHW Waste Screening Procedures and Acceptance Criteria

Condition 22(k) and (l) of the C of A requires a review and update of the waste screening measures, as discussed below. The information presented in this section was reported by the City of Guelph. Household hazardous waste materials can only be received at the City of Guelph Depot in accordance with the conditions specified on Certificate of Approval A170128.

Purpose
This procedure is designed to assist the employees at the Household Hazardous Waste (HHW) Depot in the screening of waste that is brought to the depot and to prevent the acceptance of items not permitted by Certificate of Approval A170128. Adherence to these conditions is mandatory in order to ensure the operating permit is not revoked as a result of non-compliance issues.

Scope
These procedures are for employees at the Household Hazardous Waste (HHW) Depot and their Supervisor. The Depot is restricted to accepting only spent household consumer commodity goods that are widely available to the general public in quantities and concentrations typically found at conventional retail outlets.

Definitions
Household Hazardous Waste Depot: A collection center which accepts household hazardous waste from residents, which consist of but not limited to, paint, waste oil, thinners, household cleansers, etc., with a capacity of less than fifty-five (55) drums of waste.

Industrial/Commercial/Institutional Waste: Waste from businesses, medical centers, etc. Such waste is not accepted at the HHW.

PCBs: Polychlorinated biphenyls. The import, manufacturing and re-sale of materials containing PCB's was banned in the Canada in 1977, but legislation allowed the continued use of previously acquired products until the end of their functional life.

Residential Waste: Waste generated by an individual or a family at the place where the individual or the family lives.

TDG: Transportation of Dangerous Goods. This is a set of rules to follow regarding the transportation of dangerous substances, including how the materials are to be contained and labelled.

WHMIS: The Workplace Hazardous Materials Information System (WHMIS) is Canada's national hazard communication standard. The key elements of the system are cautionary labelling of containers of WHMIS "controlled products", the provision of material safety data sheets (MSDSs) and worker education and training programs.

Conditions

1. The Depot is restricted to accepting HHW waste from residents within the City of Guelph or County of Wellington only. This information shall be documented on the Waste Ticket Form prior to acceptance of the HHW materials and must include all contact information necessary to validate residency status.

2. Spent consumer commodity goods that are widely available to the general public in quantities and concentrations typically found at conventional retails outlets, examples include:
   - Canadian Tire products
   - Home Depot products

3. No industrial, commercial or institutional hazardous waste shall be received at this facility. Waste materials originating from these sources are items that would not be readily available to the general public nor would be considered consumer commodity. Examples include:
   - Lab reagents from the local University
   - Large pesticide containers typically sold to farmers
   - Chemical agents in containers greater than 20L in capacity

4. The following are not acceptable under any circumstance:
   - Radioactive wastes
   - Explosives and ammunition
   - Pathological wastes (sharps however are permitted if they are placed in a rigid plastic container, soaked in bleach overnight, drained, and labelled)
   - Unknown wastes
   - Polychlorinated biphenyls (PCBs)

Any unacceptable materials inadvertently received at the HHW or other areas on the WRIC site, must be handled and disposed of in accordance with applicable legislation. The HHW Coordinator is to be contacted immediately upon discovery for processing and handling of these unacceptable materials.

Additional Information

1. All waste received shall be clearly identified either by the labels of the original consumer packaging or if no labels are present, by the resident dropping the material off. The materials must be in a clear

container and the contents identifiable by the HHW attendant. Materials identified by the homeowner will be labelled by City of Guelph staff prior to acceptance and lab packing.

2. Only propane in containers typically available to the public is acceptable [Small 1 kg tanks up to barbeque size containers (20kg)].

3. The City of Guelph HHW depot reserves the right to reject any waste materials which if received could jeopardize the operational permits held by the site.

Procedures

1. Always wear the appropriate PPE (personal protective equipment) to handle the waste items.

2. All waste containers brought to the Depot shall be sealed prior to acceptance and must be surrendered by the resident. Unacceptable activities include:
   - Decanting gasoline for the purpose of returning jerry-cans to the homeowner
   - Decanting pesticides from small portable pumps

3. Hazardous waste material characteristic ranking will determine the order in which waste is handled. Many items will have the properties of two or more hazards and items with more than one hazard must be placed in the highest hazards characteristic class. Use the following in order of highest to lowest precedence of hazard:
   1. Radioactive
   2. Poisonous gases
   3. Flammable gases
   4. Non-flammable gases
   5. Biohazardous materials
   6. Poisonous liquid
   7. Pyrophoric materials
   8. Self-reactive
   9. Flammable liquids
   10. Flammable solids
   11. Combustible materials
   12. Miscellaneous hazardous materials

4. Refused items shall be recorded in the Waste Rejection section of the HHW Waste Ticket Form with reasons for the refusal documented. Offer the resident a list of Alternate Disposal Options. (See HHW Operations Manual).

5. Abandoned wastes will be recorded on an Unacceptable Waste Log. (See HHW Operations Manual).

6. Items of concern (extremely dangerous, toxic, explosive, biohazardous, infectious, or radioactive materials) shall be brought to the attention of the Supervisor of Governance and Compliance.

7. The resident will be contacted within three days in order to trace the whereabouts of any items of concern and to ensure that the material was properly disposed of. If required, the Ministry of Environment, City of Guelph Police Department, Fire Department or the Community Emergency Management Coordinator may also need to be notified.

8. Wastes containing PCB's or suspect PCB materials are not acceptable at the City of Guelph HHW depot, however should such material be suspected or identified after drop-off or in the case of illegal dumping, the following steps shall be taken:

    1. The PCB or suspect PCB waste materials shall be set aside in a secure area, along with the ticket identifying the resident that brought these materials to the depot if it was not illegally dumped.

    2. The material must be sampled and set for analysis to an accredited lab to determine the PCB concentration.

    3. Analytical results over 50 ppm confirm the waste to be PCBs.

    4. Upon confirmation of the presence of PCB waste, The City of Guelph shall obtain Directors Instructions from the Ministry of the Environment after which arrangements shall be made for removal and disposal.

Training
All HHW employees must be trained in WHMIS, TDG, Spills Response, Competent Person, and First Aid to perform these procedures.

Applicable Legislation and References

- OHSA Regulation 860 Workplace Hazardous Material Information System
- O. Reg. 347 General Waste Management Transportation of Dangerous Goods Act, 2002

4.2 Summary of Wastes/Recyclables Received

The Table 1 is a summary of the incoming materials received at the WRIC during 2008.

As shown on Table 1, 48,139 tonnes of material were received by the WRIC. Of the materials received, organics such as yard waste constituted 7,781 tonnes (16% of the materials received in 2008). Recyclables and mixed dry materials constituted 31,801 tonnes (66%) of the total materials received at the site. This included 10,103 tonnes (32%) municipally collected curbside recyclables, 499 tonnes (2%) resident drop off recyclables, 20,592 tonnes (65%) recyclables received from other municipalities and 607 tonnes (2%) miscellaneous mixed materials such as tires, scrap metal and electronics.

Additional non-recyclable materials such as mixed waste from public drop off constituted the remaining 8,558 tonnes (18%) of the total materials received at the site.

The on-site Household Hazardous Waste (HHW) depot serves residents of the City of Guelph and the County of Wellington. The depot accepted 15,692 drop offs of materials during 2008. A monthly summary of the 2008 drop off numbers are shown on page 12.

Table 1. Incoming Materials 2008

Material Type	Material Detail	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	
Recyclable &	Municipal (City)-collected	973	791	780	931	882	788	857	787	861	877	771	805	**10,103**
Mixed Dry Material	Municipal - drop-off	49	40	43	41	41	37	41	46	36	45	40	40	**499**
	ICI and other Municipal	1,971	1,773	1,582	1,799	1,762	1,759	1,532	1,334	1,856	1,660	1,696	1,869	**20,592**
	Sub Total	**2,993**	**2,605**	**2,404**	**2,770**	**2,684**	**2,584**	**2,431**	**2,166**	**2,754**	**2,582**	**2,507**	**2,714**	**31,194**
	Tires: Car and Truck	4	2	2	4	5	4	4	4	2	4	2	2	**38**
	Mixed Scrap Metal	40	32	33	64	54	69	64	60	52	16	49	29	**563**
	Electronics	0	0	0	0	0	0	0	0	0	6	0	0	**6**
	Sub Total	**44**	**34**	**35**	**68**	**60**	**73**	**68**	**64**	**54**	**26**	**51**	**31**	**607**
Organic Material	Brush/yardwaste/leaves	33	34	138	138	1,211	717	409	464	287	472	2,979	898	**7,781**
	Sub Total	**33**	**34**	**138**	**138**	**1,211**	**717**	**409**	**464**	**287**	**472**	**2,979**	**898**	**7,781**
Non-Recyclable	Mixed Waste Public drop-off	462	389	445	916	989	873	933	854	818	726	645	509	**8,558**
	Sub Total	**462**	**389**	**445**	**916**	**989**	**873**	**933**	**854**	**818**	**726**	**645**	**509**	**8,558**
	Monthly Total	**3,532**	**3,062**	**3,023**	**3,892**	**4,944**	**4,246**	**3,841**	**3,548**	**3,912**	**3,806**	**6,183**	**4,152**	**48,139**

Note: All measurements in tonnes.

Public	Drop Offs
January	738
February	434
March	635
April	1,759
May	1,721
June	1,547
July	2,039
August	1,607
September	1,478
October	1,789
November	1,256
December	689
Totals	**15,692**

Incoming HHW is sent to hazardous waste haulers for disposal or recycling. The City's Paint Plus Re-Use Program was conducted between July 2 and October 25, 2008. The results of the Paint Plus Re-Use Program for 2008 are tabulated below.

Material/Month	July	August	September	October	Total
Paints and coatings non-aerosol (L)	3,196	2,328.5	2,395.5	1,790.6	9,710.6
Paints and coatings aerosol (kg)	99.5	67.5	92.5	47	306.5
Solvents (L)	76	119	81.5	42	318.5
Antifreeze (L)	24.5	10.5	1.5	9	45.5
Propane cylinders (kg)	23	6.5	31	1	61.5
Cleaners/Detergents (L)	112.5	216.5	197.5	70.2	596.7
Car products (L)	32.5	26	46	8.5	113
Non-paint aerosols (kg)	24.5	21.5	36.5	4.5	87
Motor oil (L)	6	3	3	2	14
Plaster/cement/grout (kg)	227	118.5	61.5	36.25	443.25
Client count	334	216	216	131	897

Table 2 is a monthly summary of the amounts of HHW (separated by waste class) received at the site. A total of about 234,304 L and 18,330 kg of household special wastes were received in 2008. In addition, 2,072 propane tanks, 1,877 propane cylinders, 8,594 m (28,194 feet) of fluorescent tubes and 245 fire extinguishers were received in 2008. All materials accepted at the HHW depot are re-used, recycled or shipped off-site for disposal.

4.3 Summary of Transferred Waste/Recyclables

Table 3 is a summary of the outgoing materials shipped off the WRIC site during 2008. In 2008, 46,677 tonnes of material was shipped off-site to other destinations. About 19,685 tonnes (42%) of non-recyclable materials are shipped to the adjacent Transfer Station.

Table 2. 2008 Monthly Summary of Household Hazardous Waste
City of Guelph WRIC

Hazardous Waste		Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	TOTALS
Paints	Liters	7,600	6,400	4,400	21,200	15,900	10,550	18,900	15,600	12,000	16,000	10,800	6,800	**146,150**
	#of Boxes	19	16	11	53	38	25	45	39	30	40	27	17	**360**
Flammables	Liters	660	540	420	3,120	2,000	1,600	2,720	2,720	2,000	3,120	2,240	1,280	**22,420**
	#of Drums	11	9	7	39	25	20	34	34	25	39	28	16	**287**
Aerosols	Liters	288	192	180	2,304	1,280	800	1,160	480	400	520	320	280	**8,204**
	#of Drums	6	4	3	36	32	18	21	12	10	13	8	7	**170**
Acids	Liters		60		80		80	80	80	80	80	80	80	**700**
	#of Drums		1		1		1	1	1	1	1	1	1	**9**
Base	Liters	180	60	120	720	480	480	1,040	480	320	560	560	240	**5,240**
	#of Drums	3	1	2	9	6	6	8	6	4	7	7	3	**62**
Pesticides	Liters	180	60	60	400	480	240	560	400	320	400	320	240	**3,660**
	#of Drums	3	1	1	5	6	3	7	5	4	5	4	3	**47**
Oxidizers	Kgs.		90	90	160	240	80	480	160	320	160	240	80	**2,100**
	#of Drums		1	1	2	3	1	6	2	4	2	3	1	**26**
Alkaline Batteries	Kgs.		560		672	551	141	460	481	314	258	321	203	**3,961**
	#of Drums		3		4	3	1	4	3	2	2	2	2	**26**
Isocyanates	Kgs.	48				40		60		80		62		**290**
	#of Drums	1				1		1		1		1		**5**
Pharmaceuticals	Kgs.				160		80		80		80		80	**480**
	#of Drums				2		1		1		1		1	**6**
Car Batteries	Kgs.	540	300	380	1,190	900	560	1,639	1,356	1,275	680	260	510	**9,590**
Motor Oil	Liters	2,625	1,205	820	2,910	6,325	5,635	4,026	4,860	3,365	4,660	4,699	1,068	**42,198**
Oil Filters	Liters					320	80	300	100	100	100	80	100	**1,180**
	Drums					4	1	2	1	1	1	1	1	**12**
Glycol	Liters	585			585		680	680		725	682		590	**4,527**
Propane Tks.	20 Lbs	42	11		53	129	63	105	1,140	340	71	84	34	**2,072**
Propane Cyl.	1 Lb		400		220	200			186	111	400	360		**1,877**
Sharps	#of Boxes				6			9		7			7	**29**
	Kgs.				104			112		136			106	**458**
Rechargeable H/H Batteries	Kgs.	219	202		159	119		147	165	307			133	**1,451**
Cooking Oil	Liters	580			350			580			450			**1,960**
	#of Drums	4			3			4			3			**14**
Fluor. Tubes	cfls	289			314		486	314		388	402			**2,193**
	# of Feet	3,132			2,901		9,625	4,633		4,251	3,652			**28,194**
MEK Peroxide	Liters		4					3		1			2	**10**
	# of pails		1					1		1			1	**4**
Benzoyl Per.	Liters		1					3		1			2	**7**
	# of pails		1					1		1			1	**4**
Mercury	Liters		1			2		2		1			2	**8**
	# of pails		1			1		1		1			1	**5**
Fire Ext.	Each					70		54	45	10	20	31	15	**245**

Table 3. Outgoing Materials 2008

Material Type	Material Detail	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	
Dry Recyclable	Old Corrugated Cardboard	497	575	523	492	549	519	406	230	428	455	460	541	**5,675**
Processed Material	#8 Newsprint	559	379	391	623	698	683	753	157	612	184	612	389	**6,039**
	#7 Newsprint	0	0	0	0	0	0	0	0	74	224	0	0	**298**
	#6 Newsprint	196	168	67	69	117	115	45	45	132	234	204	0	**1,392**
	Fine Paper	199	198	192	208	196	184	62	0	45	22	19	43	**1,369**
	Mixed Recyclables	17	0	0	19	0	0	79	437	0	0	0	0	**552**
	Mixed Glass	0	0	0	0	0	0	0	0	37	89	92	120	**339**
	Steel Cans:Food & Beverage	99	135	89	131	91	79	63	76	106	93	149	146	**1,258**
	Aluminum Cans	18	17	47	26	39	29	29	15	41	0	27	15	**304**
	PET Bottles #1	41	74	39	53	36	72	59	39	52	56	73	54	**648**
	HDPE Bottles #2	61	38	36	58	39	43	21	40	41	41	41	60	**519**
	Tubs & Lids:Mixed Resin	21	19	18	0	19	40	21	0	18	21	19	20	**216**
	Mixed Scrap Metals	40	32	33	64	54	69	64	60	52	16	49	29	**563**
	Tires: Car and Truck	4	0	0	4	5	4	4	4	2	4	2	2	**34**
	Electronics	0	0	0	0	0	0	0	0	0	6	0	0	**6**
	Sub Total	**1,749**	**1,635**	**1,436**	**1,747**	**1,844**	**1,838**	**1,605**	**1,103**	**1,642**	**1,444**	**1,747**	**1,421**	**19,211**
Organic	Brush/yardwaste/leaves	33	34	0	277	1,211	717	409	464	287	472	2,979	898	**7,781**
	Sub Total	**33**	**34**	**0**	**277**	**1,211**	**717**	**409**	**464**	**287**	**472**	**2,979**	**898**	**7,781**
Non-Recyclable	Mixed Waste Public drop-off	462	389	445	916	989	873	933	854	818	726	645	509	**8,558**
	Residue-MRF	1,043	1,079	883	1,035	874	936	922	508	809	819	1,159	1,060	**11,128**
	Sub Total	**1,505**	**1,468**	**1,328**	**1,951**	**1,863**	**1,808**	**1,856**	**1,362**	**1,626**	**1,546**	**1,804**	**1,569**	**19,685**
MRF Non-recovered	Processed:Non-recovered	0	0	0	0	0	0	0	0	0	0	0	0	**0**
	Sub Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	Monthly Total	**3,288**	**3,138**	**2,764**	**3,974**	**4,918**	**4,363**	**3,869**	**2,929**	**3,555**	**3,461**	**6,530**	**3,888**	**46,677**

Note: All measurements in tonnes.

Of the 26,992 tonnes (58% of the total outgoing materials) of marketable material transferred off the site in 2008, 7,781 tonnes (29%) was brush, yard waste and leaves, 14,773 tonnes (55%) was paper-based goods such as cardboard and newsprint, 3,835 tonnes (14%) was cans, plastic bottles and mixed resin containers and the remaining 603 tonnes (2%) was other recyclable materials such as scrap metal, tires and electronics. As reflected in the volumes above, the majority of the marketable materials sold were paper products.

The WRIC achieved a 100% diversion rate for organic (yard, leaf and brush) and a 51% rate[1] of diversion for the dry materials accepted at the site in 2008. The overall 2008 diversion from the landfill for the site was 59% [2].

HHW materials were shipped by Photech Environmental Solutions Inc., St Catherines (the waste removal contractor for 2008) for disposal or re-use.

Outgoing household hazardous waste materials were manifested to Photech and sold to the companies identified below for recycling and re-use.

Company	Material
Stablex Canada Inc.	• Acids, bases, oxidizers
Newalta Industrial Services	• Organics, flammables
Clean Harbours	• Pesticides
Peintures Recuperees Du Quebec	• Aerosols, paints
Raw Materials Corp.	• Household batteries, mercury
Quantex Technologies Inc.	• Oil filters
Phase Separation Solutions	• Pharmaceuticals

Other hazardous waste contractors/destinations include:

Material	Destination, Major Buyers
Fluorescent tubes, cfls	• Aevitas
Propane tanks	• Simcoe Energy & Technical Services
Pathological wastes/syringes	• Stericycle
Bulk oil/antifreeze	• Safety-Kleen
Car batteries	• Interstate Batteries

Destinations/buyers for dry recyclable processed materials include:

Material	Destination, Major Buyers
Shredded Yard Waste	• Gro-Bark Ltd.
Corrugated Cardboard	• Strathcona, Atlantic Packaging, Norampac, Solvay
Newsprint	• Spruce Falls Inc., Cascades, Krueger, Bowater
Fine Paper	• Cascades
Steel Cans	• POSCOR Mill Services
Aluminum Cans	• Connecticut Metals
PET Bottles (#1)	• Plastrec, Camco, Image Recycling
HDPE (#2 plastics)	• Sol Plas, Entropex
Mixed Plastic (# 4,5, 7)	• Haycore
Scrap Metal / White Goods	• Poscor
Tires	• Envirocan
Scrap Wood	• Gro-Bark Ltd.

1. *Diversion rate (excluding yard waste)= Dry Incoming (40,358 tonnes) – Outgoing to Transfer Station (19,685 tonnes)/Dry Incoming (40,358 tonnes) x 100 = 51%*
2. *Overall diversion rate = Total Incoming (48,139 tonnes) – Outgoing to Transfer Station (19,685 tonnes)/Total Incoming (48,139 tonnes) x 100 = 59%*

4.4 Summary of Wastes/Recyclables Processed

Materials that are accepted by the site are either processed (composted), diverted to be re-used or sent to the waste transfer station for disposal. Tonnages of incoming and outgoing materials will not be equal as some mass is lost through evaporation and processing. Table 4 is reconciliation of the incoming and outgoing materials and materials processed from the site.

Table 4. Summary of Incoming, Outgoing and Processed Quantities

Recyclable and Other Materials Processed in 2008	(tonnes)
Quantity received (Table 1: Wet-Dry Incoming 2008)	48,139
Quantity in inventory from prior year (2007)	1,372
Quantity sold (Table 3)	26,992
Quantity sent to landfill/transfer station (Table 3)	19,685
Quantity in Inventory at the end of 2008	(48,135 + 1,372) – 26,992 – 19,685 = 834

The 834 tonnes of inventory remaining on the site consisted of recyclable materials ready for shipment to off-site markets.

5. Summary of Analytical Results

5.1 Leachate Monitoring

Leachate monitoring is to be conducted on a semi-annual basis for the inorganic parameters and annually for the organic parameters. The analytical parameters to be sampled are listed below.

Monitoring Parameter List

Leachate Indicator		
Parameters	• Biological Oxygen Demand (BOD) • Chemical Oxygen Demand (COD) • Total Kjeldahl Nitrogen (TKN) • Ammonia as Nitrogen (NH3-N) • Total Phosphorus (Total P) • Total Suspended Solids (TSS) for surface water and leachate • Total Sulphate (SO4) • Phenols • Nitrate (NO3) and Nitrite (NO2)	• 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 19	Misa Group 20
1,1,2,2-Tetrachloroethane	Acenaphthene	2,3,4,5-Tetrachlorophenol
1,1,2-Trichloroethane	5-Nitroacenaphthene	2,3,4,6-Tetrachlorophenol
1,1-Dichloroethane	Acenaphthylene	2,3,5,6-Tetrachlorophenol
1,1-Dichloroethylene	Anthracene	2,3,4-Trichlorophenol
1,2-Dichlorobenzene	Benzo(a)anthracene	2,3,5-Trichlorophenol
1,2-Dichloroethane	Benzo(a)Pyrene	2,4,5-Trichlorophenol
1,2-Dichloropropane	Benzo(b)Fluoranthene	2,4,6-Trichlorophenol
1,3-Dichlorobenzene	Benzo(g,h,i)perylene	2,4-Dimethylphenol
1,4-Dichlorobenzene	Benzo(k)Fluoranthene	2,4-Dinitrophenol
Bromodichloromethane	Biphenyl	2,4-Dichlorophenol
Bromoform	Camphene	2,6-Dichlorophenol
Bromomethane	1-Chloronaphthalene	4,6-Dinitro-o-Cresol
Carbon Tetrachloride	2-Chloronaphthalene	2-Chlorophenol
Chlorobenzene	Chrysene	4-Chloro-3-methylphenol
Chloroform	Dibenzo(a,h)Anthracene	4-Nitrophenol
Chloromethane	Fluoranthene	m-,p-Cresol
Cis-1,3-Dichloropropylene	Fluorene	o-Cresol
Dibromochloromethane	Indeno(1,2,3-cd)Pyrene	Pentachlorophenol
1,2-Dibromoethane	Indole	Phenol
Methylene Chloride	1-Methylnaphthalene	
Tetrachloroethylene	2-Methylnaphthalene	
trans-1,2-Dichloroethylene	Naphthalene	
Trans-1,3-Dichloropropylene	Perylene	
Trichloroethylene	Phenanthrene	
Trichlorofluoromethane	Pyrene	
Vinyl chloride	Benzyl Butyl Phthalate	
Misa Group 17	bis(2-ethylhexyl)Phthalate	
Benzene	Di-N-butylPhthalate	
Ethylbenzene	Di-N-octylPhthalate	
Styrene	4-Bromophenyl phenyl Ether	
Toluene	4-Chlorophenyl Phenyl Ether	
o-Xylene	bis(2-chloroisopropyl)Ether	
m-Xylene and p-Xylene	bis(2-Chloroethyl)Ether	
Misa Group 18	Diphenyl ether	
Acrolein	2,4-Dinitrotoluene	
Acrylonitrile	2,6-Dinitrotoluene	
	bis(2-chloroethoxy)Methane	
	Diphenylamine	
	N-Nitrosodiphenylamine	
	N-Nitrosodi-N-propylamine	

As discussed earlier, sampling of the actual leachate over the past several years could no longer be conducted due to the small amount generated. Prior to 2003, the leachate that was sampled was a mixture of runoff water from the compost pad and leachate produced in the composting process collected in the holding tank beneath the pad, prior to discharge to the sanitary sewer. However, starting in 2003, the collection of compost runoff into the holding tank ceased. Since 2003, runoff from the compost pad has been directed to the clay lined Detention Pond 1. It should be noted that no compost has been generated from the site since 2006.

In 2008, January, March and April samples were collected from the pond at SW 3. No other samples were collected in 2008 at SW 3, due to dry or snow covered conditions. The table below briefly outlines the conditions at Detention Pond 1 (SW 3) during the 2008 monthly monitoring events.

Month	Runoff From Pad	Conditions	Sampling Date
January	Yes	Some Flow	**January 8, 2008**
February	None	Dry	**No Sample**
March	Yes	Good Flow	**March 17, 2008**
April	None	Standing Water	**April 10, 2008**
May	None	Dry	**No Sample**
June	None	Dry	**No Sample**
July	None	Dry	**No Sample**
August	None	Dry	**No Sample**
September	None	Dry	**No Sample**
October	None	Dry	**No Sample**
November	None	Dry	**No Sample**
December	None	Dry	**No Sample**

No impacts are expected at SW 3 since compost is no longer stored on the pad. In the past when the water quality was sampled at SW 3 (or CL-1 leachate), it showed elevated concentrations of conductivity, potassium, BOD, COD, TKN, ammonia, total phosphorus, chloride, sodium and iron. In 2008, SW 3 has higher potassium, BOD, COD, ammonia, total phosphorus, phenol, chloride and sodium concentrations compared to background overburden groundwater[3]. These elevated concentrations may be related to residual leachate inputs in the clay-lined pond, which is expected to flush out over time. Although this was the case, all water collected from the compost pad into the pond was directed to the sanity sewer.

The compost runoff was to be analyzed for organics once per year. During the June sampling event, SW 3 was dry therefore the organic sample was to be collected during the next monitoring event when there was water in the pond. The pond was dry for the remainder of the year so no organic analysis was completed at SW 3 in 2008.

5.2 Surface Water Monitoring

Monitoring of surface water at the WRIC commenced in March 1996. As required in the C of A, this monitoring was to be to be on a monthly basis for a short parameter list and on a quarterly basis for the full leachate parameter list (updated in 1999). There are two surface water sampling stations at the site, designated as SW 1 located at the off-site discharge point in Stormwater Detention Area 2 (Figure 1) and SW 2 located in the Stormwater Detention Area 1. Any surface water discharge (SW 1) that does leave the site would be directed into a roadside ditch that ultimately flows into a stormwater catch basin.

There is no background surface water analysis (prior to site operations), so any impacts due to runoff from the WRIC would be difficult to determine at the discharge point SW 1, due to the potential for other sources of non-facility impacts. These sources include runoff from the surrounding agricultural lands and road systems.

During mid 1998, the surface water monitoring program was re-designed to better understand contributions from runoff directly related to the site and not stagnant pond conditions. Surface water sampling is still undertaken on a monthly basis, in accordance with the C of A. However, more detailed recordings on

3 There is no background surface water data so surface water quality is compared to background overburden groundwater quality from monitors 2b-91, 9-96, 14b-01 and 15b-01.

discharge and overall conditions (such as dry or stagnant water) are undertaken. As well, the monthly sampling is to be undertaken during runoff conditions (weather permitting), and if no event occurs, are to be sampled at the end of the month regardless.

Below is a discussion of the surface water monitoring at station SW 1 and SW 2 during 2008. Samples were collected from Detention Pond 2 (SW 1) on January 8, April 10, June 24, July 24 and August 11 and from Detention Pond 1 (SW 2) in January and from March to September and November 2008. No other surface water samples were collected due to dry conditions. The table below briefly outlines the surface water monitoring events for the past year at these surface water stations.

Month	Discharge Events	Conditions	Sampling Date
January	No Discharge	SW1 and SW2 – Water Present	**January 8, 2008**
February	No Discharge	Dry	**No Sample**
March	No Discharge	SW 1 - Dry, SW 2 -Water Present	**SW2 - March 19, 2008**
April	No Discharge	SW1 and SW2 – Water Present	**April 10, 2008**
May	No Discharge	SW1 – Dry, SW2 –Water Present	**SW2 – May 22, 2008**
June	No Discharge	SW1 and SW2 – Water Present	**June 24, 2008**
July	No Discharge	SW1 and SW2 – Water Present	**July 24, 2008**
August	No Discharge	SW1 and SW2 – Water Present	**August 11, 2008**
September	No Discharge	SW 1 - Dry, SW 2 -Water Present	**SW2 – September 17, 2008**
October	No Discharge	Dry	**No Sample**
November	No Discharge	SW 1 - Dry, SW 2 -Water Present	**SW2 - November 26, 2008**
December	No Discharge	Dry	**No Sample**

Generally, surface water quality at SW 1 (Stormwater Detention Area 2) has been typified by slightly elevated concentrations for COD, TKN, total phosphorus, chloride and sodium compared to background groundwater quality. The 2008 SW 1 samples showed elevated total phosphorus and occasionally elevated conductivity, BOD, sodium, chloride, TKN, ammonia and iron compared to background groundwater quality. The 2008 results are within the range of historic concentrations, except for alkalinity (higher) and sulphate, sodium and chloride (lower). The Provincial Water Quality Objectives (PWQO) were exceeded during all five 2008 sampling events for total phosphorus, on three occasions for zinc and on two occasions for iron. The total phosphorus, zinc and iron PWQO have routinely been exceeded in the past at this location. Occasionally elevated parameter concentrations at SW1 are a result of road salt impacted runoff from the adjacent internal roadways and/or occasional stagnant water conditions in the pond.

The 2008 SW 2 (Stormwater Detention Area 1) samples showed elevated conductivity and potassium, and occasionally elevated TKN, total phosphorus, chloride, sodium and iron concentrations compared to background groundwater. April conductivity and May alkalinity and chloride had higher concentrations compared to the historic maximums for these parameters. COD, sulphate and iron showed lower concentrations than historic during 2008. The spring (March to May) and September concentrations tended to be higher than the summer and November concentrations, likely due to seasonal influences. Total phosphorus exceeded the PWQO during all nine monitoring events in 2008. Zinc exceeded the PWQO on five occasions, iron exceeded PWQO on three occasions and phenols exceeded PWQO on one occasion during 2008. These parameters have historically frequently to occasionally (phenols) exceeded their PWQO.

It is noted that background bedrock monitors 5-96 and 8-96 have consistently shown elevated zinc concentrations indicating that high zinc is natural in the area. All surface water quality results are appended.

Historically, COD, ammonia, TKN and total phosphorus appear to be more elevated during the drier periods. This was not the case in 2008 where higher concentrations of COD and TKN were observed in the spring. Chloride and sodium appear higher in the spring period and can be elevated in the late fall period as observed in the past. These higher spring sodium and chloride concentrations were observed in 2008. Elevated chloride and sodium in the spring and periodically in the fall (should early snow fall occur) would be related to road salting of surrounding and on-site roads. The elevated COD, ammonia, TKN and total phosphorus during drier periods would be related to the stagnant condition of the water in the pond. However, total phosphorus and TKN have been elevated in 2002 and 2003 immediately after a rain event during non-stagnant conditions. That these parameters are elevated after rain events suggests that they are collected in the surface water runoff. As the surrounding land use, at that time, was agricultural, it is most likely the runoff from these areas is the cause and not from the WRIC. This is further supported by historical groundwater quality (prior to the construction of the facility), which has shown elevated concentrations of both of these parameters in the groundwater. These apparent trends will be further assessed as more seasonal data are collected each year under normal precipitation and/or rain event periods. As 2008 was wetter than normal, this may explain the deviation from historic concentration trends.

As per the requirements of the C of A, the surface water was to be analyzed for organics once annually (typically in June). Organic samples were not collected at SW 1 and SW 2 due to dry conditions in October 2008. Organic sampling will be conducted earlier in the year to ensure that annual samples are collected in the future.

It is recommended that surface water monitoring continue to be conducted monthly until a suitable water quality database, has been achieved.

5.3 Groundwater Monitoring

Baseline groundwater monitoring was conducted from 1991 to 1995, prior to construction at the site (monitor locations 1a-91, 1b-91, 2a-91, 2b-91, 3-91 and 5-91). Monitoring of the groundwater at the WRIC Facility commenced in April 1996 at the remaining monitoring locations that were not destroyed during construction (Figure 1). In late 1996, replacements for the monitors that were destroyed were completed and added to the program. The present monitoring program, initiated in 1999 after MOE approval, is twice per year (June and December). Groundwater samples were collected in June and December in 2008. An additional set of water quality samples was also collected from the new monitors drilled in 2008 (locations 16 to 21) in March 2008.

The MOE completed a review of the 2004 and 2005 Annual Monitoring reports for the Eastview Landfill and the Transfer Station. The MOE recommended installation of additional monitoring locations to better address the geological setting with respect to the groundwater flow. Based on the MOE review comments, six new monitoring nest locations (BH16-08 to BH21-08) were completed, at the locations shown on Figures 1 to 3.

The boreholes were completed in February (locations 16-08 to 20-08) and September 2008 (location 21-08) with a rotary water well drilling rig under the supervision of City of Guelph staff. Each of the new monitoring nests (except for location 21-08) consists of a shallow overburden water table monitor and a deeper bedrock piezometer screened a minimum of 3 m into the dolostone bedrock. Due to the shallow depth to bedrock at monitor location 21, a single water table/bedrock monitor designated 21-08 was installed here. Total depths of the monitors range from 3.4 m (20B-08) to 30.5 m (19A-08). These new monitors were incorporated into the routine monitoring program in 2008. The driller's logs for the new boreholes are appended.

5.3.1 Groundwater Elevation and Flow Directions

Groundwater elevations were measured at 17 locations that included a total of 30 monitors. These monitors are outlined below with the geological unit they are measuring. Groundwater elevations are appended. Hydrographs for each location are also appended.

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[1]	Dolostone Bedrock	Bedrock
11a-01[1]	Dolostone Bedrock	Bedrock
11b-00[1]	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
16a-08	Dolostone Bedrock	Bedrock
16b-08	Gravelly Outwash	Water Table
17a-08	Dolostone Bedrock	Bedrock
17b-08	Gravelly Outwash	Water Table
18a-08	Dolostone Bedrock	Bedrock
18b-08	Gravelly Outwash	Water Table
19a-08	Dolostone Bedrock	Bedrock
19b-08	Gravelly Outwash	Water Table
20a-08	Dolostone Bedrock	Bedrock
20b-08	Gravelly Outwash	Water Table
21-08	Dolostone Bedrock	Water Table/Bedrock

Notes: (1) Locations recommended by MOE
** Locations on Transfer Station Property*

In general, the shallow groundwater flow beneath the WRIC is similar to previous years though flows have been refined based on the groundwater elevation information from the new monitors installed in 2008. Shallow groundwater flow beneath the majority of the site is 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. As well, flow is directed from the east.

The bedrock groundwater flow pattern is similar to the overlying shallow groundwater system (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. New monitoring nests (bedrock and overburden) were placed to the east of the facility (BH18-08, BH19-08 and BH20-08) to confirm the geology and groundwater flow in this area. Southeast of the Transfer Station, the bedrock elevation is highest at BH20-8, sloping to the northwest towards the paleo river valley.

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

Notes:
- Base drawing from Lonsdale Consulting Engineers Inc. drawing MW-1 "Monitor Well Locations" Revision B dated Jan 13/09.
- 2006 Orthophotography

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

AECOM

Waste Resource Innovation Centre
City of Guelph
Annual Monitoring Program

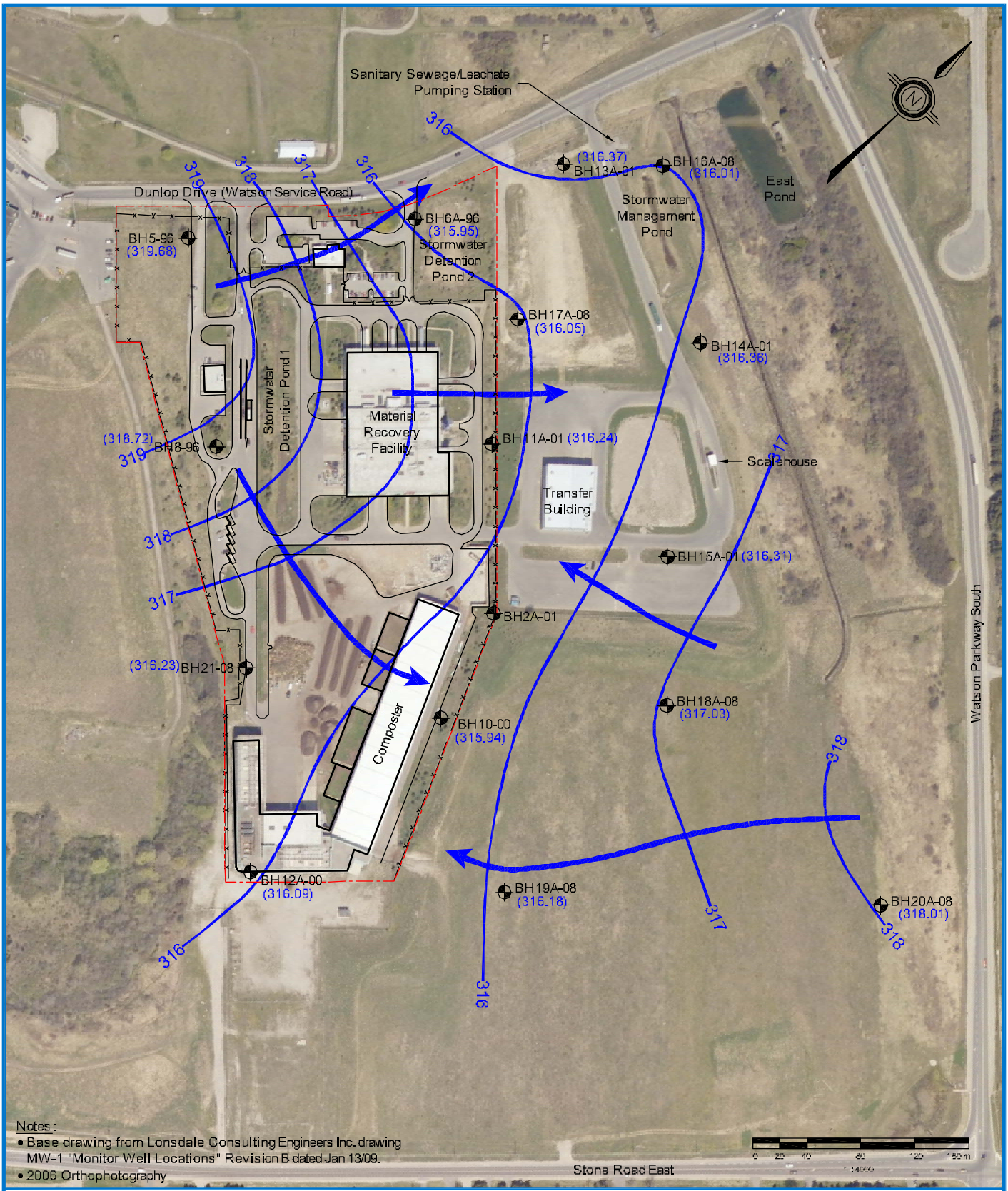
Shallow Groundwater Flow (September 2008)

Legend
- Site Boundary
- Fence
- Monitoring Well
- (166.45) Shallow Groundwater Elevation
- 170 Shallow Groundwater Contour

PROJECT NUMBER 111409
DATE March 2009
FIGURE NUMBER 2

A SIZE 8.5" x 11" (215.9mm x 279.4mm)
PLOT: 3/18/2009 12:45:37 PM
BY:----
FILE NAME: 111409-F01.DWG

N:\Projects\8-AECOM\111409\2009\Final\ACAD\111409-F01.dwg Layout:Fig 02 Plotted: Mar 18, 2009 @ 12:45pm by steves



Notes:
- Base drawing from Lonsdale Consulting Engineers Inc. drawing MW-1 "Monitor Well Locations" Revision B dated Jan 13/09.
- 2006 Orthophotography

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

AECOM

Waste Resource Innovation Centre
City of Guelph
Annual Monitoring Program

Bedrock Groundwater Flow (September 2008)

Legend
- Site Boundary
- Fence
- Monitoring Well
- (166.45) Bedrock Groundwater Elevation
- 170 Bedrock Groundwater Contour

PROJECT NUMBER 111409
DATE March 2009
FIGURE NUMBER 3

A SIZE 8.5" x 11" (215.9mm x 279.4mm)
PLOT: 3/18/2009 12:34:10 PM
BY:----
FILE NAME: 111409-F01.DWG

N:\Projects\8-AECOM\111409\2009\Final\ACAD\111409-F01.dwg Layout:Fig 03 Plotted: Mar 18, 2009 @ 12:34pm by steves

5.3.2 Groundwater Quality

Groundwater sampling was conducted in June and December 2008. An additional set of water quality samples was collected from the new monitors (locations 16-08 to 20-08) in March 2008. Groundwater quality results are appended.

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 along with an associated bedrock high to the west of the site. In general, there are three types of groundwater quality that have been identified within these units, based on the shallow groundwater flow regime. These are background outwash, bedrock and bedrock influenced outwash water quality.

5.3.2.1 Background Outwash Water Quality

Background outwash groundwater quality has historically been measured at monitors 2b-91 and 9-96 on the eastern extent of the property, and at locations 14 and 15 on the adjacent eastern property. Groundwater flow is directed towards the site from these areas. New monitors BH18b-08, BH19b-08 and BH20b-08, located southeast of the Transfer Station and 16b-08, located north of the Transfer Station are also representative of background outwash conditions based on the groundwater flow patterns in this area.

Monitor 2b-91 showed a spike in alkalinity concentrations in 2007 to 362 mg/L from a pre-2003 average of 183 mg/L. The elevated 2007 alkalinity at 2b-91 is not due to site activities since this monitor is located upgradient of the WRIC. Only three samples have been collected from this monitor since 2004 due to persistently dry conditions. The June 2008 alkalinity concentration of 228 mg/L is similar to 2004 (256 mg/L). Sulphate concentrations have been decreasing over time from about 30 mg/L in the mid-1990's to its current 2008 concentration of 10 mg/L. No other trends in indicator parameter concentrations were noted at 2b-91. Also of note is the low 2008 nitrate concentration at 0.7 mg/L. Historically, nitrate concentrations frequently exceeded the ODWS at 2b-91.

Monitors 18b-08, 19b-08 and 20b-08 have chemistry similar to monitors 14b-01 and 15b-01, located northeast of the WRIC though a few parameters at 19b-08 were notably higher than the other overburden background monitors. Monitor 19b-08 showed elevated concentrations of conductivity, potassium, COD, TKN, ammonia, sulphate, sodium and boron. COD and sulphate concentrations were also elevated at monitor 18b-08 though this monitor was only sampled in March 2008 due to dry conditions during the June and December sampling events. The cause of these elevated concentrations is unknown, however, since these monitors are upgradient of the site, the elevated concentrations are not a result of site activities. Monitor 20b-08, located upgradient from 18b-08 and 19b-08, shows parameter concentrations similar to the historic overburden background monitors.

Groundwater quality at these background locations is typified by lower concentrations of the major ions (Alk, Cl, Na, Ca, Mg and K). The average of these parameters during 2008, along with historic ranges for each location, are provided below. The June 2008 magnesium, potassium and calcium and the December 2008 alkalinity and magnesium concentrations at monitor 9-96 were higher than historic maximum concentrations for this location. As 9-96 is a background outwash monitor, the higher parameter concentrations are most likely a result of natural variability in the groundwater and not related to site operations. The June 2008 potassium and the June and December 2008 sodium and chloride concentrations at monitor 14b-01 were higher than historic maximum concentrations at this monitor. The June 2008 sodium and chloride and the December 2008 alkalinity and sodium concentrations at monitor 15b-01 were higher than historic maximum concentrations at this monitor. Other indicator parameter concentrations for these monitors are within their historic ranges. COD concentrations at 14b-01 and 15b-01 are showing decreasing trends since their peak in 2004-2003 such that they are currently lower than 2001 concentrations. Monitor 14b-01 has shown increasing sodium and chloride over time from about 20 mg/L and 40 mg/L, respectively in 2001-2003 to 105 mg/L and 165 mg/L in 2008. The increasing sodium and chloride concentrations are most likely related to road salting along Watson Parkway.

Since 2006, the average chloride concentration at monitor 15b-01 has increased from a 2006 average concentration of 6 mg/L to a 2007 concentration of 29 mg/L to a 2008 average concentration of 76 mg/L. This monitor has continued to show a general increasing trend in alkalinity in recent years. Sodium and chloride showed a noticeable increase in concentrations in 2008 to an average of 92 mg/L and 76 mg/L, respectively compared to 2007 average concentrations of 11 mg/L and 29 mg/L. These increases are likely related to the construction of the paved pad immediately south (discussed below). 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.

Three additional groundwater monitor locations were drilled southeast of monitoring location 15 to provide background upgradient groundwater quality data for the site. The monitors were sampled on three occasions during 2008 (except for 18b-08 which was only sampled in March due to dry conditions for the remainder of the year). The 2008 results from these monitors shows that the background overburden has elevated sodium and chloride concentrations, as high as 480 mg/L sodium at 19b-08 and 110 mg/L chloride at 20b-08. The sodium concentrations are significantly higher than sodium concentrations at monitor BH15b-08 suggesting that the upgradient background monitors are closer to the source than monitor 15b-01. The most likely source of the elevated sodium and chloride is winter road salting of the adjacent major roadways. Sodium and chloride concentrations are highest at 19b-08. The cause of the high sodium and chloride impacts at this monitor may be due to a component of shallow groundwater flow to this area from both Watson Parkway and Stone Road which may result in greater impacts in this area (ie. two sources of road salt - Stone Road East and Watson Parkway). Nevertheless, the high sodium and chloride concentrations in the upgradient background monitors confirm that site operations are not the cause of these impacts.

Monitor 16b-08 is located near the northwest corner of the of the Transfer Station site by the stormwater management pond. Indicator parameter concentrations are within the range of concentrations for the other background overburden monitors though they tend to be at the high end of the range. There are no exceedances of ODWS in 2008.

In 2007, 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. Monitor 15b-01 exceeded ODWS for nitrate in June 2008 with a nitrate concentration of 13 mg/L (compared to an ODWS of 10 mg/L). The new background overburden monitors showed nitrate concentrations ranging from below the laboratory detection limit to 8.8 mg/L (19b-08). Elevated nitrates are most likely a result of long-term agricultural land use in the area. BH19b-08 exceeded the sulphate ODWS on two occasions in 2008. BH17b-08, 18b-08 and 19b-08 exceeded the sodium ODWS for all the 2008 sampling events. Of the background outwash monitors, there were no other exceedances of the Ontario Drinking Water Standards (ODWS) in 2008.

Monitor		Alkalinity (ppm)	Chloride (ppm)	Sodium (ppm)	Calcium (ppm)	Magnesium (ppm)	Potassium (ppm)
2b-91	*Historical Range*	166 - 362	4.8 – 17	1.8 – 4	52.2 - 90	21.8 – 39	0.69 - 1
	June 2008	228	4	2.6	64	26	0.79
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
	2008 Average	282	21	11.9	94	31	1.3
14b-01	*Historical Range*	267 - 438	22.3 - 143	7.7 – 67	95.4 - 140	26.2 - 38	1 – 2.3
	2008 Average	375	165	105	120	34	2.4
15b-01	*Historical Range*	200 - 533	4 – 56	2 – 16	73.4 - 190	18.7 - 53	0.97 - 2
	2008 Average	497	76	92	135	28	1.3
16b-08	2008 Range	318 - 597	38 - 160	39 - 60	130 - 170	42 - 51	1.5 – 2.4
	2008 Average	464	84	47	143	45	2
17b-08	2008 Range	313 – 357	260 – 500	170 - 290	110 - 160	32 - 46	2.4 – 2.8
	2008 Average	330	387	233	140	40	2.6
18b-08	*March 2008*	284	8	270	29	12	2.1
19b-08	*2008 Range*	289 - 485	38 - 60	350 - 480	23 - 36	10 - 14	4.5 – 8.6
	2008 Average	363	51	433	31	12	7.0
20b-08	*2008 Range*	244 - 266	11 - 110	3.5 - 57	82 - 99	25 - 30	1.2 – 3.3
	2008 Average	248	49	26	88	27	1.9

Note: Historical Ranges include all data up to and including 2007, except where specified.

5.3.2.2 Background Bedrock Water Quality

Background bedrock groundwater quality is measured at locations 5-96 (northwest) and 8-96 (west) on the bedrock high along the western portion of the WRIC site from where groundwater flows into the immediate area. As well, groundwater quality in the bedrock below the site was measured at location 6a-96. Background bedrock groundwater quality is typically hard with more elevated concentrations of the major ions, most noticeably alkalinity and calcium. These types of concentrations are associated with dolostone, which is made up of calcium and magnesium carbonate. The average concentrations of these parameters observed in 2008, along with the historical ranges at these locations are provided below. Also, provided in this table are the 2008 averages from the bedrock WRIC site monitors (10-00, 11a-00) installed in 2000

along with the bedrock monitors (13a-01, 14a-01 and 15a-01) installed on the Solid Waste Transfer Station property in late 2001 and the new bedrock monitors (16a-08, 17a-08, 18a-08, 19a-08, 20a-08, 21-08) installed in 2008.

Monitor		Alkalinity (ppm)	Chloride (ppm)	Sodium (ppm)	Calcium (ppm)	Magnesium (ppm)	Potassium (ppm)
5-96	*Historical Range* [1]	278 - 380	112 - 474	71.9 - 263	83.7 - 134	24.2 – 38.4	3.9 - 6
	2008 Average.	295	770 [2]	500 [2]	108	23	4.9
8-96	*Historical Range*	264 - 356	37.2 - 332	17.6 – 171	87 - 123	32 - 43.4	1.73 – 3.1
	2008 Average	301	120	70	96	35	2.7
6a-96	*Historical Range*	235 - 420	158 – 345	70 - 176	94.6 - 158	28.3 - 42	2 – 16.4
	2008 Average	263	270 [2]	155 [2]	130	35	3.4
10-00	*Historical Range*	236 - 267	17 – 44.9	7.7 - 12	79 - 95.1	27 - 31.5	1 - 2
	2008 Average	238	25	10	86	29	1.1
11a-00	*Historical Range*	231 - 263	4 - 12	4.3 - 25.9	62 - 83.2	23 - 27	1 - 3
	2008 Average	234	14	5.7	69	25	2
13a-01	*Historical Range*	248 - 272	83.9 – 111	38 - 44	90 - 112	32 - 38.8	2 – 2.9
	2008 Average	249	98	47	99	36	2.6
14a-01	*Historical Range*	215 - 263	4.8 – 26.6	9.1 - 27.4	63.5 - 84	22.4 - 29	1 - 2
	2008 Average	238	16	12.5	76	27.5	1.1
15a-01	*Historical Range*	245 - 271	47 – 62.4	7.7 – 19	88 - 129	29 - 37	1 – 2
	2008 Average	251	44	19	98	33	1.3
16a-08	*2008 Range*	238 - 251	28 - 36	2.5 - 42	76 - 82	26 - 29	2 – 3.6
	2008 Average	243	31	17	78	28	2.8
17a-08	*2008 Range*	233 - 248	27 - 36	15 - 67	64 - 80	26 - 30	1.4 – 2.2
	2008 Average	239	31	33	71	28	1.9
18a-08	*2008 Range*	243 - 258	16 - 19	6.1 - 89	65 - 81	27 - 28	1.1 - 3
	2008 Average	249	18	38	74	27	1.9
19a-08	*2008 Range*	240 - 245	45 - 50	19 - 47	94 - 100	33 - 37	1.2 – 1.4
	2008 Average	242	47	33	97	36	1.3
20a-08	*2008 Range*	242 - 262	16 - 19	4.9 - 56	72 - 84	26 - 30	1.1 – 1.8
	2008 Average	252	17	23	80	28	1.4
21-08	March 2008	284	54	34	86	32	1.2

Note: 1. Historical Ranges only include data from 1997 up to 2003 due to continued increasing chloride and sodium values after 2003.

2. Road salt impact

Historical Ranges include all data up to and including 2007, except where specified.

The average 2008 concentrations fall within the historical ranges, with the following exceptions. The 2008 average chloride concentrations at monitor 11a-00 and sodium at 13a-01 are marginally higher than the historic maximums for these parameters. The chloride concentrations at 11a-00 have shown a subtle increasing trend in recent years from a pre-2006 concentration of about 6 mg/L to a 2006 average concentration of 9 mg/L to a 2007 average chloride concentration of 12 mg/L at monitor and a 2008 average concentration of 14 mg/L. The chloride concentration at monitor 11a-00 has increased slightly over the past few years but still remains low at 14 mg/L. The chloride concentration at 5-96 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 in 2008. 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.

Monitor 15a-01 is at the upper limit of its historic concentrations and has shown an increasing sodium trend over time though the 2008 average sodium concentration of 19 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 WRIC. Sodium and chloride at monitor 5-96 and chloride at 6a-96 exceed ODWS due to road salt impacts. The 2001-2002 iron concentration at 13a-01 has been decreasing from a peak of 0.96 mg/L in 2002 to its 2008 concentration of 0.31 mg/L. Nitrates exceeded ODWS at monitor 6a-96 with concentrations of 26 mg/L and 37 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. Elevated nitrate concentrations were prevalent across the site at all locations prior to development of the site. Elevated nitrates are most likely a result of long-term agricultural land use in the area and are not a result of site operations.

When the water quality from the monitors located along the eastern boundary of the WRIC (10-00, 11a-00) and in the Transfer Station property (13a-01, 14a-01, 15a-01, 16a-08, 17a-08) are compared to the historical monitors to the west, there is a difference in bedrock water quality observed. With the exception of alkalinity, the concentrations of the major ions are generally lower indicating a less mineralized water. This difference in water quality is attributed to the bedrock units they are completed in. As stated earlier, there is a bedrock high to the west of the site. This high is dominated by the dolostone units of the Guelph Formation. The bedrock topography dips steeply to the east, across the WRIC site, towards a deeply incised bedrock valley low. This valley cuts into the underlying Amabel Formation. The 2001 and 2008 monitors are installed in this formation or at the contact of this formation at the eastern boundary of the WRIC facility. Overall, water quality from this lower formation is found to be less mineralized, which is confirmed by sampling of these monitors.

Monitor 21-08 is screened within the shallow bedrock. Parameter concentrations are similar to those at 8-96 which is also installed in a similar setting in shallow bedrock with less than 0.7 m of overburden.

5.3.2.3 Bedrock/Outwash Water Quality

The last type of water quality measured beneath the site is the bedrock-impacted groundwater. This is observed in the outwash at monitors 6b-96 (northeast corner) and 7-96 (central) as well as at the historical monitor 3-97 (southwest corner), which was destroyed during the construction of the SUBBOR pilot facility and replaced with monitor 12b-00. These locations are along the flow path that trends from the southwest to the northeast and receives groundwater inputs from the topographic high to the east and the bedrock high to the west. This water quality is typified by concentrations of the major ions that are elevated above the background outwash but for the most part lower than the bedrock concentrations. This is anticipated as the more ionized water from the bedrock to the west would mix with the less ionized waters coming from the overburden high to the east. It should be noted that monitor 6b-96 had, on occasion, higher concentrations of chloride and sodium than observed in the bedrock at monitor 5-96. These concentrations always show a seasonal trend, usually highest in the early spring, suggesting they are attributed to road salting of the surrounding area. Monitor 5-96 has been showing increasing chloride concentrations over time from about 200 mg/L up to 2002 to around 800 mg/L in the late-2000's, likely in response to long-term road salting in the area.

Below is a table comparing the historic and average concentrations of the above monitors to background monitors 5-96 (bedrock) and 9-96 (outwash). Alkalinity at 9-96 has been showing a subtle increasing trend with time from about 200 mg/L in the late-1990's to about 240 mg/L in the early to mid-2000's to about 300 mg/L in the late-2000's. The increasing alkalinity is not a result of activities on the site as monitor 9-96 is upgradient of the site. Historical ranges for 6b-96 and 7-96 have also been provided for long-term comparisons. Monitor 12b-00 is discussed separately below.

Monitor		Alkalinity (ppm)	Chloride (ppm)	Sodium (ppm)	Calcium (ppm)	Magnesium (ppm)	Potassium (ppm)
Background Groundwater							
5-96	Historical Range	278 - 380	112 - 474	71.9 - 263	83.7 - 134	24.2 – 38.4	3.9 - 6
(Bedrock)	2008 Average	295	770 (2)	500 (2)	108	23	4.9
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
(Outwash)	2008 Average	282	21	11.9	94	31	1.3
Impacted Groundwater							
6b-96	Historical Range	246 – 412	90.3 – 815 (1)	53.1 – 467 (1)	85.9 - 217	20.5 - 45	5.36 - 18
(Outwash)	2008 Average	309	350	235	160	40	13
7-96	Historical Range	224 – 378	54.3 – 397	28.7 - 212	95.1 - 226	29.6 - 52.7	9.06 - 27
(Outwash)	2008 Average	287	205	130	135	36	14

Note: (1) Road salt impact. Historical Ranges includes all data up to 2007, unless specified otherwise.

The 2008 average concentrations for the two downgradient outwash monitors fall within the historical ranges for each monitor. The ODWS for chloride and sodium was exceeded during one or both monitoring events in 2008 at monitor 6b-96. Alkalinity and potassium concentrations at 7-96 have been decreasing from their peak concentrations in 2005 and 2002, respectively. Nitrate at monitors 6b-96 and 7-96 exceeded ODWS during both 2008 monitoring events, most likely a result of past agricultural land use. Most indicator parameters shown on the above table (sodium, chloride, magnesium, potassium and calcium) at 6b-96 are slightly higher than 2007 levels. Sodium and chloride at 7-96 are also higher than 2007 concentrations. These slightly elevated concentrations are likely a result of natural variability.

Monitor Location 12

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. This location is situated at the southwest corner of the WRIC facility, which was in the area of the now former Pilot SUBBOR plant (Figure 1). Based on shallow groundwater flow, it is also upgradient of any WRIC operations.

In 2002, both the shallow outwash monitor 12b-00 and the bedrock monitor 12a-00 showed an increase in concentrations of COD, BOD, iron, ammonia, TKN, sodium and chloride. The cause of this increase was considered unknown. However, as stated earlier, this location is upgradient of any WRIC operations (i.e., the composter was downgradient to the east and the compost pad was downgradient to the north of this location, though neither was in use during 2008). General decreasing trends have been observed since 2003. The 2008 results at monitor 12b-00 are lower than 2007 concentrations and reflect pre-2002 conditions, showing no impacts.

By 2003, all concentrations decreased back to 2001 concentrations in the bedrock monitor (12a-00). Review of the data collected to-date show continued improvement of the water quality in 2008 with no impacts in the deeper bedrock monitor 12a-00.

5.3.2.4 Groundwater Organics Results

As per the requirements of the C of A, the groundwater was analyzed for organics once in June (dry event) at monitoring locations 2, 6, 11, 12, 13, 14, 15, 16, 17, 18, 19 and 20 and monitors 5-96, 7-96, 8-96, 9-96 and 10-00.

Phenols were detected at monitors 2b-91, 5-96, 6a-96, 9-96, 11a-00, 18a-08 and 20a-08 at concentrations of between 0.5 μg/L and 1.3 μg/L in June 2008. These detections occur across the site at both overburden and bedrock background and downgradient monitors as well as in the trip blank suggesting that these detections are a result of sampling or laboratory artefact. The ODWS for phenols was exceeded at 18a-08 (1.3 μg/L) but the trip blank also had phenols detected at a concentration of 0.6 μg/L indicating that the phenol results are a laboratory artefact.

Monitors 14b-01, 16a-08 and 19b-09 had detections of bis(2-ethylhexyl) Phthalate (DEHP) in the June 2008 samples ranging from 5μg/L (19b-08) to 27 μg/L (14b-01). DEHP was detected during both monitoring events in 2007 at monitor 14b-01. It has historically been detected at both upgradient and downgradient monitors in 1997, 1998, 2002, 2003, 2006 and 2007. Historic DEHP detections ranged from 0.73 μg/L to 120 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 monitors across the site, we have concluded that it is a result of sampling or laboratory artefact.

A low concentration of toluene (0.3 μg/L) was detected at monitor 2a-91 in 2008. Toluene has an ODWS aesthetic objective of 24 μg/L. Low levels of toluene have been periodically detected between 2001 and 2005 at upgradient and downgradient overburden and bedrock monitors 2a-91, 11a-00, 12a-00, 12b-00, 13b-01, 14b-01 and 15b-01 suggesting these detections are not due to site activities. These low detections are most likely a result of sampling or laboratory artifact.

A low concentrations of chloroform (0.3 μg/L) was detected at monitor 6a-96 in 2008. Low chloroform (0.3 μg/L) was detected during both 2007 sampling events at this same monitor. Chloroform was not previously detected at this monitor though it has been historically been detected at low levels at monitors 6a-96, 6b-96 and 11b-00, in both the overburden and bedrock with no elevated indicator parameter concentrations indicating that these occasional detections are not a result of activities on the site. There is no ODWS for chloroform. The low level detections of chloroform at this location are most likely a result of sampling or laboratory artifact.

Monitor 9-96 showed a low concentration (0.3 μg/L) of 1,1,1-Trichloroethane during the June 2008 monitoring event. Low concentrations of 1,1,1-Trichloroethane were also detected at this monitor in March 2007 and June 2007. Low concentrations 1,1,1-Trichloroethane have historically been detected in this monitor since 2001. 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. A field blank was collected at 9-96 in June 2008 to determine if previous organic detections were the result of sample collection methodology. For this sample, the sample containers were filled at the monitor location with control water supplied by the laboratory. The blank was placed in the cooler along with the other samples collected and submitted for analysis along with the rest of the samples. The June 2008 the trip blank and field blank showed no detection of 1,1,1-Trichloroethane. The historic detections and results of the trip and field blanks suggest that these low level detections at 9-96 are real. The source of this VOC is unknown. Historically it has not been detected in any of the monitors on the transfer station or the WRIC site indicating that it is localized and is not moving beyond the monitor area. Concentrations will continue to be monitored in the future but were low in 2007 and 2008 and have declined since 2004 with 2008 concentrations only slightly higher than the laboratory detection limit of 0.1 ug/L.

There were no organics detected in the field blank collected during the June 2008 monitoring event. The trip blank did show low level detections just above the laboratory detection limits for phenanthrene, naphthalene and phenol. However, based on the historic detections of occasional low levels of VOC throughout the site in both upgradient and downgradient monitors, the 2008 detections of DEHP, chloroform, phenols and toluene are likely to be a result of sampling or laboratory artefact. Persistent low levels of 1,1,1-Trichloroethane at 9-96 appear to be real (as discussed above). The 0.3 μg/L concentration of toluene detected at 2a-91 was much lower than the ODWS of 24 μg/L. Phenols were detected at 18a-08 (1.3 μg/L) but the trip blank also had phenols detected at a concentration of 0.6 μg/L indicating that the phenol results are a laboratory artefact. There are no other ODWS for any of the VOC's detected during 2008. No other organics were detected at any of the monitors that are part of the WRIC program in 2008.

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

5.3.2.5 General Discussion

Overall, the groundwater chemistry during 2008 was similar to previous years.

In 2007, 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 prior to development of the Transfer Station. This was once again confirmed in 2008. Monitors 6a-96, 6b-96, 7-96 and 15b-01 exceeded ODWS for nitrate in 2008. Elevated nitrates are most likely a result of long-term agricultural land use in the area and were also detected during sampling events conducted in 1992, 1994 and 1995, before the opening of the WRIC in late 1995. The elevated nitrates are not a result of site operations. Monitors

5-96, 6a-96, 6b-96, 18b-08 and 19b-08 exceeded ODWS for sodium and/or chloride in 2008 as a result of road salt impacts. There were no other exceedances of the Ontario Drinking Water Standards in 2008.

The 2008 nitrate concentrations at 7-96 are at 54 mg/L and 41 mg/L in June and December, respectively. These concentrations are similar to the nitrate concentrations observed at this location during the late 1990's[4] when the site was only opened for about a year[5]. Shallow background monitors 1b-91 and 6b-96 historically have also shown elevated nitrate concentrations in the early 1990's (up to 32 mg/L at 1b-91) and late 1990's (up to 44 mg/L at 6b-96) indicating that the elevated nitrates were present prior to the commencement of facility operations. If monitor 7-96 is impacted by compost leachate, other indicator parameter concentrations would also be expected to be elevated. Though some indicator parameters are slightly elevated compared to background, other parameters such as ammonia, BOD, COD and TKN, which are indicative of compost leachate, remain at low concentrations confirming that the elevated nitrates are not a result of leachate impacts. Composting at the site was suspended in mid-2006.

Road salt impacts continue to increase at 5-96, with a significant increase noted in 2006. This location is upgradient west of the site on the bedrock high. These increasing road salt impacts may be related to increased traffic as this area becomes more developed.

Monitor 15b-01 has continued to show a slight increasing trend in alkalinity and sodium in recent years. 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, around 2004-05, 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. Additional groundwater monitor locations located southeast of the Transfer Station show much higher concentrations of sodium and chloride than those detected at 15b-01 suggesting that there are impacts on these monitors from winter road salting along the adjacent major roadways.

There were detections of DEHP, chloroform, toluene, phenols and 1,1,1-Trichloroethane in a few of the monitors during 2008. However, based on the historic detections of occasional low levels of VOC throughout the site in both upgradient and downgradient monitors, most of the 2008 VOC detections are concluded to be a result of sampling or laboratory artefact. DEHP has historically been detected at both upgradient and downgradient monitors in 1997, 1998, 2002, 2003, 2006 and 2007. DEHP is prevalent in the environment due to their use in plastics. Since DEHP has sporadically been detected at monitors both upgradient and downgradient of the site, we have concluded that it is a result of sampling or laboratory artefact. Chloroform has also historically been detected at low levels at monitors 6a-96, 6b-96 and 11b-00, in both the overburden and bedrock with no elevated indicator parameter concentrations indicating that these occasional detections are not a result of activities on the site. Toluene has been detected in the past at low levels at or just above the laboratory detection limits at upgradient and downgradient overburden and bedrock monitors 2a-91, 11a-

4 Range of 1997-1998 nitrate concentrations at 7-96 of 23 mg/L to 54 mg/L with an average nitrate concentration of 37 mg/L.

5 Construction of the WRIC commenced in 1994. The site was opened in late 1995.

00, 12a-00, 12b-00, 13b-01, 14b-01 and 15b-01 suggesting these detections are not due to site activities. The toluene detected at monitor 2a-91 was well below the ODWS. There were low level detections of phenols at background monitors 5-96 and 9-96 as well as monitors 2b-91, 6a-96, 11a-00, 18a-08 and 20a-08 in 2008. These detections occur across the site at both overburden and bedrock background and downgradient monitors as well as in the trip blank indicating that these detections are not a result of site operations. The ODWS for phenols was exceeded at 18a-08 (1.3 μg/L) but the trip blank also had phenols detected at a concentration of 0.6 μg/L indicating that the phenol results are a laboratory artefact. Persistent low levels of 1,1,1-Trichloroethane at 9-96 appear to be real. Historically it has not been detected in any of the monitors on the transfer station or the WRIC site indicating that it is localized and is not moving beyond the monitor area. Concentrations will continue to be monitored in the future but were low in 2007 and 2008 and have declined since 2004 with 2008 concentrations only slightly higher than the laboratory detection limit of 0.1 ug/L. There are no ODWS for any of the other VOC's detected during 2008. No other organics were detected at any of the monitors that are part of the WRIC program in 2008.

Historically, there have been occasional low level detections of organics at both upgradient and downgradient monitors. Because the detection limits for organic compounds are very low, it is not unusual to have sporadic low level organic detections at sites where organic samples are frequently collected. The presence of persistent organics at one location combined with elevated indicator parameter concentrations and/or increasing trend in parameter concentrations would trigger more intense scrutiny of water quality results. This has not been the case for the organic detections at this site. As recommended in the previous reports, now that an eight year database has been attained, organic sampling can be removed from the groundwater monitoring program for all historical locations.

In conclusion, there were no observable effects attributed to the WRIC on the groundwater quality beneath the site. No effects were observed at the boundary of the site. Road salt effects continue to be observed at location 5-96, 8-96 (upgradient of site), 7-96 and 9-96 (on-site) and are related to off-site as well as potential on-site activities. The elevated nitrate at 7-96 continues to be detected at concentrations of approximately 40 to 50 mg/L as observed in the late 1990's, just after commissioning of the facility. These concentrations are not related to the facility but most likely reflect the former agricultural land use at the site. New monitors 17b-08, 19b-08 and 20b-08 also appear to show road salt impacts.

6. Certificate of Approval for Discharge

The WRIC operates under a C of A for municipal and private sewage works (number 9970-VEVLBH) for discharge off-site. Runoff generated from the site is directed to the two stormwater detention ponds located at the northwest end of the site (Detention Pond 1 and 2). Condition 6(2) of the C of A outlines the monitoring program for the site which includes sampling of the compost pad storage pond overflow during a rainfall event for a return storm of two years or greater and stormwater effluent monitoring for a rainfall event generating a depth of 25 mm or more. Each location is equipped with automatic rainfall sensors to inform staff when the triggers for these conditions have been met.

On July 20, 2008, the trigger for the stormwater effluent monitoring was met and a sample was collected from the Detention Pond 2 outlet. This sample was analyzed for the parameters listed in the table below and compared to historic results from this location. Routine monthly surface water samples were collected in 2008 at this location (SW1) in January, April, June, July and August. The 2008 results for the C of A parameters are summarized in the table below.

	SW1 Historic Range (2000 – 2008)	SW1 Average (2000 – 2008)	July 20 (25 mm rainfall event)	January 8	April 10	June 24	July 24	August 11
BOD	1.3 - 27	5.9	12	2	< 2	5	5	3
TKN	0.6 - 115	8.6	4.5	1.4	0.9	2.5	0.6	0.8
Phenolics	< 0.001 – 0.002	0.001	0.003	< 1	< 1	< 1	< 1	< 1
Total Phosphorus	0.06 - 0.934	0.313	0.8	0.22	0.06	0.28	0.19	0.19
TSS	1 - 128	19	10	3	2	24	5	4

Note: All parameter concentrations in mg/L
Average and historic ranges exclude the June 24, 2008 event.

The BOD, TKN and total phosphorus concentrations were higher than the maximum 2008 concentrations but within the range of concentrations measured at this location. Compared to the historic average concentrations at SW1, the July 20th sample was higher than the average BOD, phenolics and total phosphorus concentrations. The higher parameter concentrations measured during the 25 mm rainfall event were likely a result of flushing of the stagnant water that was in the pond. The 25 mm rainfall event sample was also analyzed for total oil and grease. Total oil and grease was below the laboratory detection limit. The discharge sample exceeded PWQO for phenolics and total phosphorus.

Monitoring of the site has shown that there are no adverse impacts to the groundwater and surface water in the area as a result of WRIC operations. Samples collected from Detention Pond 1 (SW3) are representative of compost leachate, however, composting at the site was suspended in mid-2006. The 2008 SW3 samples showed elevated concentrations of some indicator parameters compared to background overburden water quality but these elevated concentrations are likely related to residual leachate inputs in the clay-lined pond which are expected to flush out over time. No impacts are expected at SW3 since compost is no longer stored on the pad. Elevated July 20th SW1 concentrations are likely the result of flushing of the stagnant water that was in the pond. Based on the results of the monitoring program, the current monitoring program for the site appears to adequately characterize ground and surface water conditions of the site.

7. Contingency Plans

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

Emergency Plan, WRIC Fire Safety Plan) were reviewed by AECOM. The pertinent items identified by the C of A are summarized below.

7.1 Spills

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

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

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

7.2 Fire or Similar Emergency

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

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

7.3 Composting Facilities

The Organic Waste Processing Facility is currently not in service. A comprehensive contingency plan will be developed in the event that the facility re-opens.

7.4 Power or Equipment Failure

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

Procedures as a result of loss of on-site facilities are addressed in the Emergency and Contingency Plan as well as the WRIC Business Continuity Plan. Recommended procedures associated with the loss of each of the facilities is documented. Ultimately, management will assess the course of action to restore the facilities and re-gain normal operations.

7.5 Odour

Twice daily odour monitoring is conducted by qualified Solid Waste Resources (SWR) staff. Odour complaints from the public are investigated through the SWR Environmental Complaint Investigation Procedure in compliance with Condition 31 of the C of A. Control measures may include closing doors, cleaning up standing water and/or spills, other housekeeping measures, making changes to the processes or removal of the odour source to the landfill. If the odour persists, a portion of the operation or the entire site may be closed until the issue is resolved.

7.6 Aircraft Hazards/Bird Control

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

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

7.7 Un-Authorized Waste

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

7.8 Groundwater/Surface Water Contamination

The site and operational procedures are designed such that there will be minimal impacts on the environment. In the event of a surface water impact, the on-site SWM detention ponds have valves that can stop off-site flow. A Spills Contingency Plan (discussed in Section 7.1) is in place to handle spills. Dry and wet waste received and handled at the site are conducted in indoor covered areas with impermeable floor surfaces and materials stored outside are covered such that impacted runoff is not generated.

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

7.9 Quality/Fungal Contamination

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

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

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

The WRIC Facility continues to strive to comply with the requirements of Conditions 27 and 30 of the C of A. This section is based on the information provided to AECOM by the City. The waste screening measures that the City implements to ensure compliance of incoming waste is discussed in Section 4.1, as per Condition 22(k) and (l). Monthly summaries of the wastes and/or recyclables and information on the composting facility have been provided in Sections 4.2 to 4.5 of this report, as stipulated sub-sections a), b) c) and d) of Condition 30. Section 5 discusses the results of the annual groundwater, surface water and leachate monitoring program as per Condition 30(e) of the C of A. Section 6 discussed the 2008 surface water sampling that took place to comply with the C of A for Discharge for the site. Section 7 provides a review and summary of the updated Contingency Plans for the site, specified in Condition 27 of the C of A.

A compliance statement from the City of Guelph (Appendix D) reports that the WRIC operated in compliance with all Terms and Conditions of Provisional Certificate of Approval number A170128 including the inspection and reporting requirements of the conditions as presented in this report for the 2008 period.

9. Conclusions

The following conclusions are provided based on the findings of the 2008 program:

a) The materials received at the site in 2008 consisted of 7,781 tonnes (16%) organics such as yard waste, 31,801 tonnes (66%) of recyclables and mixed dry materials and 8,558 tonnes (18%) of non-recyclable materials. The WRIC stopped receiving compost material in 2006.

b) There were 46,667 tonnes of materials processed and transferred off the site to markets or for disposal. 834 tonnes of material remained in inventory at the end of 2008.

c) Monitoring results from SW 3 (mostly runoff from the compost pad and representative of leachate input) were generally similar to background surface water stations in 2008. This would be expected as no compost has been stored on the pad since early 2006. However, SW3 showed higher potassium, BOD, COD, ammonia, total phosphorus, phenol, chloride and sodium concentrations compared to background overburden groundwater. This may be related to residual leachate impacts in the clay-lined pond, which is expected to flush out over time. No organic sampling was conducted at SW 3 in 2008.

d) The 2008 surface water monitoring of SW 1 (Stormwater Detention Area 2) showed elevated total phosphorus and occasionally elevated conductivity, BOD, sodium, chloride, TKN, ammonia and iron compared to background groundwater quality. The Provincial Water Quality Objectives (PWQO) were exceeded during all five 2008 sampling events for total phosphorus, on three occasions for zinc and on two occasions for iron. Off-site discharge occurred on one occasion (July 20th). The discharge sample exceeded PWQO for phenolics and total phosphorus.

e) The 2008 SW 2 (Stormwater Detention Area 1) samples showed elevated conductivity and potassium, and occasionally elevated TKN, total phosphorus, chloride, sodium and iron concentrations compared to background groundwater. Total phosphorus consistently exceeded the PWQO during 2008. Zinc, iron and phenolics exceeded the PWQO during one or more monitoring events in 2008.

f) Organic samples were not collected at SW 1 and SW 2 due to dry conditions in October 2008. Organic sampling will be conducted earlier in the year to ensure that annual samples are collected in the future.

g) New monitoring locations north of the Transfer Station (16-08), southeast of the Transfer Station (18-08, 19-08, 20-08), northeast of the WRIC (17-08) and within the WRIC site (21-08) were completed in 2008 and incorporated into the monitoring program for the site. These locations were drilled to gain a better understanding of the geology, groundwater flow and water quality in these areas. The 2008 results from monitors at 18b-08, 19b-08, 20b-08 shows that the background overburden has elevated sodium and chloride concentrations, with the sodium concentrations significantly higher than sodium concentrations at monitor BH15b-08 suggesting an upgradient source. The most likely source of the elevated sodium and chloride is winter road salting of the adjacent major roadways.

h) Groundwater monitoring results indicate road salt effects at some up-gradient and on-site groundwater monitoring locations (5-96, 8-96 and 7-96). These are related to off-site and potential on-site activities. There were no apparent leachate impacts observed in the groundwater at the site boundary.

i) The elevated nitrate at 7-96 are at similar concentrations to those observed in the late 1990's, just after commissioning of the facility. These concentrations are not related to facility operations but most likely reflect the former agricultural land use at the site.

j) A sample of the discharge from Detention Pond 2 (SW 1) was collected in July 2008 during a 25 mm rainfall event as per the C of A for Discharge for the site. Compared to the historic average concentrations at SW1, the July 20th sample was higher than the average BOD, phenolics and total phosphorus concentrations but was within the range of historic parameter concentrations for SW 1. The higher parameter concentrations measured during the 25 mm rainfall event were likely a result of flushing of the stagnant water that was in the pond.

k) The 2008 Emergency and Contingency Plan for the site were reviewed and the items pertinent to the C of A are summarized in this document.

l) No remedial or mitigative actions were required at the WRIC Facility in 2008 based on findings from the monitoring program.

10. Recommendations

The following recommendations are provided for consideration:

a) Groundwater, surface water and leachate sampling should be conducted in 2009 as originally outlined in the 1997 annual report and revised in 1999. The program includes twice yearly

sampling of the groundwater and leachate (where applicable). As well, monitoring for organic compounds should be completed on an annual basis during the summer (June) sampling event. Surface water monitoring should still be taken on a monthly basis, in accordance with the C of A, at SW 1 and SW 2. Surface water samples should also be collected from the portion of Detention Pond 1 that is to receive stormwater runoff from the compost pad, designated SW 3. Detailed recordings of discharge and overall conditions (such as dry or stagnant water) should be documented during each surface water event. As well, the monthly sampling is to be undertaken during runoff conditions (weather permitting), and if no runoff event occurs are to be sampled at the end of the month regardless (unless dry). Monitoring for organic compounds at the surface water locations should be completed on an annual basis and should coincide with a summer sampling event. The approved monitoring program is summarized in Table 5. All samples should be analyzed for the parameters listed in the table on the below.

Monitoring Parameter List

Leachate Indicator		
Parameters	• Biological Oxygen Demand (BOD) • Chemical Oxygen Demand (COD) • Total Kjeldahl Nitrogen (TKN) • Ammonia as Nitrogen (NH3-N) • Total Phosphorus (Total P) • Total Suspended Solids (TSS) for surface water and leachate. • Total Sulphate (SO4) • Phenols • Nitrate (NO3) and Nitrite (NO2)	• 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)	

a) Based on organic analytical results collected to date from the groundwater and leachate, consideration should be given to removing the organic analysis from the groundwater sampling program as an eight-year database has now been collected. We request confirmation from the MOE that the organic sampling can be removed from the monitoring program.

b) Should composting operations resume at the site, all equipment should be lubricated and carefully inspected to ensure that it is in proper working order. A comprehensive contingency plan should be developed prior to re-activation of the Organic Waste Processing Facilities.

Table 5: Monitoring Program

City of Guelph WRIC

Groundwater Monitoring Locations and Sampling Frequency

Formation	Monitor Locations		Sampling Frequency	Water Levels *
Sandy Silt Till	2a-91	7-96	Semi Annually - Inorganics (June, December) Annually - Organics (June)	Semi Annually (June, December)
Sandy Outwash	2b-91 6b-96	9-96	Semi Annually - Inorganics (June, December) Annually - Organics (June)	Semi Annually (June, December)
Gravelly Outwash	11b-00	12b-00	Semi Annually - Inorganics (June, December) Annually - Organics (June)	Semi Annually (June, December)
Dolostone Bedrock	5-96 6a-96 8-96	10-00 11a-00 12a-00	Semi Annually - Inorganics (June, December) Annually - Organics (June)	Semi Annually (June, December)

Leachate Monitoring Location and Sampling Frequency

Monitor Locations	Sampling Frequency	Leachate Level Sampling
SW3 - Forbay (Southern end) of Detention Pond 1 (Scalehouse)	Semi Annually** - Inorganics Annually** - Organics	Monthly * - Discharge

Surface Water Monitoring Stations and Sampling Frequency

Monitor Locations	Sampling Frequency	SW Level Sampling
SW1 - Downstream outflow of Detention Pond 2 (East of Admin)	Monthly** - Inorganics Annually** - Organics	Monthly ** - Discharge
SW2 - Downstream outflow of Detention Pond 1 (Scalehouse)	Monthly** - Inorganics Annually** - Organics	Monthly ** - Discharge

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

** After a rain event or if no rain, at end of sampling period

AECOM

Appendix A

Borehole Logs for Monitors Completed in 2008, Groundwater Elevations and Hydrographs

Ontario Ministry of the Environment

Well Tag No. *(Place Sticker and/or Print Below)* A063980

Well Record

Regulation 903 Ontario Water Resources Act

16-08 Page 1 of 1

Well Owner's Information

First Name	Last Name	E-mail Address	☐ Well Constructed by Well Owner
Corp of City	of Guelph.		

Mailing Address (Street Number/Name, RR)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
59 Carden St	Wellington	Ont.	N1H3A1	5198375654

Part A Construction and/or Major Alteration of a Well

Address of Well Location (Street Number/Name, RR)	Township	Lot	Concession
80 Dunlop Drive	City of Guelph.		

County/District/Municipality	City/Town/Village	Province	Postal Code
Wellington	Guelph.	Ontario	N1H3A1

UTM Coordinates	Zone	Easting	Northing	GPS Unit Make	Model	Mode of Operation
NAD 83	17	564779	4822926	Magellan	Meridian	☐ Undifferentiated ☑ Averaged ☐ Differentiated, specify

Overburden and Bedrock Materials *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (Metres) From	Depth (Metres) To
Brown	Topsoil			0	2
Brown	Gravel	Med – Coarse		2	15
Brown	Gravel	fine Silt		15	18
Grey	Gravel	Stones		18	42
Brown-Black	Limestone		hard	42	52
		Screened 5'-20'			
		" 42'-52'			

Annular Space/Abandonment Sealing Record

Depth Set at (Metres) From	To	Type of Sealant Used (Material and Type)	Volume Placed (Cubic Metres)
0	5	Bentonite chips	
20	40	Bentonite chips	

Method of Construction

☐ Cable Tool ☑ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Rotary (Air) ☐ Air percussion ☐ Other, specify

☐ Diamond ☐ Jetting ☐ Driving ☐ Digging ☐ Boring

Water Use

☐ Public ☐ Domestic ☐ Livestock ☐ Irrigation ☐ Industrial ☐ Other, specify

☐ Commercial ☐ Municipal ☐ Test Hole ☐ Cooling & Air Conditioning

☐ Not used ☐ Dewatering ☑ Monitoring

Status of Well

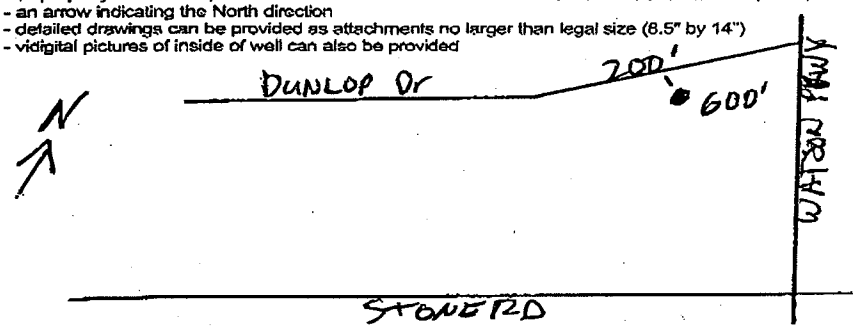
☐ Water Supply ☐ Replacement Well ☐ Test Hole ☐ Recharge Well

☐ Dewatering Well ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality ☐ Abandoned, other, specify

☑ Observation and/or Monitoring Hole ☐ Alteration (Construction) ☐ Other, specify

Location of Well

Please provide a map below showing:
- all property boundaries, and measurements sufficient to locate the well in relation to fixed points,
- an arrow indicating the North direction
- detailed drawings can be provided as attachments no larger than legal size (8.5" by 14")
- digital pictures of inside of well can also be provided



Date Well Completed (yyyy/mm/dd)	Was the well owner's information package delivered?	Date the Well Record and Package Delivered to Well Owner (yyyy/mm/dd)
08/02/10	☐ Yes ☑ No	

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
DURHOPPER LTD	2614

Business Address (Street No./Name, number, RR)	Municipality
RR#7 ST MARYS	PERTH

Province	Postal Code	Business E-mail Address
ONT	N4X1C9	hopperecy@.net.

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
5192717860	HOPPER DOUGLAS

Well Technician's Licence No.	Signature of Technician	Date Submitted (yyyy/mm/dd)
2323		08/04/16.

Results of Well Yield Testing

Check box if after test of well yield, water was:
☑ Clear and sand free
☐ Cannot develop to sand-free state

If pumping discontinued, give reason:

Pumping test method: AIR/BAIL

Pump intake set at *(Metres)*

Pumping rate *(Litres/min)*

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping *(Metres)*

Recommended pump type: ☐ Shallow ☐ Deep

Recommended pump depth: _____ Metres

Recommended pump rate *(Litres/min)*

If flowing give rate *(Litres/min)*

	Draw Down		Recovery	
	Time (Min)	Water Level (Metres)	Time (Min)	Water Level (Metres)
Static Level			Static Level	
1			1	
2			2	
3			3	
4			4	
5			5	
10			10	
15			15	
20			20	
25			25	
30			30	
40			40	
50			50	
60			60	

Water Details

Water found at Depth	Kind of Water
Metres ☐ Gas	☑ Fresh ☐ Salty ☐ Sulphur ☐ Minerals
Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals
Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals

Casing Used	Screen Used
☐ Galvanized	☐ Galvanized
☐ Steel	☐ Steel
☐ Fibreglass	☐ Fibreglass
☑ Plastic	☑ Plastic
☐ Concrete	☐ Concrete

No Casing and Screen Used
☐ Open Hole

Disinfected? ☐ Yes ☑ No

Casing and Well Details

Diameter of the Hole *(Centimetres)*: 6 3/4-8 3/4

Depth of the Hole *(Metres)*: 52'

Wall Thickness *(Metres)*: Sch 40

Inside Diameter of the Casing *(Metres)*: 2"

Depth of the Casing *(Metres)*: 52

Ministry Use Only

Audit No.	Well Contractor No.
Z 75849	
Date Received (yyyy/mm/dd)	Date of Inspection (yyyy/mm/dd)
Remarks	

0506E (11/2006) **Ministry's Copy**

Ontario Ministry of the Environment

Well Tag No. *(Place Sticker and/or Print Below)* A063981

Well Record

Regulation 903 Ontario Water Resources Act

17-08 Page 1 of 1

Well Owner's Information

First Name: Corp of City | Last Name: of Guelph | E-mail Address: | ☐ Well Constructed by Well Owner

Mailing Address (Street Number/Name, RR): 59 Carden St. | Municipality: Wellington | Province: Ont | Postal Code: N1H3A1 | Telephone No. (inc. area code): 5198375654

Part A Construction and/or Major Alteration of a Well

Address of Well Location (Street Number/Name, RR): 80 Dunlop Dr | Township: City of Guelph | Lot: | Concession:

County/District/Municipality: Wellington | City/Town/Village: Guelph | Province: Ontario | Postal Code: N1H3A1

UTM Coordinates: NAD 83 | Zone | Easting: 17564781 | Northing: 4822752 | GPS Unit Make: Magellan | Model: Meridian | Mode of Operation: ☐ Undifferentiated ☑ Averaged ☐ Differentiated, specify

Overburden and Bedrock Materials *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (Metres) From	Depth (Metres) To
Brown	Gravel-Silt			0	3
Brown	Gravel	Coarse		3	7
Red-Brown	Silty Gravel			7	12
Brown	Silt	Gravel		12	22
Grey	Clay	Occ Cobbles		22	46
Black-Brown	Limestone		Hard.	46	56
		Screened 5-20', 46-56'			

Annular Space/Abandonment Sealing Record

Depth Set at (Metres) From	To	Type of Sealant Used (Material and Type)	Volume Placed (Cubic Metres)
0	5	Bentonite chips	
20	45	" "	

Method of Construction

☐ Cable Tool ☐ Diamond
☑ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Rotary (Air) ☐ Digging
☐ Air percussion ☐ Boring
☐ Other, specify

Water Use

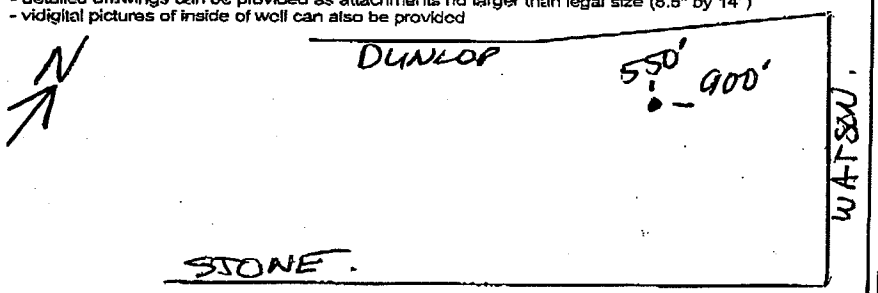
☐ Public ☐ Commercial ☐ Not used
☐ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☑ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, specify

Status of Well

☐ Water Supply ☐ Dewatering Well ☑ Observation and/or Monitoring Hole
☐ Replacement Well ☐ Abandoned, Insufficient Supply ☐ Alteration (Construction)
☐ Test Hole ☐ Abandoned, Poor Water Quality ☐ Other, specify
☐ Recharge Well ☐ Abandoned, other, specify

Location of Well

Please provide a map below showing:
- all property boundaries, and measurements sufficient to locate the well in relation to fixed points,
- an arrow indicating the North direction
- detailed drawings can be provided as attachments no larger than legal size (8.5" by 14")
- vidigital pictures of inside of well can also be provided



Date Well Completed (yyyy/mm/dd)	Was the well owner's information package delivered? ☐ Yes ☐ No	Date the Well Record and Package Delivered to Well Owner (yyyy/mm/dd)

Well Contractor and Well Technician Information

Business Name of Well Contractor: DURL HOPPER LTD. | Well Contractor's Licence No.: 2614

Business Address (Street No./Name, number, RR): RR#7 ST MARYS | Municipality: PERTH.

Province: ONT | Postal Code: M4X1K6 | Business E-mail Address: hopper@cyg.net

Bus. Telephone No. (inc. area code): 5197217960 | Name of Well Technician (Last Name, First Name): HOPPER DOUGLAS

Well Technician's Licence No.: 2323 | Signature of Technician | Date Submitted (yyyy/mm/dd): 08/06/16.

Results of Well Yield Testing

Check box if after test of well yield, water was:
☐ Clear and sand free
☐ Cannot develop to sand-free state

If pumping discontinued, give reason:

Pumping test method: AIR/BAIL

Pump intake set at (Metres):

Pumping rate (Litres/min):

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (Metres):

Recommended pump type: ☐ Shallow ☐ Deep

Recommended pump depth: Metres

Recommended pump rate (Litres/min):

If flowing give rate (Litres/min):

	Draw Down Time (Min)	Draw Down Water Level (Metres)	Recovery Time (Min)	Recovery Water Level (Metres)
Static Level		/	Static Level	
1			1	
2			2	
3			3	
4			4	
5			5	
10			10	
15			15	
20			20	
25			25	
30			30	
40			40	
50			50	
60			60	

Water Details

Water found at Depth	Kind of Water
Metres ☐ Gas	☑ Fresh ☐ Salty ☐ Sulphur ☐ Minerals
Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals
Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals

Casing Used	Screen Used
☐ Galvanized	☐ Galvanized
☐ Steel	☐ Steel
☐ Fibreglass	☐ Fibreglass
☑ Plastic	☑ Plastic
☐ Concrete	☐ Concrete

No Casing and Screen Used: ☐ Open Hole

Disinfected? ☐ Yes ☑ No

Casing and Well Details

Diameter of the Hole (Centimetres): 8 3/4 - 6 3/4
Depth of the Hole (Metres): 56
Wall Thickness (Metres): Sch 40
Inside Diameter of the Casing (Metres): 2 61
Depth of the Casing (Metres): 56.

Ministry Use Only

Audit No.: z 75850 | Well Contractor No.:

Date Received (yyyy/mm/dd): | Date of Inspection (yyyy/mm/dd):

Remarks:

506E (11/2006)

Ministry's Copy

Ontario Ministry of the Environment

Measurements recorded in: ☐ Metric ☑ Imperial

Well Tag No. (Place Sticker and/or Print Below) A063982

Well Record

Regulation 903 Ontario Water Resources Act

18-08 Page 1 of 1

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	Corp of City of Guelph.		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
59 Carden St.	Wellington	ONT	N1H3A1	5198375654

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
80 DUNLOP DRIVE	City of Guelph		

County/District/Municipality	City/Town/Village	Province	Postal Code
Wellington	Guelph	Ontario	N1H3A1

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	565064	4822628		

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	To
Brown	Gravel			0	16
Brown	Gravel	White Silt - Yellow layers		16	28
Grey	Clay			28	31
Grey	Clay	Stones		31	41
Brown	Limestone			41	44
DK Brown	Limestone			44	52

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	5	Bentonite chips	
20	40	" "	

Method of Construction

☐ Cable Tool ☑ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Boring ☐ Air percussion ☐ Other, specify

☐ Diamond ☐ Jetting ☐ Driving ☐ Digging

Well Use

☐ Public ☐ Domestic ☐ Livestock ☐ Irrigation ☐ Industrial ☐ Other, specify

☐ Commercial ☐ Municipal ☐ Test Hole ☐ Cooling & Air Conditioning

☐ Not used ☐ Dewatering ☑ Monitoring

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	To
2	Sch 40 PVC	40	0	5
2	PVC	40	0	42

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	To
2	PVC	10	5	20
2	PVC	10	42	52

Status of Well

☐ Water Supply ☐ Replacement Well ☐ Test Hole ☐ Recharge Well ☐ Dewatering Well ☑ Observation and/or Monitoring Hole ☐ Alteration (Construction) ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality ☐ Abandoned, other, specify ☐ Other, specify

Water Details

Water found at Depth (m/ft)	Kind of Water	Hole Diameter Depth From	To	Diameter (cm/in)
	☐ Fresh ☐ Untested ☐ Gas ☐ Other, specify	0	20	8 3/4
	☐ Fresh ☐ Untested ☐ Gas ☐ Other, specify	20	52	6 3/4
	☐ Fresh ☐ Untested ☐ Gas ☐ Other, specify			

Results of Well Yield Testing

After test of well yield, water was: ☑ Clear and sand free ☐ Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping 1 hrs + 0 min

Final water level end of pumping (m/ft)

If flowing give rate (l/min / GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min / GPM)

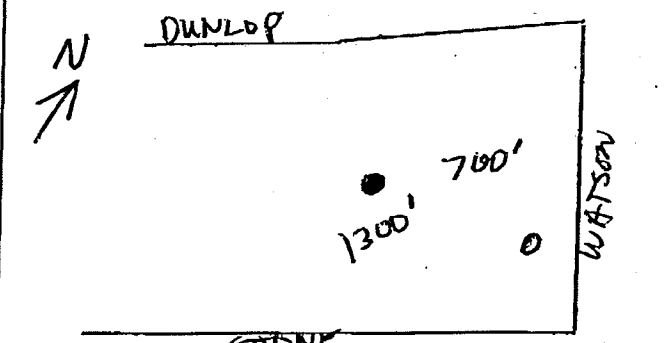
Well production (l/min / GPM)

Disinfected? ☐ Yes ☑ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level				
1			1	
2			2	
3			3	
4			4	
5			5	
10			10	
15			15	
20			20	
25			25	
30			30	
40			40	
50			50	
60			60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
DURL HOPPER LTD	2614

Business Address (Street Number/Name)	Municipality	Province	Postal Code	Business E-mail Address
RR#7 ST MARYS	PERTH	ONT	N4X1C9	hopper@cyg.net

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)	Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
5192717860	HOPPER DOUGLAS	2323		2008 06 16

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☐ No	Y Y Y Y M M D D	2008 02 14

Ministry Use Only

Audit No. Z 86001

Received

3806E (12/2007)

Ministry's Copy

Ontario Ministry of the Environment

Well Tag No. *(Place Sticker and/or Print Below)* A063984

Well Record

Regulation 903 Ontario Water Resources Act

19-08 Page 1 of 1

Well Owner's Information

First Name: CORP OF | Last Name: CITY OF GUELPH | E-mail Address: | ☐ Well Constructed by Well Owner

Mailing Address (Street Number/Name, RR): 59 CARDEN ST. | Municipality: WELLINGTON | Province: ON | Postal Code: N1H3A1 | Telephone No. (inc. area code): 5198237565

Part A Construction and/or Major Alteration of a Well

Address of Well Location (Street Number/Name, RR): 80 DUNLOP DRIVE | Township: CITY OF GUELPH | Lot: | Concession:

County/District/Municipality: WELLINGTON | City/Town/Village: GUELPH | Province: Ontario | Postal Code: N1H3A1

UTM Coordinates: NAD 83 | Zone: 17 | Easting: 560528 | Northing: 4822636 | GPS Unit Make: MAG | Model: MER | Mode of Operation: ☐ Differentiated, specify ☐ Undifferentiated ☑ Averaged

Overburden and Bedrock Materials *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (Metres) FEET From	To
Brown	Gravel	Silt		0	18
Brown	Gravel			18	27
Brown	Gravel	Coarse	Stoney	27	40
Brown	Gravel	Silt.		40	42
Grey	Clay			42	68
Red/Clay/Brown	Gravel			68	78
Brown	Gravel		(Screened 10'-30' 2" PVC 65'-100' 10 Slot.)	78	84
Grey	Limestone	gravel layers		84	91
Grey	Limestone			91	100

Annular Space/Abandonment Sealing Record

Depth Set at (Metres) From	To	Type of Sealant Used (Material and Type)	Volume Placed (Cubic Metres)
0	9	BENTONITE CHIPS	
30	93	BENTONITE CHIPS.	

Method of Construction

☐ Cable Tool ☑ Rotary (Conventional) ☐ Rotary (Reverse) ☐ Rotary (Air) ☐ Air percussion ☐ Other, specify
☐ Diamond ☐ Jetting ☐ Driving ☐ Digging ☐ Boring

Water Use

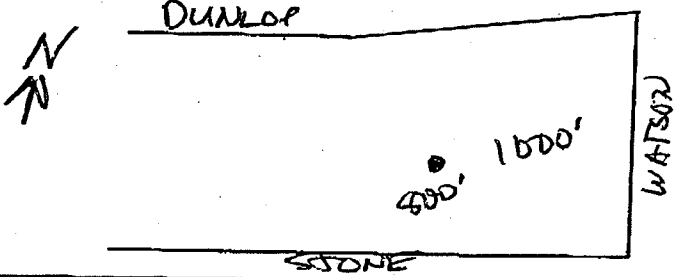
☐ Public ☐ Domestic ☐ Livestock ☐ Irrigation ☐ Industrial ☐ Other, specify
☐ Commercial ☐ Municipal ☐ Test Hole ☐ Cooling & Air Conditioning
☐ Not used ☐ Dewatering ☑ Monitoring

Status of Well

☐ Water Supply ☐ Replacement Well ☐ Test Hole ☐ Recharge Well
☐ Dewatering Well ☐ Abandoned, Insufficient Supply ☐ Abandoned, Poor Water Quality ☐ Abandoned, other, specify
☑ Observation and/or Monitoring Hole ☐ Alteration (Construction) ☐ Other, specify

Location of Well

Please provide a map below showing:
- all property boundaries, and measurements sufficient to locate the well in relation to fixed points,
- an arrow indicating the North direction
- detailed drawings can be provided as attachments no larger than legal size (8.5" by 14")
- digital pictures of inside of well can also be provided



Date Well Completed (yyyy/mm/dd): 2006/02/11 | Was the well owner's information package delivered? ☐ Yes ☑ No | Date the Well Record and Package Delivered to Well Owner (yyyy/mm/dd)

Well Contractor and Well Technician Information

Business Name of Well Contractor: DURL HOPPER LTD. | Well Contractor's Licence No.: 2614

Business Address (Street No./Name, number, RR): R.R#7 ST. MARYS | Municipality: PERTH

Province: ON | Postal Code: N4X1C9 | Business E-mail Address: hopper@cyg.net

Telephone No. (inc. area code): 5197177860 | Name of Well Technician (Last Name, First Name): HOPPER, DOUGLAS

Well Technician's Licence No.: 2132 | Signature of Technician | Date Submitted (yyyy/mm/dd): 2008/06/16

Results of Well Yield Testing

Check box if after test of well yield, water was: ☑ Clear and sand free ☐ Cannot develop to sand-free state

If pumping discontinued, give reason:

Pumping test method: AIR/BAIL

Pump intake set at (Metres):

Pumping rate (Litres/min):

Duration of pumping: 1 hrs + 0 min

Final water level end of pumping (Metres):

Recommended pump type: ☐ Shallow ☐ Deep

Recommended pump depth: Metres

Recommended pump rate (Litres/min):

If flowing give rate (Litres/min):

	Draw Down Time (Min)	Draw Down Water Level (Metres)	Recovery Time (Min)	Recovery Water Level (Metres)
Static Level			Static Level	
1			1	
2			2	
3			3	
4			4	
5			5	
10			10	
15			15	
20			20	
25			25	
30			30	
40			40	
50			50	
60			60	

Water Details

Water found at Depth	Kind of Water
Metres ☐ Gas	☑ Fresh ☐ Salty ☐ Sulphur ☐ Minerals
Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals
Metres ☐ Gas	☐ Fresh ☐ Salty ☐ Sulphur ☐ Minerals

Casing Used

☐ Galvanized ☐ Steel ☐ Fibreglass ☑ Plastic ☐ Concrete

Screen Used

☐ Galvanized ☐ Steel ☐ Fibreglass ☑ Plastic ☐ Concrete

No Casing and Screen Used

☐ Open Hole

Disinfected? ☐ Yes ☑ No

Casing and Well Details

Diameter of the Hole (Centimetres): 6 3/4 - 8 3/4

Depth of the Hole (Metres): 100'

Wall Thickness (Metres): SCH 40

Inside Diameter of the Casing (Metres): 8"

Depth of the Casing (Metres): 100'

Ministry Use Only

Audit No.: Z 75851 | Well Contractor No.:

Date Received (yyyy/mm/dd): | Date of Inspection (yyyy/mm/dd):

Remarks:

6E (11/2006) Ministry's Copy

Ontario Ministry of the Environment

Measurements recorded in: ☐ Metric ☑ Imperial

Well Tag No. (Place Sticker and/or Print Below) A063985

Well Record

Regulation 903 Ontario Water Resources Act

20-08 Page 1 of 1

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☑ Well Constructed by Well Owner
CORP of CITY	OF GUELPH		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. (inc. area code)
59 CARDEN ST	WELLINGTON	ON	N1H3A6	5199837565

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
80 DUNLOP DRIVE	CITY of GUELPH.		

County/District/Municipality	City/Town/Village	Province	Postal Code
WELLINGTON	GUELPH	Ontario	N1H3A1

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Subiot Number	Other
NAD 83	17	561469	4822721		

Overburden and Bedrock Materials/Abandonment Sealing Record (see instructions on the back of this form)

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
Brown	Topsoil	Stones		0	1
Brown	Gravel	Stones		1	10
Brown	Silty Gravel			10	11
Dk Brown	Limestone			11	20

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m³/ft³)
0	5	BENTONITE CHIPS	
12	14	BENTONITE CHIPS	

Method of Construction

☐ Cable Tool ☐ Diamond
☑ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☐ Air percussion
☐ Other, specify

Well Use

☐ Public ☐ Commercial ☐ Not used
☐ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☑ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, specify

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
2	PVC	40	0	6
2	"	"	0	15

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
2	PVC	10	6	11
2	"	10	15	20

Status of Well

☐ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☑ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, specify
☐ Other, specify

Water Details

Water found at Depth (m/ft)	Kind of Water	Gas	Other, specify
	☐ Fresh ☐ Untested	☐	☐
Water found at Depth (m/ft)	Kind of Water	Gas	Other, specify
	☐ Fresh ☐ Untested	☐	☐
Water found at Depth (m/ft)	Kind of Water	Gas	Other, specify
	☐ Fresh ☐ Untested	☐	☐

Hole Diameter

Depth (m/ft) From	To	Diameter (cm/in)
0	20	8 3/4

Results of Well Yield Testing

After test of well yield, water was:
☑ Clear and sand free
☐ Other, specify

If pumping discontinued, give reason:

Pump intake set at (m/ft)

Pumping rate (l/min / GPM)

Duration of pumping 1 hrs + 0 min

Final water level end of pumping (m/ft)

If flowing give rate (l/min-/ GPM)

Recommended pump depth (m/ft)

Recommended pump rate (l/min / GPM)

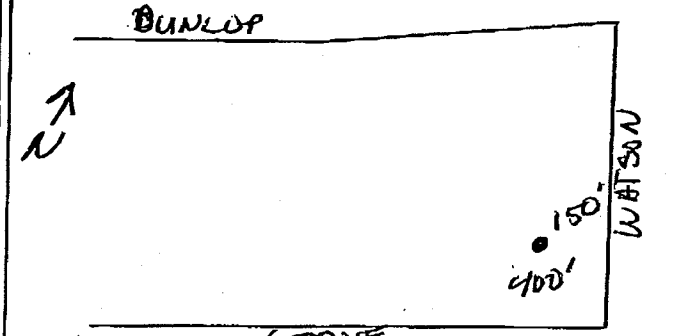
Well production (l/min / GPM)

Disinfected? ☐ Yes ☐ No

	Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level		✓		
1			1	
2			2	
3			3	
4			4	
5			5	
10			10	
15			15	
20			20	
25			25	
30			30	
40			40	
50			50	
60			60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments:

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
DURL HOPPER LTD	2614

Business Address (Street Number/Name)	Municipality
RR#7 ST. MARYS	PERTH

Province	Postal Code	Business E-mail Address
ON	N4X1C9	hopper@cyg.net

Bus. Telephone No. (inc. area code)	Name of Well Technician (Last Name, First Name)
5192717800	HOPPER, DOUGLAS

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
2313		2008 06 16

Well owner's information package delivered	Date Package Delivered	Ministry Use Only
☐ Yes ☑ No	Y Y Y Y M M D D	Audit No. Z 86002
	Date Work Completed 2008 06 12	Received

0506E (12/2007) Ministry's Copy

Ontario — Ministry of the Environment

Well Tag No. *(Place Sticker and/or Print Below)* A071094

Well Record

Regulation 903 Ontario Water Resources Act

21-08 Page 1 of 1

Measurements recorded in: ☐ Metric ☐ Imperial

Well Owner's Information

First Name	Last Name / Organization	E-mail Address	☐ Well Constructed by Well Owner
	CITY OF GUELPH		

Mailing Address (Street Number/Name)	Municipality	Province	Postal Code	Telephone No. *(inc. area code)*
59 CARDEN ST	GUELPH	ON	N1H3A1	5198375584

Well Location

Address of Well Location (Street Number/Name)	Township	Lot	Concession
80 DUNLOP DRIVE	CITY OF GUELPH		

County/District/Municipality	City/Town/Village	Province	Postal Code
WELLINGTON	GUELPH	Ontario	N1H3A1

UTM Coordinates	Zone	Easting	Northing	Municipal Plan and Sublot Number	Other
NAD 83	17	564822	4822426		

Overburden and Bedrock Materials/Abandonment Sealing Record *(see instructions on the back of this form)*

General Colour	Most Common Material	Other Materials	General Description	Depth (m/ft) From	Depth (m/ft) To
BROWN	TOPSOIL	BROKEN ROCK		0	1
DK BRN	LIMESTONE			1	6
DK BRN	LIMESTONE	BLACK STREAKS		6	13
BLACK	LIMESTONE	BROWN STREAKS		13	25

Annular Space

Depth Set at (m/ft) From	To	Type of Sealant Used (Material and Type)	Volume Placed (m^3/ft^3)
0	12	BENTONITE SLURRY	
12	25	SAND PACK	

Method of Construction

☐ Cable Tool ☐ Diamond
☐ Rotary (Conventional) ☐ Jetting
☐ Rotary (Reverse) ☐ Driving
☐ Boring ☐ Digging
☐ Air percussion
☐ Other, *specify*

Well Use

☐ Public ☐ Commercial ☐ Not used
☐ Domestic ☐ Municipal ☐ Dewatering
☐ Livestock ☐ Test Hole ☐ Monitoring
☐ Irrigation ☐ Cooling & Air Conditioning
☐ Industrial
☐ Other, *specify*

Construction Record - Casing

Inside Diameter (cm/in)	Open Hole OR Material (Galvanized, Fibreglass, Concrete, Plastic, Steel)	Wall Thickness (cm/in)	Depth (m/ft) From	Depth (m/ft) To
2	SCH 40 PVC		+2	15

Construction Record - Screen

Outside Diameter (cm/in)	Material (Plastic, Galvanized, Steel)	Slot No.	Depth (m/ft) From	Depth (m/ft) To
2	PVC	10	15	25

Status of Well

☐ Water Supply
☐ Replacement Well
☐ Test Hole
☐ Recharge Well
☐ Dewatering Well
☐ Observation and/or Monitoring Hole
☐ Alteration (Construction)
☐ Abandoned, Insufficient Supply
☐ Abandoned, Poor Water Quality
☐ Abandoned, other, *specify*
☐ Other, *specify*

Water Details

Water found at Depth	Kind of Water	Hole Diameter Depth (m/ft) From	Depth (m/ft) To	Diameter (cm/in)
16' (m/ft) ☐ Gas	☐ Fresh ☐ Untested ☐ Other, *specify*	0	25	8 3/4
(m/ft) ☐ Gas	Water found at Depth: Kind of Water: ☐ Fresh ☐ Untested ☐ Other, *specify*			
(m/ft) ☐ Gas	Water found at Depth: Kind of Water: ☐ Fresh ☐ Untested ☐ Other, *specify*			

Results of Well Yield Testing

After test of well yield, water was:
☐ Clear and sand free
☐ Other, *specify*

If pumping discontinued, give reason:

Pump intake set at *(m/ft)*

Pumping rate *(l/min / GPM)*

Duration of pumping ___ hrs + ___ min

Final water level end of pumping *(m/ft)*

If flowing give rate *(l/min-/ GPM)*

Recommended pump depth *(m/ft)*

Recommended pump rate *(l/min / GPM)*

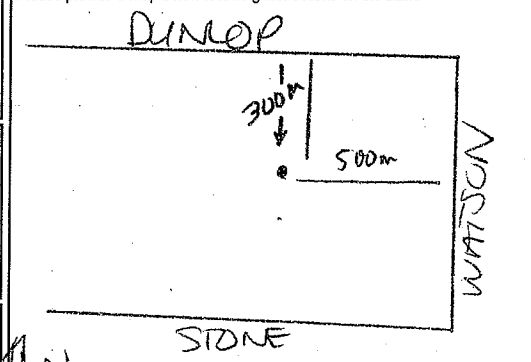
Well production *(l/min / GPM)*

Disinfected? ☐ Yes ☐ No

Draw Down Time (min)	Draw Down Water Level (m/ft)	Recovery Time (min)	Recovery Water Level (m/ft)
Static Level	16'		
1		1	
2		2	
3		3	
4		4	
5		5	
10		10	
15		15	
20		20	
25		25	
30		30	
40		40	
50		50	
60		60	

Map of Well Location

Please provide a map below following instructions on the back.



Comments: Refer to GPS. Approx

Well Contractor and Well Technician Information

Business Name of Well Contractor	Well Contractor's Licence No.
DURL HOPPER LIMITED	2644

Business Address (Street Number/Name)	Municipality
R.R. #7	ST. MARYS

Province	Postal Code	Business E-mail Address
ON	N4X1C9	hopper@cvg.net

Bus. Telephone No. *(inc. area code)*	Name of Well Technician (Last Name, First Name)
5199277380	HOPPER, DOUGLAS

Well Technician's Licence No.	Signature of Technician and/or Contractor	Date Submitted
2323		9/5/2008 (Y Y Y Y M M D D)

Well owner's information package delivered	Date Package Delivered	Date Work Completed
☐ Yes ☐ No		8/14/2008

Ministry Use Only
Audit No. Z 86038
Received

0506E (12/2007)

Well Owner's Copy

Routine Groundwater Elevations at the Waste Resources Innovation Centre

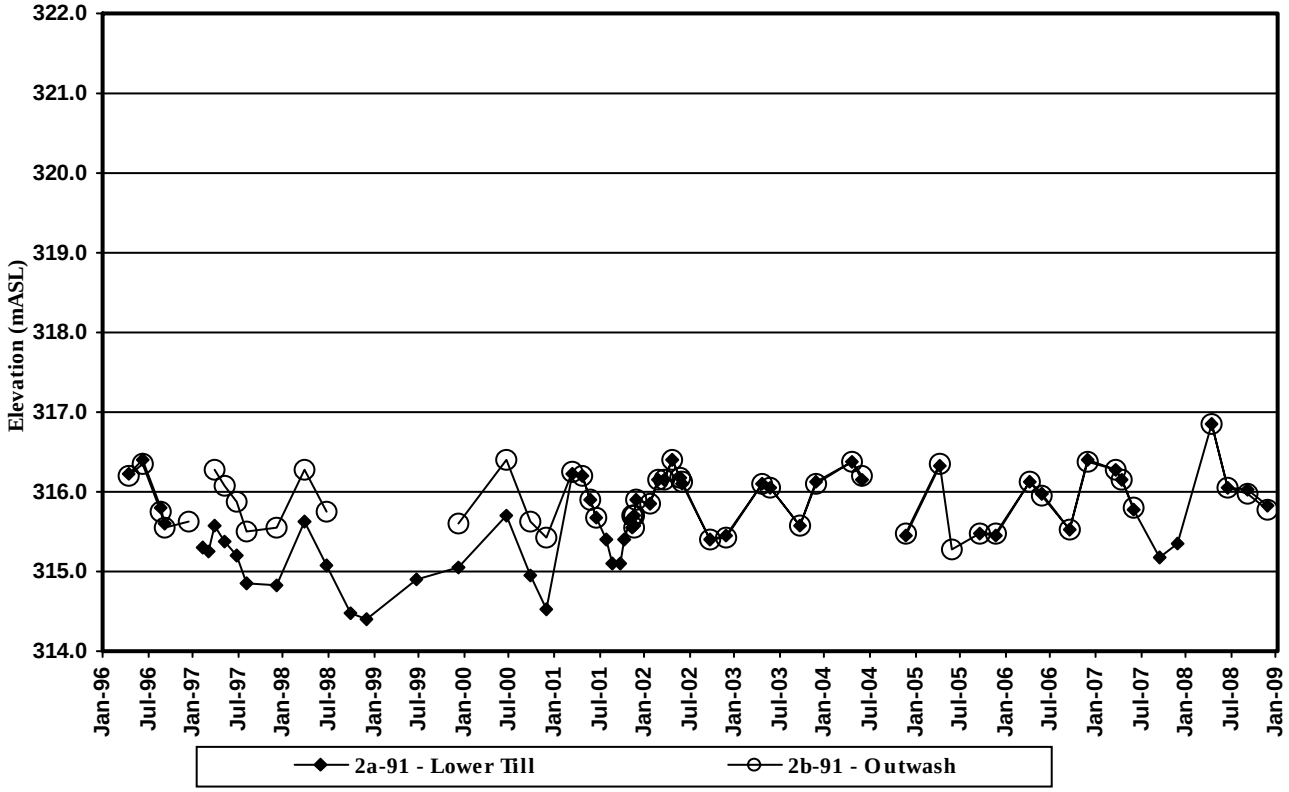
Date	2a-91	2b-91	5-96	6a-96	6b-96	7-96	8-96	9-96	10-00	11a-00	11b-00	12a-00	12b-00	13a-01	13b-01	14a-01	14b-01	15a-01	15b-01	16A-08	16B-08	17A-08	17B-08	18A-08	18A-08	19A-08	19B-08	20A-08	20B-08
4-Apr-91	316.00	316.02																											
14-Apr-91	315.88	315.89																											
12-May-91	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																

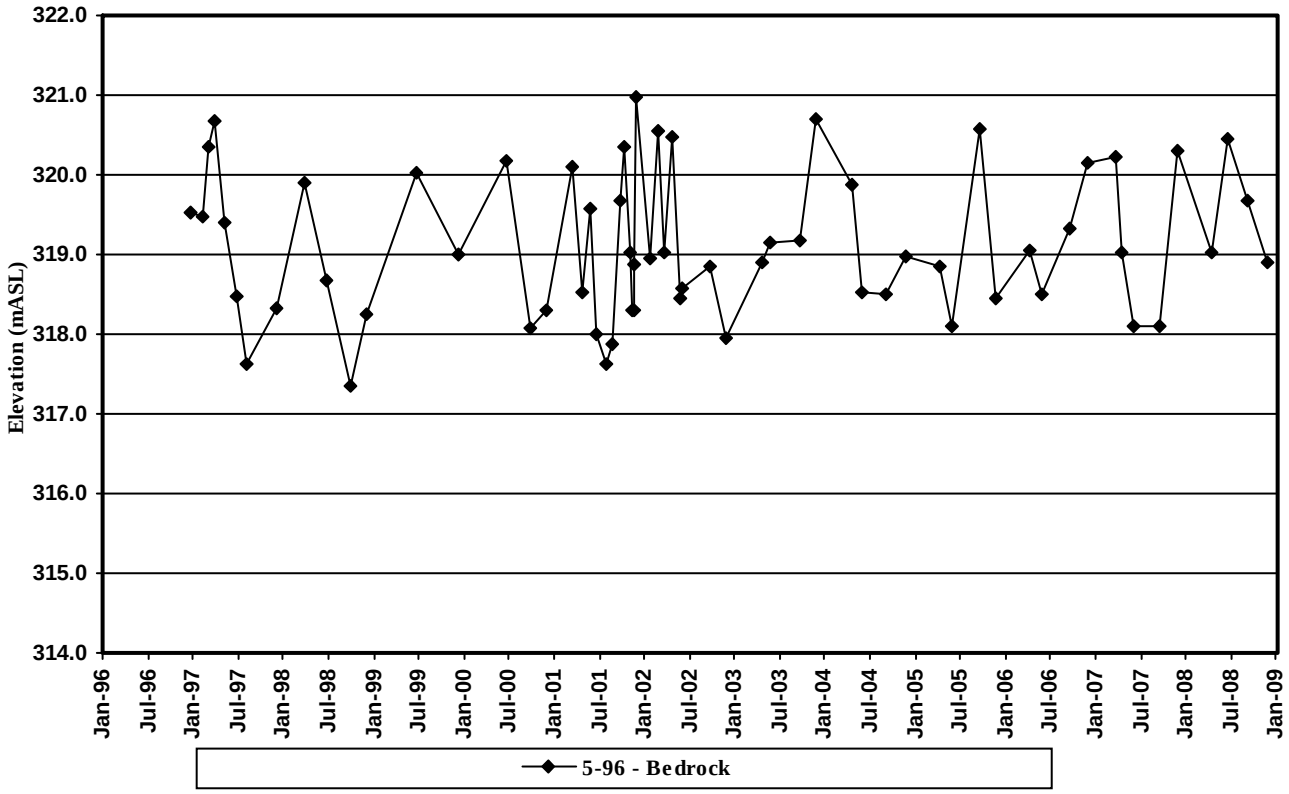
Routine Groundwater Elevations at the Waste Resources Innovation Centre

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	16A-08	16B-08	17A-08	17B-08	18A-08	18A-08	19A-08	19B-08	20A-08	20B-08
27-Jun-01	315.68	315.68	318.01	315.56	315.58	315.66	318.04	315.69	315.56	315.85	315.65	315.82	315.88																
31-Jul-01	315.39	NR	317.62	315.32	315.34	315.38	317.80	315.39	315.14	315.34	315.38	315.53	315.58																
30-Aug-01	315.11	NR	317.87	315.09	315.10	315.10	317.76	315.11	314.87	315.11	315.11	315.26	315.31																
28-Sep-01	315.11	NR	319.68	315.14	315.16	315.11	318.26	315.09	314.85	315.08	315.13	315.35	315.48																
19-Oct-01	315.40	NR	320.35	315.45	315.46	315.40	318.54	315.38	315.35	315.50	315.43	315.61	315.71																
8-Nov-01	315.66	NR	319.03	315.62	315.63	315.65	318.17	315.66	315.61	315.85	315.66			315.74	315.64	315.74	315.71	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										

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	16A-08	16B-08	17A-08	17B-08	18A-08	18A-08	19A-08	19B-08	20A-08	20B-08
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										
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										
25-Apr-08	316.84	316.84	319.02	316.54	316.63	316.82	319.31	316.86	316.62	316.86	316.76	316.91	316.87	316.98	316.16	316.96	316.12	316.92	316.77	316.30	316.09	316.33	316.62	317.72	317.72	316.19	316.89	318.01	316.22
25-Jun-08	316.05	316.04	320.44	316.05	316.10	316.10	318.74	315.53	315.94	316.28	316.07	316.19	316.27	316.41	315.89	316.38	315.92	316.35	316.12	316.00	315.95	316.18	316.02	318.17	318.17	316.31	316.03	318.01	316.23
18-Sep-08	316.03	315.98	319.68	315.95	316.01	316.03	318.72	316.03	315.94	316.24	315.98	316.09	316.13	316.37	315.81	316.36	315.82	316.31	316.16	316.01	315.78	316.05	315.95	317.03	317.03	316.18	316.02	318.01	316.27
9-Dec-08	315.83	315.78	318.91	315.75	315.77	315.82	318.47	315.80	315.76	316.04	315.78	315.89	315.96	316.22	315.70	316.19	315.70	316.16	316.00	315.88	315.69	315.83	315.79	316.98	316.98	315.95	315.98	318.01	316.25





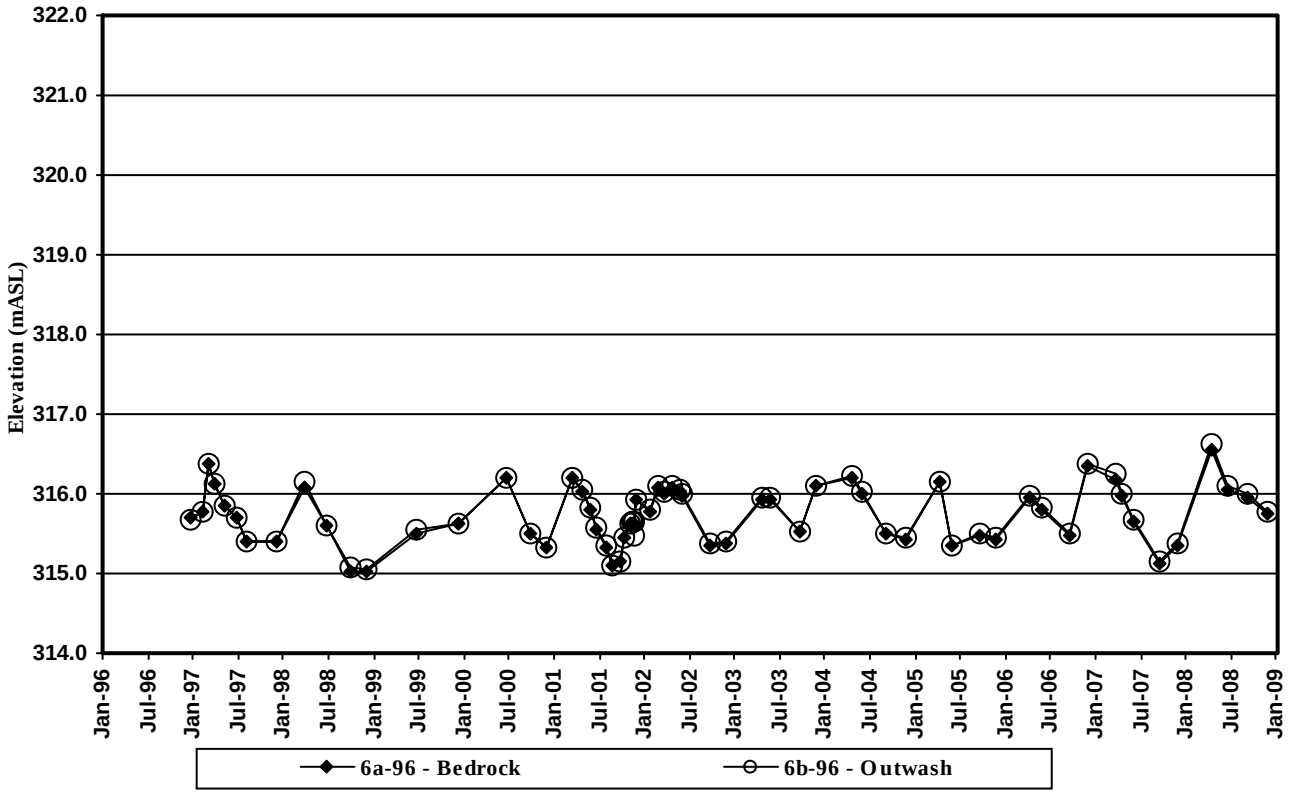
AECOM

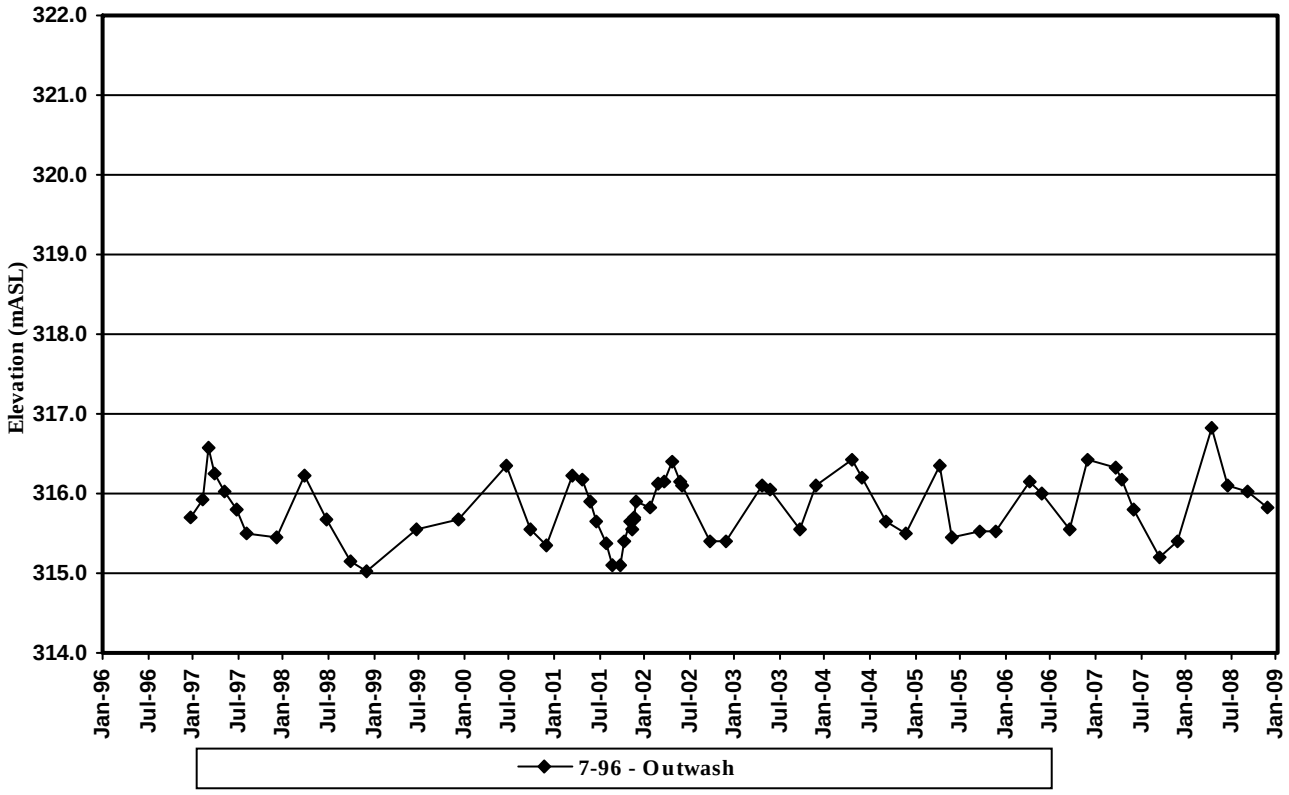
Waste Resource Innovation Centre

Hydrographs

FIGURE
A - 1

111409
9 Rpt Hydrographs





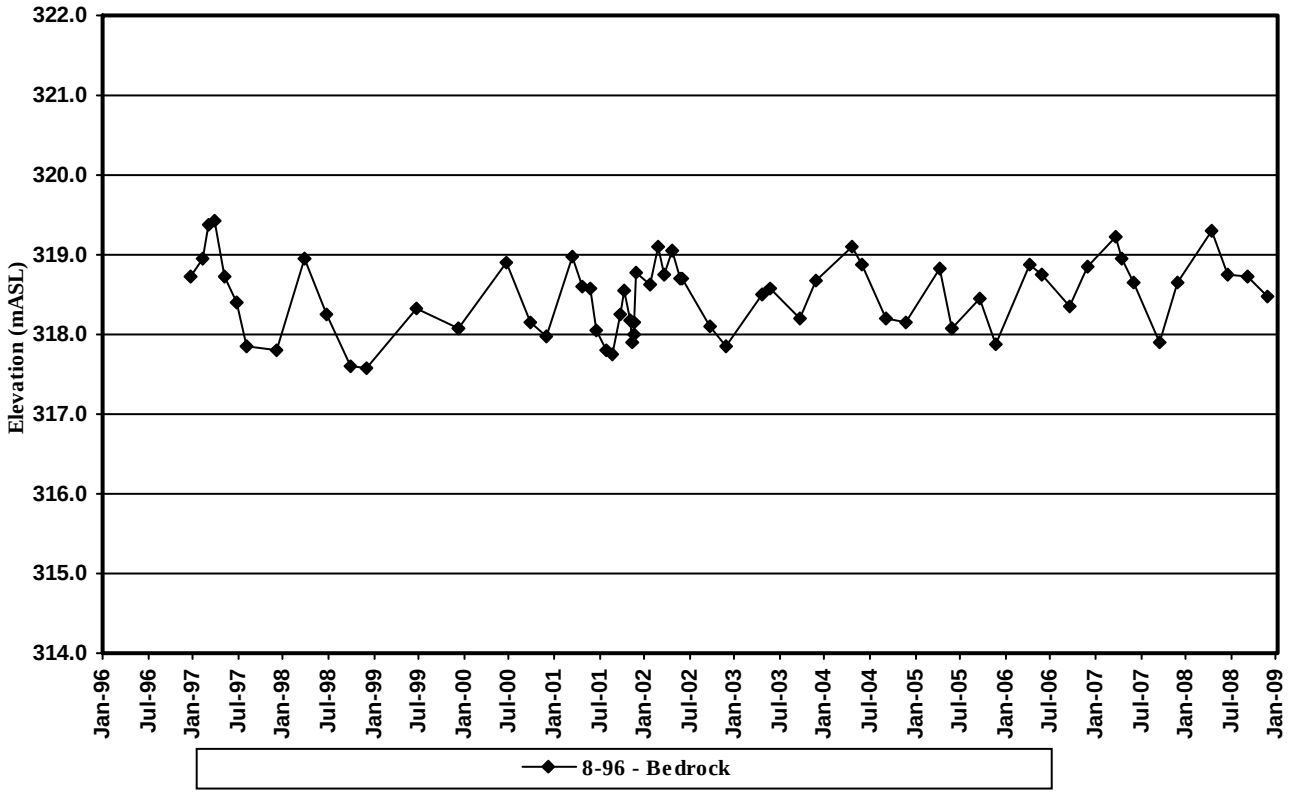
AECOM

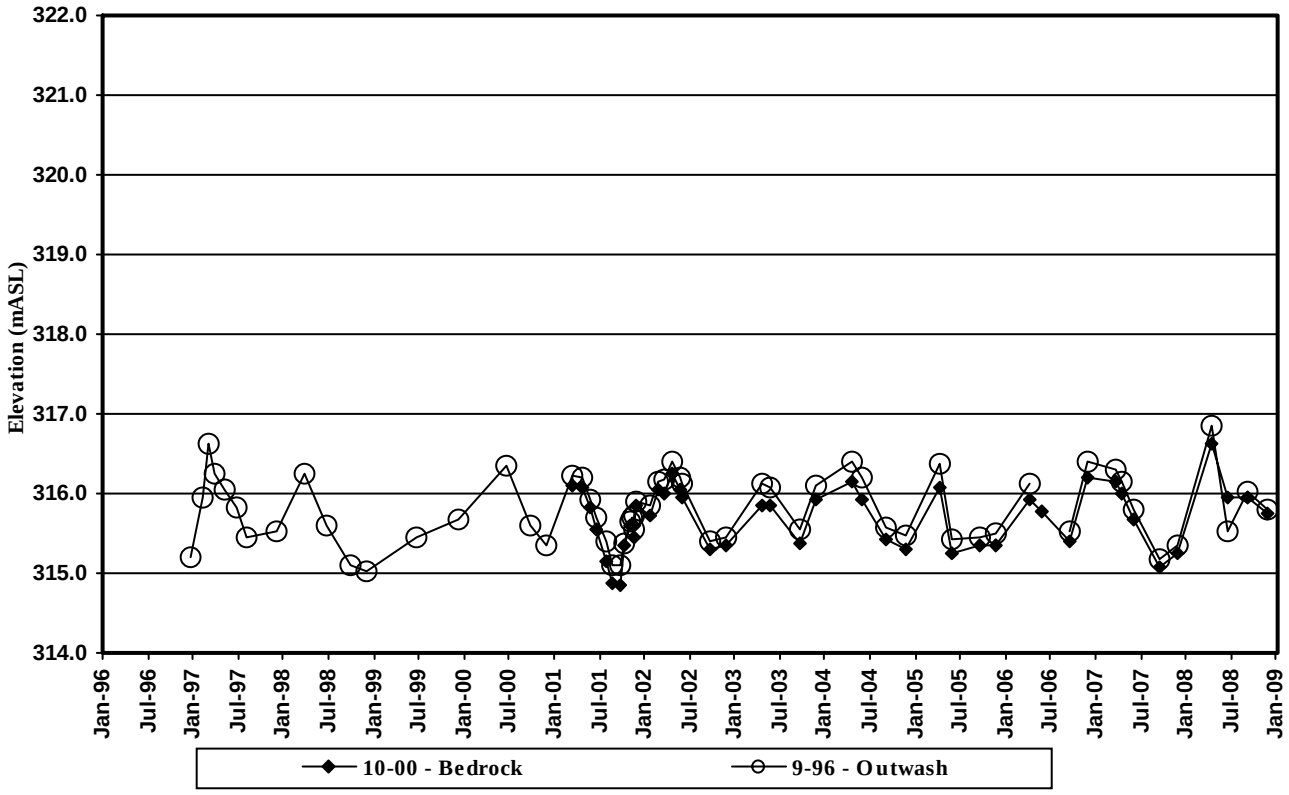
Waste Resource Innovation Centre

Hydrographs

FIGURE
A - 2

111409
9 Rpt Hydrographs





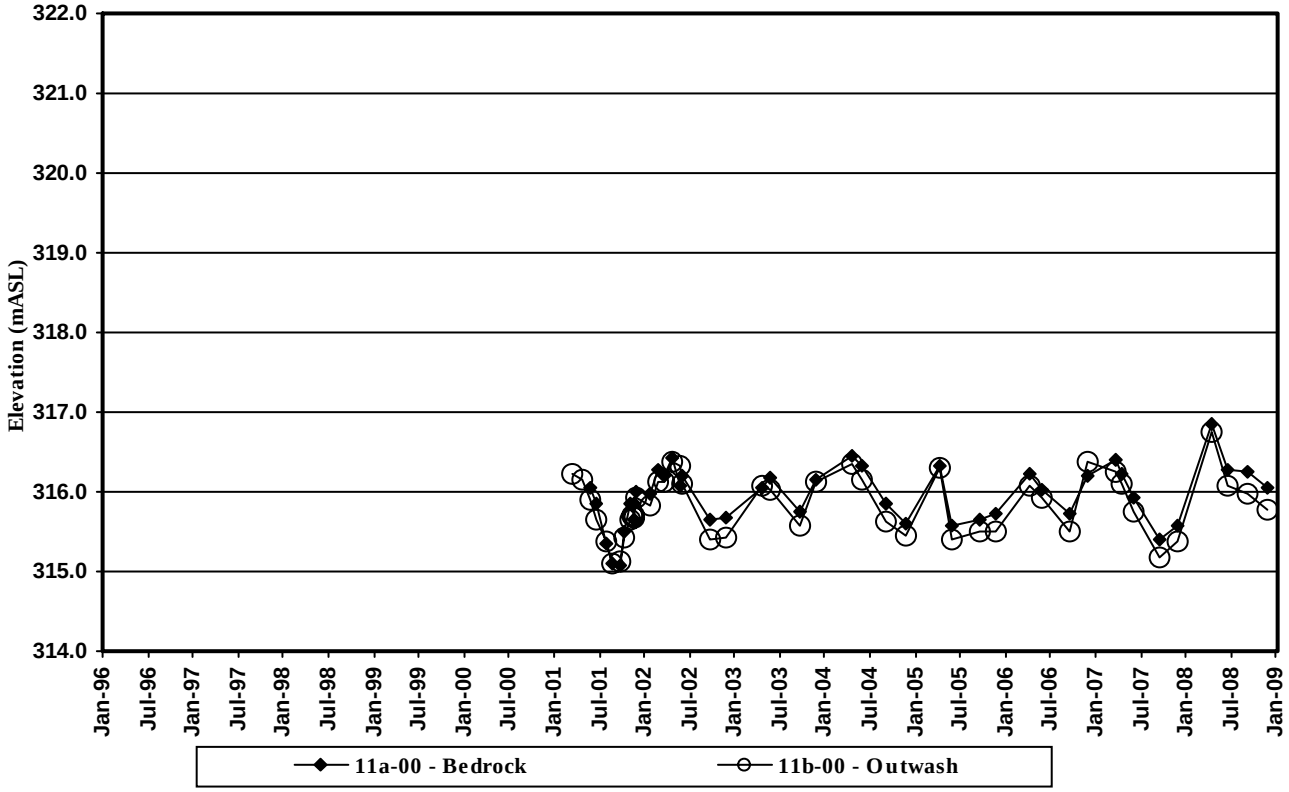
AECOM

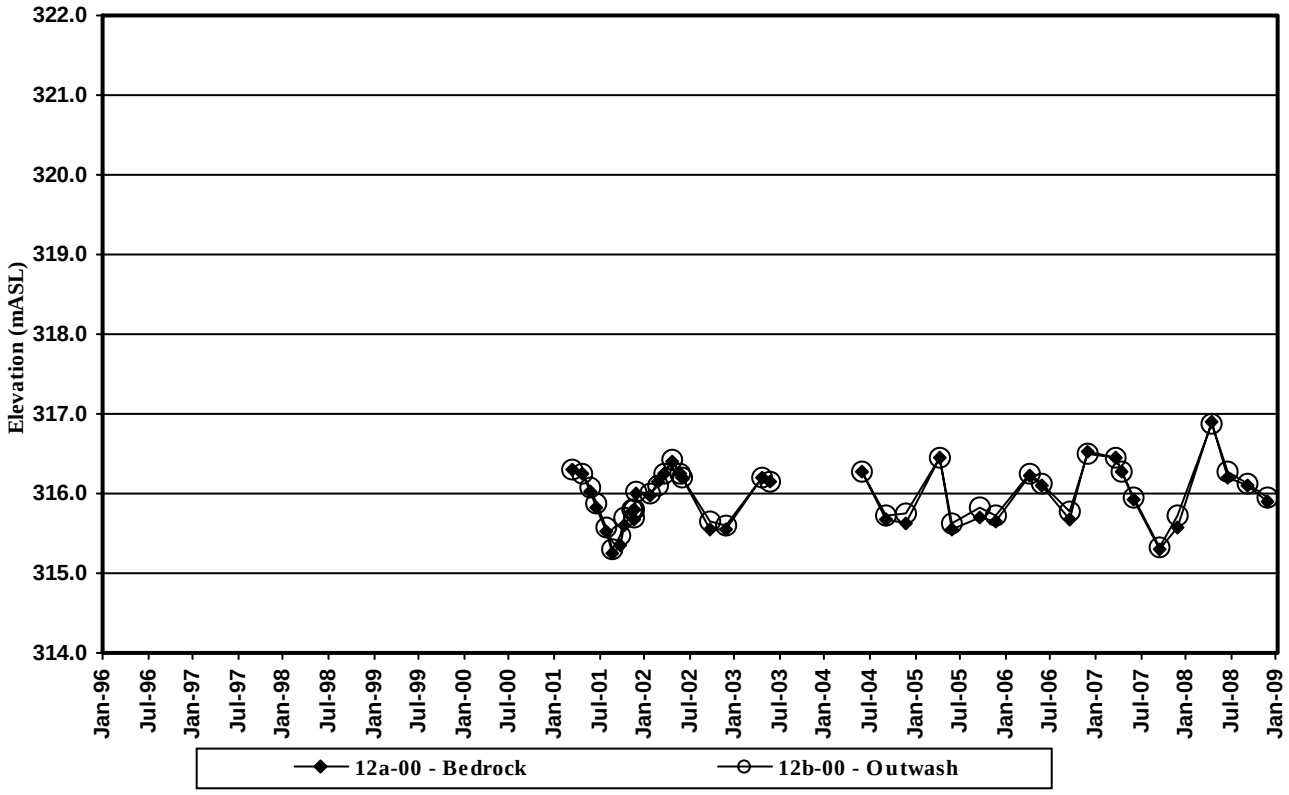
Waste Resource Innovation Centre

Hydrographs

FIGURE
A - 3

111409
9 Rpt Hydrographs





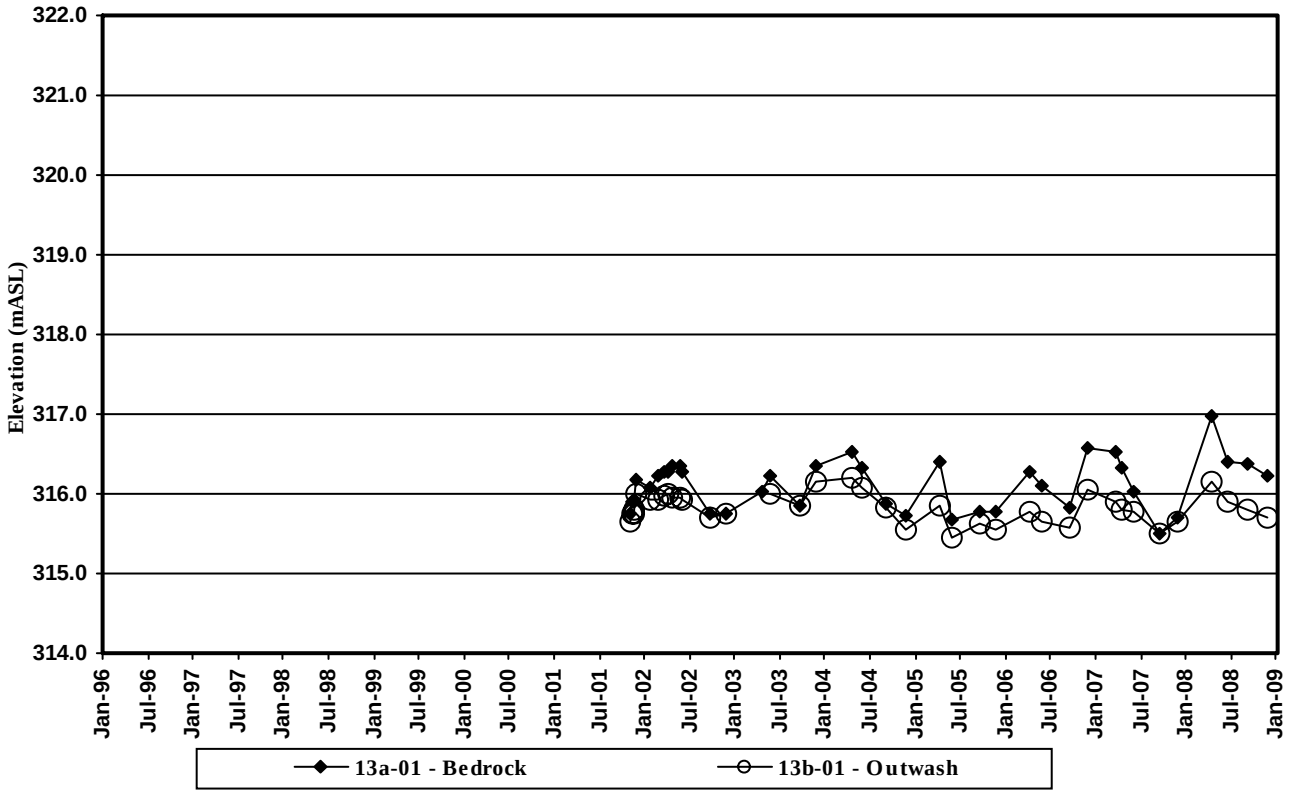
AECOM

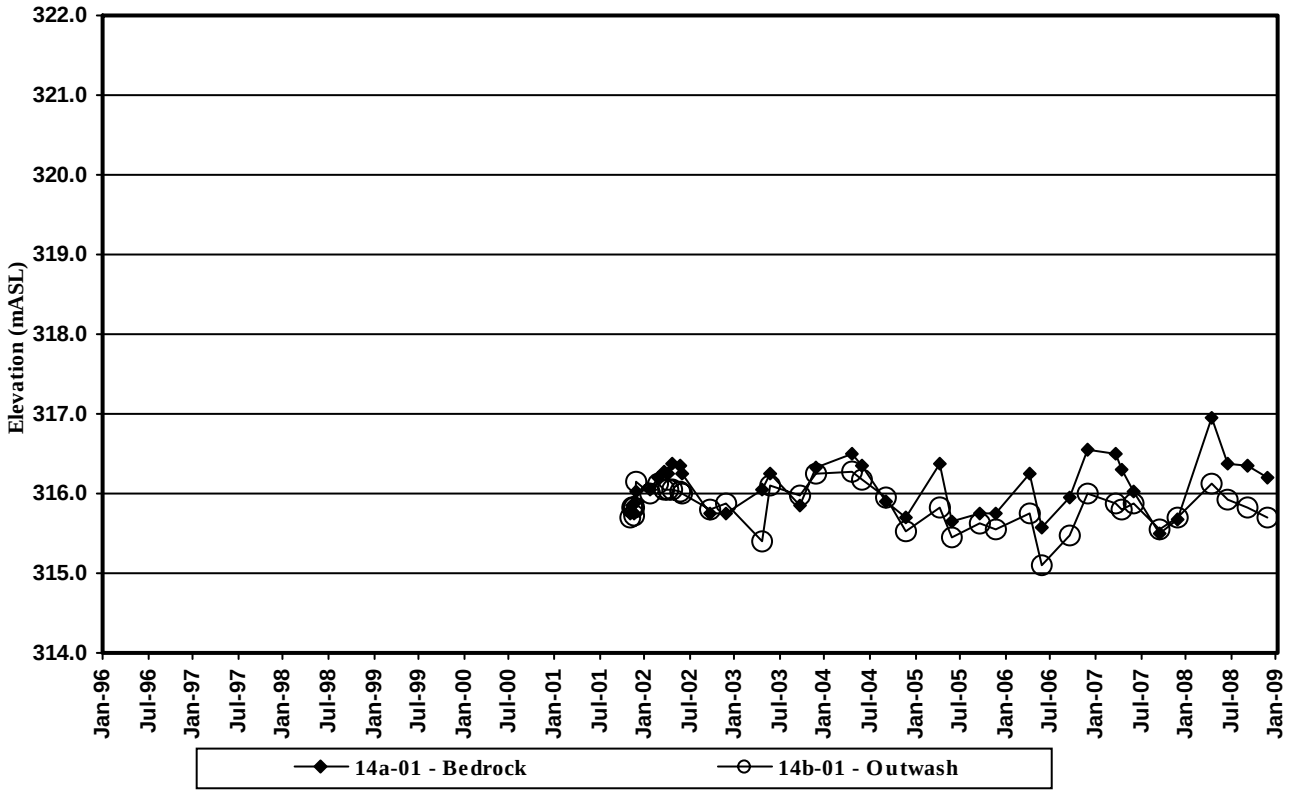
Waste Resource Innovation Centre

Hydrographs

FIGURE
A - 4

111409
9 Rpt Hydrographs





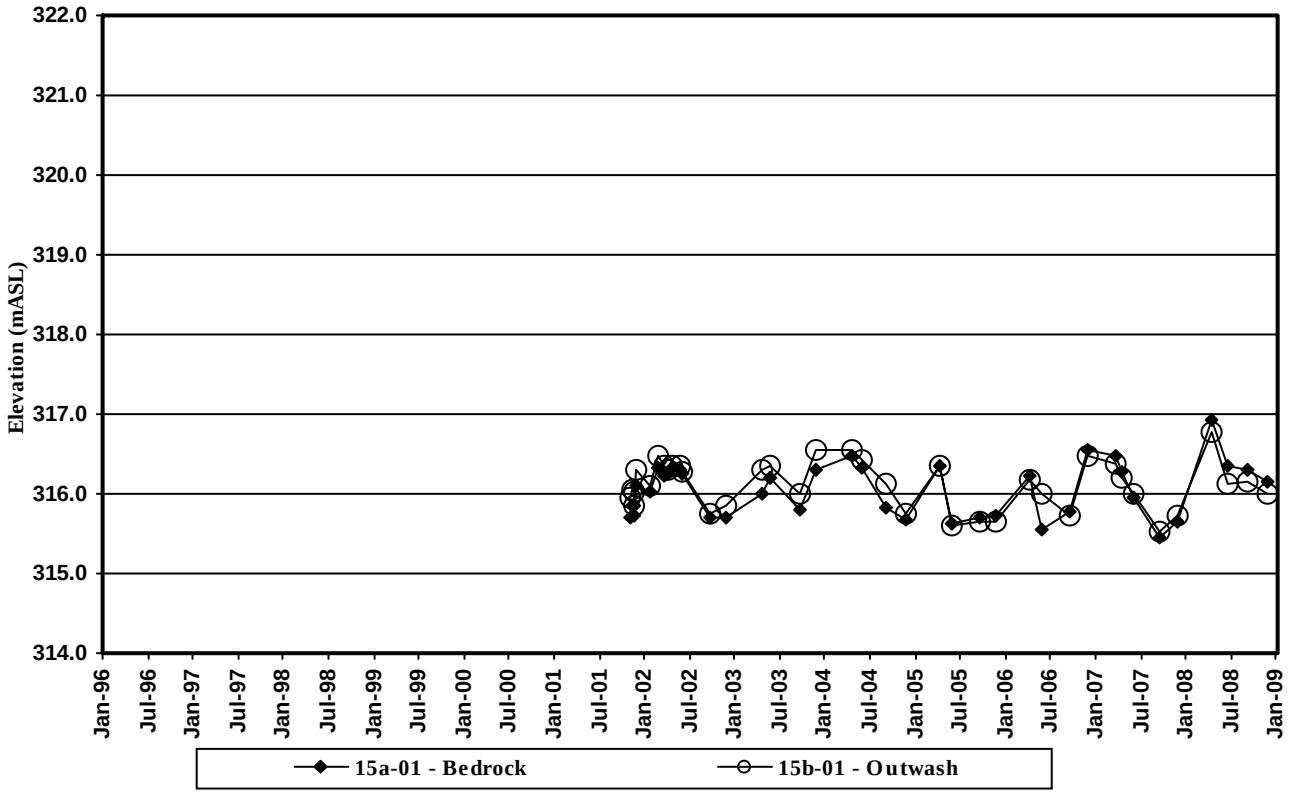
AECOM

Waste Resource Innovation Centre

Hydrographs

FIGURE
A - 5

111409
9 Rpt Hydrographs



AECOM

Waste Resource Innovation Centre

Hydrographs

FIGURE
A - 6

111409
9 Rpt Hydrographs

Appendix B

Groundwater Chemistry Tables 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	NO2 mg/L	NO3 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	< 0.03	18
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	< 0.03	18
Lower Til	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	< 0.03	28
	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	< 0.03	23
	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	< 0.03	21
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	< 0.03	33
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	< 0.03	32
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	< 0.03	27
	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	< 0.03	8.8
	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	< 0.03	5.0

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	NO2 mg/L	NO3 mg/L
2a-91 Lower Til	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	< 0.03	1
	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	0.4	1.7
	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	0.2	2
	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	< 0.03	0.08
	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	< 0.03	0.5
	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	< 0.06	< 0.05
	13-Jun-96	ENT	8.27	331	234	26.5	2.61				0.159		18.9	< 0.5	7.5	32	43.3	< 0.01	0.11		< 0.01	< 0.06	0.4
	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	< 0.06	1.3
	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	< 0.06	1.1
	11-Feb-97	WBL	7.9			23.8	1.7	< 0.34	8	0.17	0.021	< 0.011	48.4	< 0.72	119	27.1	45.6	0.8	0.06	0.05	0.03		
	26-Mar-97	WBL	8.18	514	235	27.7	2.29	< 0.34	17	0.16	0.089	< 0.011	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	0.176	< 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	0.108	< 0.011	16.7	< 0.72	4.97	29.5	38.6	1.28	0.06	< 0.03	0.04		0.2
	31-Mar-98	WBL	8.05	455	227	21.3	1.77	1.03			0.212		16.3	< 0.72	6.47	24.2	44.8	1.14	0.06	< 0.01	0.02		0.6
	24-Jun-98	WBL	8.06	463	230	21.2	1.39	0.9			0.177		17	< 0.72	4.92	26.7	42	0.18	0.10	< 0.006	0.01		0.8
	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		0.7
	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		0.4
	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	< 0.2	0.7
	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	< 0.01	0.1
	25-Jun-08	MAX	8.4	446	226	23	1.4		13	0.5	0.25	< 0.02	13	< 1	5	33	38	< 0.02	0.06	< 0.1	< 0.005	< 0.01	0.1
	09-Dec-08	MAX	8.1	460	236	21	1.1	< 2	4	0.3	0.09	0.03	16	< 1	3	29	39	< 0.02	0.06	< 0.1	< 0.005	< 0.01	< 0.1

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	NO2 mg/L	NO3 mg/L
Monitor 2b-91 Outwash	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	< 0.03	13
	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	< 0.03	< 0.03
	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		17
	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	< 0.06	< 0.05
	13-Jun-96	ENT	8.34	337	177	25.1	0.8				0.016		28.2	0.1	7.5	3.9	60.3	< 0.01	0.05		< 0.01	< 0.06	11
	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	< 0.06	11
	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	< 0.06	12
	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	< 0.06	11
	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			< 0.019		23.2	1.34	16.2	3.88	74.8	0.11	< 0.02	0.02	0.01		16
	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	< 0.2	9.2
	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																					
	25-Jun-08	MAX	8.3	494	228	26	0.79		< 4	0.3	0.05	< 0.02	10	< 1	4	2.6	64	< 0.02	0.02	< 0.1	0.02	< 0.01	0.7
	09-Dec-08	INS																					
Monitor 3-91 Bedrock	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	< 0.03	27
	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	< 0.03	22
	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	< 0.03	10
	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	< 0.03	9.3
	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	< 0.06	15
	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	< 0.06	9.3
	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	< 0.06	18
Monitor 3-97 Outwash	11-Dec-97	WBL				464	29.4		79	2.08	0.037	2.07		< 0.72		98.5	905	54.9	0.05	3.3	6.86		
	31-Mar-98	WBL	7.72	1270	343	30.5	6.52	1.15			< 0.019		58.6	< 0.72	165	99.3	126	0.12	0.04	0.07	0.05		3.7
	24-Jun-98	WBL	7.56	939	364	27	4.98	1.17			< 0.019		27.8	< 0.72	71.6	44.9	112	0.48	0.07	< 0.006	0.13		2.4
	02-Oct-98	Dry																					
	03-Dec-98	Dry																					

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	Date	Lab	pH	Cond-uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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	< 0.03	1.8
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	0.1	6.4
edrock/Outv	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	< 0.03	0.9
	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	< 0.03	12
Monitor	11-Feb-97	WBL	7.32			34.8	4.83	< 0.34	< 7	0.24	0.021	0.012	32.7	< 0.72	6.53	54.6	125	0.01	0.04	< 0.03	1.07		
5-96	27-Mar-97	WBL	7.45	1390	312	35	5.16	< 0.34		0.19	0.051	< 0.011	39.5	< 0.72	219	88.8	130	0.01	0.03	< 0.03	1.92		
Bedrock	25-Jun-97	WBL	7.58	1460	326	33.5	5.1	< 0.34	< 7	0.35	0.044	< 0.011	41.6	< 0.72	251	100	104	0.02	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	0.018	< 0.011	43.3	< 0.72	173	96.3	115	0.02	0.02	< 0.03	1.7		2.3
	31-Mar-98	WBL	7.18	1180	352	30.6	5.14	< 0.34			0.058		41.5	< 0.72	142	75.3	128	0.02	0.03	< 0.01	1.52		2
	24-Jun-98	WBL	7.38	1240	346	31.4	5.27	1.32			0.062		38.6	< 0.72	172	84.2	107	0.03	0.05	< 0.006	2.1		1.8
	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		0.5
	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		0.5
	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	< 0.2	1
	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	0.01	0.2
	25-Jun-08	MAX	8.1	3810	270	30	5.5		29	0.4	< 0.05	< 0.02	44	< 1	970	610	140	< 0.02	< 0.01	< 0.1	2.2	< 0.01	0.5
	09-Dec-08	MAX	8	2530	319	16	4.2	< 2	12	0.3	< 0.05	< 0.02	39	< 1	570	390	76	< 0.02	0.03	< 0.1	1.5	< 0.01	0.3

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Monitor	Date	Lab	pH	Cond-uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
Monitor	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		
6a-96	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		
Bedrock	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		15
	31-Mar-98	WBL	7.56	1290	246	29.1	4.87	< 0.34			< 0.019		32.9	< 0.72	199	70	133	0.02	0.02	< 0.01	0.03		17
	24-Jun-98	WBL	7.61	1480	239	31.5	4.76	0.66			< 0.019		31	< 0.72	270	122	121	0.04	0.02	< 0.006	0.05		13
	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		16
	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		12
	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	< 0.2	16
	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	< 0.2	34
	25-Jun-08	MAX	8.2	1660	257	32	3.1		< 4	0.4	0.09	< 0.02	42	< 1	280	160	120	0.04	0.02	< 0.1	0.04	< 0.1	26
	09-Dec-08	MAX	8	1740	268	38	3.6	< 2	9	< 0.1	0.09	< 0.02	54	< 1	260	150	140	< 0.02	0.02	< 0.1	0.04	< 0.01	37

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	Date	Lab	pH	Cond-uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
Monitor	11-Feb-97	WBL	7.39			42.2	15.3	0.42	22	0.18	0.055	< 0.011	44.3	< 0.72	621	322	167	0.04	0.05	< 0.03	0.07		
6b-96	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		
Outwash	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		14
	31-Mar-98	WBL	7.43	2770	270	28.8	12.6	< 0.34			< 0.019		50.9	< 0.72	649	289	168	0.11	0.03	< 0.01	0.08		17
	24-Jun-98	WBL	7.34	1860	308	35.5	15.4	0.48			0.047		43	< 0.72	279	159	163	0.02	0.08	< 0.006	0.15		44
	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		37
	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		15
	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	< 0.2	40
	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	< 0.01	8.3
	25-Jun-08	MAX	8.1	2480	308	47	14		15	0.6	0.13	< 0.02	63	< 1	420	280	190	< 0.02	0.05	< 0.1	0.12	< 0.1	76
	09-Dec-08	MAX	8	1840	309	33	12	< 2	11	0.4	0.12	0.05	51	< 1	280	190	130	< 0.02	0.03	< 0.1	0.09	0.01	33

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	Date	Lab	pH	Cond-uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
Monitor	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		
7-96	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		
Outwash	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		25
	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		23
	31-Mar-98	WBL	7.55	1120	224	32.4	9.06	< 0.34			< 0.019		43	< 0.72	92.4	36.8	127	0.09	0.04	< 0.01	0.09		43
	24-Jun-98	WBL	7.77	1200	226	34.9	9.49	0.78			< 0.019		41.3	< 0.72	89.8	38.8	141	0.06	0.06	< 0.006	0.12		54
	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		41
	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		37
	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	< 0.2	55
	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	< 0.2	44
	25-Jun-08	MAX	8.1	1810	284	37	14		9	0.6	0.06	< 0.02	83	< 1	240	150	140	< 0.02	0.07	< 0.1	0.21	< 0.1	54
	09-Dec-08	MAX	7.9	1470	289	35	14	< 2	8	0.6	< 0.05	< 0.02	58	< 1	170	110	130	< 0.02	0.06	< 0.1	0.19	0.02	41

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	Date	Lab	pH	Cond-uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
Monitor	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		
8-96	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		
Bedrock	25-Jun-97	WBL	7.84	882	308	33.6	1.77	< 0.34	< 7	< 0.07	0.018	< 0.011	60.8	< 0.72	40.9	17.6	92	0.02	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		5.2
	31-Mar-98	WBL	7.41	997	288	33.4	2.05	1.72			< 0.019		65.6	< 0.72	102	32.9	116	0.01	0.02	< 0.01	0.54		3.9
	24-Jun-98	WBL	7.5	890	309	32.1	1.78	0.75			< 0.019		59.6	< 0.72	58.4	30.1	107	0.06	< 0.02	< 0.006	0.63		5.2
	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		4.8
	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		2.6
	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	< 0.2	3.9
	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	< 0.01	1.9
	25-Jun-08	MAX	8.1	1050	291	37	2.8		15	0.5	0.12	< 0.02	52	< 1	130	81	100	< 0.02	< 0.01	< 0.1	1.2	< 0.01	1.2
	09-Dec-08	MAX	8	997	310	33	2.5	< 2	4	0.3	< 0.05	< 0.02	56	< 1	110	59	91	< 0.02	0.01	< 0.1	1.1	< 0.01	1

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	Date	Lab	pH	Cond-uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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
	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		8.7
	31-Mar-98	WBL	8.38	557	195	25.9	0.7	< 0.34			0.019		26.7	< 0.72	13.1	2.2	71.7	0.01	0.03	< 0.01	0.005		13
	24-Jun-98	WBL	7.79	536	193	21.6	0.78	1.38			< 0.019		26	< 0.72	12.5	2.83	76.2	0.03	0.05	< 0.006	0.007		12
	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		14
	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		9.9
	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	< 0.2	6.4
	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	< 0.01	5.3
	25-Jun-08	MAX	8.3	738	246	31	1.5		6	0.6	< 0.05	< 0.02	26	< 1	23	14	95	< 0.02	0.04	< 0.1	0.01	< 0.01	6.6
	09-Dec-08	MAX	8	700	317	30	1.1	< 2	8	0.5	< 0.05	< 0.02	27	< 1	18	9.7	93	< 0.02	0.03	< 0.1	0.008	< 0.01	5.6
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	< 0.2	< 0.2
	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	< 0.01	< 0.1
	25-Jun-08	MAX	8.2	654	237	28	1.1		11	0.3	0.11	< 0.02	82	< 1	23	9.5	86	< 0.02	< 0.01	< 0.1	< 0.005	< 0.01	< 0.1
	09-Dec-08	MAX	8.1	679	238	29	1.1	< 2	< 4	0.2	0.07	< 0.02	91	< 1	27	11	85	0.03	0.02	< 0.1	< 0.005	< 0.01	< 0.1

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	Date	Lab	pH	Cond-uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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	< 0.2	< 0.2
	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	< 0.01	< 0.1
	25-Jun-08	MAX	8.2	534	231	27	2.3		16	0.6	0.21	< 0.02	30	< 1	15	6.5	73	< 0.02	0.03	< 0.1	< 0.005	< 0.01	< 0.1
	09-Dec-08	MAX	8.1	526	237	23	1.7	< 2	< 4	0.3	0.1	< 0.02	34	< 1	12	4.9	65	< 0.02	0.04	< 0.1	< 0.005	< 0.01	0.1
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	< 0.2	4.7
	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	< 0.01	3.4
	25-Jun-08	MAX	8.2	1100	250	19	1.4		6	0.5	0.08	< 0.02	25	< 1	180	110	81	< 0.02	0.39	< 0.1	0.02	< 0.01	5.5
	09-Dec-08	MAX	8.1	939	264	16	1.4	< 2	5	0.4	< 0.05	0.03	27	< 1	110	110	63	< 0.02	0.9	< 0.1	0.02	< 0.01	4.4

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	Date	Lab	pH	Cond-uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
Monitor	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		
12a-00	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		
Bedrock	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 Ac																					
	08-Jun-04	Philip	7.53	845	319	37	13.9	< 0.5	10	0.89	0.47	0.009	45.5	< 1	45.3	23	106	< 0.01	0.02		1.15	< 0.2	23
	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	< 0.01	1.4
	25-Jun-08	MAX	8	796	343	32	13		6	0.6	0.07	< 0.02	36	< 1	23	18	93	< 0.02	0.02	< 0.1	0.99	< 0.01	8.9
	09-Dec-08	MAX	7.9	816	343	30	12	< 2	9	0.5	0.06	< 0.02	40	< 1	27	18	96	< 0.02	0.03	< 0.1	0.92	0.02	5.9
Monitor	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		
12b-00	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		
Outwash	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 Ac																					
	08-Jun-04	Philip	7.56	710	339	24.9	4.1	2.1	29	1.94	1.46	0.151	20.1	< 1	51	33.8	118	11	0.09		0.34	< 0.2	0.2
	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	< 0.01	4.5
	25-Jun-08	MAX	8.2	482	235	16	2.7		5	0.6	0.16	< 0.02	22	< 1	5	8.9	70	< 0.02	0.07	< 0.1	0.61	< 0.01	0.2
	09-Dec-08	MAX	7.9	707	356	25	4	< 2	9	0.5	< 0.05	< 0.02	27	< 1	6	13	100	< 0.02	0.06	< 0.1	0.74	< 0.01	1.4

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	Date	Lab	pH	Cond-uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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	< 0.2	< 0.2
	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	< 0.01	< 0.1
	25-Jun-08	MAX	8.2	967	247	37	2.6		11	0.5	0.19	< 0.02	120	< 1	100	49	100	0.3	0.04	< 0.1	< 0.005	< 0.01	< 0.1
	09-Dec-08	MAX	8	965	251	34	2.5	< 2	< 4	0.3	0.14	< 0.02	124	< 1	95	45	97	0.32	0.04	< 0.1	< 0.005	< 0.01	< 0.1
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	< 0.2	4.6
	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	< 0.01	3.3
	25-Jun-08	MAX	8.1	1340	309	45	2.4		4	0.5	< 0.05	< 0.02	29	< 1	200	49	160	< 0.02	0.02	< 0.1	0.09	< 0.01	6
	09-Dec-08	MAX	8	1180	348	28	2.5	< 2	< 4	0.3	< 0.05	< 0.02	35	< 1	160	83	120	< 0.02	0.03	< 0.1	0.07	< 0.01	2.6
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	< 0.2	< 0.2
	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	< 0.01	< 0.1
	25-Jun-08	MAX	8.2	590	236	29	1.1		7	0.3	< 0.05	< 0.02	58	< 1	15	11	80	< 0.02	< 0.01	< 0.1	< 0.005	< 0.01	< 0.1
	09-Dec-08	MAX	8	606	239	26	1.1	< 2	< 4	0.2	< 0.05	0.04	67	< 1	17	14	72	< 0.02	0.02	< 0.1	< 0.005	< 0.01	< 0.1

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	Date	Lab	pH	Cond-uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
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	< 0.2	< 0.2
	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	< 0.01	< 0.1
	25-Jun-08	MAX	8	1270	326	35	2.6		6	0.3	< 0.05	< 0.02	84	< 1	180	100	120	< 0.02	0.02	< 0.1	0.4	< 0.01	0.4
	09-Dec-08	MAX	8	1310	423	33	2.2	< 2	4	0.3	< 0.05	< 0.02	58	< 1	150	110	120	0.02	0.02	< 0.1	0.41	< 0.01	0.1
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	< 0.2	< 0.2
	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	< 0.01	< 0.1
	25-Jun-08	MAX	8.3	783	249	33	1.4		10	0.4	< 0.05	< 0.02	104	< 1	45	19	100	0.07	< 0.01	< 0.1	0.04	< 0.01	< 0.1
	09-Dec-08	MAX	8	786	252	32	1.2	< 2	< 4	0.3	0.07	< 0.02	116	< 1	42	19	96	0.45	0.01	< 0.1	< 0.005	< 0.01	< 0.1
Monitor 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	< 0.2	4.1
	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	< 0.1	15
	25-Jun-08	MAX	8.1	1330	449	31	1.3		4	0.4	< 0.05	< 0.02	23	< 1	130	94	150	< 0.02	0.02	< 0.1	0.04	< 0.1	13
	09-Dec-08	MAX	8	1100	544	25	1.2	< 2	6	0.4	< 0.05	< 0.02	18	< 1	21	90	120	< 0.02	0.04	< 0.1	0.04	< 0.01	8.6

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	Date	Lab	pH	Cond-uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L	NO2 mg/L	NO3 mg/L
Monitor	26-Mar-08	MAX	8	691	251	29	3.6	< 2	4	0.4	0.16	< 0.02	70	< 1	36	42	76	< 0.02	0.04	< 0.1	0.05	0.02	< 0.1
16A-08	25-Jun-08	MAX	8.3	596	238	28	2.7		7	0.5	0.19	< 0.02	46	< 1	28	6.2	82	< 0.02	0.02	< 0.1	0.04	< 0.01	< 0.1
Bedrock	09-Dec-08	MAX	8.1	605	239	26	2	< 2	< 4	0.3	0.06	< 0.02	39	< 1	29	2.5	77	< 0.02	0.03	< 0.1	0.04	< 0.01	< 0.1
Monitor	26-Mar-08	MAX	8	1130	477	42	1.5	< 2	15	0.9	0.09	< 0.02	105	< 1	38	60	130	< 0.02	0.03	< 0.1	0.16	0.1	3.3
16B-08	25-Jun-08	MAX	8.2	1170	318	43	2.4		14	0.3	< 0.05	< 0.02	68	< 1	160	42	130	< 0.02	< 0.01	< 0.1	1.1	< 0.01	< 0.1
Outwash	09-Dec-08	MAX	7.8	1290	597	51	2.1	< 2	17	0.8	< 0.05	< 0.02	50	< 1	53	39	170	< 0.02	0.03	< 0.1	0.72	< 0.01	2.9
Monitor	26-Mar-08	MAX	8.2	721	248	28	2.1	< 2	7	0.6	0.21	< 0.02	96	< 1	29	67	64	< 0.02	0.04	< 0.1	0.007	< 0.01	0.3
17A-08	25-Jun-08	MAX	8.3	643	233	30	2.2		< 4	0.5	0.29	< 0.02	63	< 1	36	16	80	0.05	0.02	< 0.1	< 0.005	< 0.01	< 0.1
Bedrock	09-Dec-08	MAX	8.1	609	237	26	1.4	< 2	< 4	0.4	0.1	< 0.02	51	< 1	27	15	69	0.02	0.03	< 0.1	< 0.005	< 0.01	< 0.1
Monitor	26-Mar-08	MAX	8	2080	357	41	2.4	< 2	5	0.4	< 0.05	< 0.02	75	< 1	400	240	150	< 0.02	0.03	< 0.1	0.25	0.02	3.6
17B-08	25-Jun-08	MAX	8.3	2380	313	46	2.8		11	0.3	< 0.05	< 0.02	68	< 1	500	290	160	< 0.02	0.02	< 0.1	0.29	< 0.01	4.2
Outwash	09-Dec-08	MAX	8	1580	319	32	2.5	< 2	4	0.3	< 0.05	< 0.02	56	< 1	260	170	110	< 0.02	0.02	< 0.1	0.14	< 0.01	5.1
Monitor	26-Mar-08	MAX	8.1	803	258	27	1.5	< 2	23	0.9	0.09	< 0.02	130	< 1	18	89	65	88	0.03	< 0.1	0.02	0.1	5.7
18A-08	25-Jun-08	MAX	8.3	632	243	28	3		12	0.3	< 0.05	< 0.02	36	< 1	19	20	81	< 0.02	< 0.01	< 0.1	0.25	< 0.01	7.3
Bedrock	09-Dec-08	MAX	8.1	613	247	27	1.1	< 2	< 4	0.5	0.16	< 0.02	35	< 1	16	6.1	76	< 0.02	< 0.01	< 0.1	0.12	< 0.01	6.7
Monitor	26-Mar-08	MAX	8.2	1020	284	12	2.1	< 2	53	1	0.12	0.02	223	< 1	8	270	29	150	0.07	< 0.1	0.02	0.05	1.6
18B-08	25-Jun-08	INS																					
Outwash	09-Dec-08	INS																					
Monitor	26-Mar-08	MAX	8.1	844	245	37	1.4	< 2	13	0.3	0.1	0.03	143	< 1	45	47	94	0.02	0.03	< 0.1	< 0.005	0.02	< 0.1
19A-08	25-Jun-08	MAX	8.2	841	240	37	1.3		4	0.3	0.05	< 0.02	134	< 1	50	33	100	0.04	0.02	< 0.1	< 0.005	< 0.01	< 0.1
Bedrock	09-Dec-08	MAX	8.1	811	242	33	1.2	< 2	< 4	0.2	< 0.05	< 0.02	129	< 1	46	19	96	0.17	0.02	< 0.1	< 0.005	< 0.01	< 0.1
Monitor	26-Mar-08	MAX	8.1	1560	289	14	4.5	< 2	51	1.7	0.53	0.03	454	< 1	38	350	35	130	0.14	< 0.1	0.02	< 0.1	1
19B-08	25-Jun-08	MAX	8.3	2070	314	10	7.8		38	1.8	1	< 0.02	576	< 1	60	480	23	< 0.02	0.2	< 0.1	< 0.005	0.3	2.5
Outwash	09-Dec-08	MAX	8.2	2290	485	13	8.6	< 2	13	1.1	0.44	< 0.02	596	< 1	56	470	36	< 0.02	0.27	< 0.1	< 0.005	0.06	8.8
Monitor	26-Mar-08	MAX	8.1	732	262	30	1.8	< 2	15	0.8	0.07	< 0.02	107	< 1	19	56	72	53	0.03	< 0.1	0.01	0.1	2
20A-08	25-Jun-08	MAX	8.3	597	242	28	1.2		11	0.4	< 0.05	< 0.02	53	< 1	16	4.9	83	< 0.02	< 0.01	< 0.1	0.03	0.07	2.5
Bedrock	09-Dec-08	MAX	8.1	633	251	26	1.1	< 2	4	0.3	< 0.05	< 0.02	55	< 1	17	9.2	84	< 0.02	0.02	< 0.1	0.07	0.05	4.1
Monitor	26-Mar-08	MAX	8	572	244	30	1.2	< 2	10	0.5	< 0.05	< 0.02	52	< 1	11	3.5	82	73	< 0.01	< 0.1	0.09	< 0.01	1.2
20B-08	25-Jun-08	MAX	8.2	933	235	26	3.3		20	0.6	< 0.05	< 0.02	78	< 1	110	57	99	< 0.02	0.01	< 0.1	0.63	< 0.01	< 0.1
Outwash	09-Dec-08	MAX	8	694	266	25	1.3	< 2	7	0.3	< 0.05	< 0.02	73	< 1	25	16	84	< 0.02	0.02	< 0.1	0.16	< 0.01	< 0.1
Monitor	25-Jun-08	N/A																					
21A-08	25-Jun-08	MAX																					
Bedrock	25-Jun-08	MAX																					
	25-Jun-08	N/A																					
	09-Dec-08	MAX	8.1	820	284	32	1.2	< 2	8	0.5	< 0.05	< 0.02	49	< 1	54	34	86	< 0.02	0.01	< 0.1	0.22	0.02	6.2

ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 - Waste Resources Innovation Centre - 2008

Parameter	2a-91 25-Jun-08	2b-91 25-Jun-08	5-96 25-Jun-08	6a-96 25-Jun-08
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:	< 0.2	< 0.2	< 0.2	< 0.2
1,1,2-Trichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1-Dichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dibromoethane:*	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloropropane:	< 0.1	< 0.1	< 0.1	< 0.1
1,3-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,4-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
Bromodichloromethane:	< 0.1	< 0.1	< 0.1	< 0.1
Bromoform:	< 0.2	< 0.2	< 0.2	< 0.2
Bromomethane:	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride:	< 0.1	< 0.1	< 0.1	< 0.1
Chlorobenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Chloroform:	< 0.1	< 0.1	< 0.1	0.3
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:				
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:	< 0.2	< 0.2	< 0.2	< 0.2
Toluene:	0.3	< 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 Resources Innovation Centre - 2008

Parameter	6b-96 25-Jun-08	7-96 25-Jun-08	8-96 25-Jun-08	9-96 25-Jun-08
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	0.3
1,1,2,2-Tetrachloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1,2-Trichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1-Dichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dibromoethane:*	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloropropane:	< 0.1	< 0.1	< 0.1	< 0.1
1,3-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,4-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
Bromodichloromethane:	< 0.1	< 0.1	< 0.1	< 0.1
Bromoform:	< 0.2	< 0.2	< 0.2	< 0.2
Bromomethane:	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride:	< 0.1	< 0.1	< 0.1	< 0.1
Chlorobenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Chloroform:	< 0.1	< 0.1	< 0.1	< 0.1
Chloromethane:	< 0.5	< 0.5	< 0.5	< 0.5
Cis-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Cis-1,3-Dichloropropylene:				
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:	< 0.2	< 0.2	< 0.2	< 0.2
Toluene:	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
m-Xylene and p-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
MISA Group 18				
Acrolein:	< 10	< 10	< 10	< 10
Acrylonitrile:	< 5	< 5	< 5	< 5

ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 - Waste Resources Innovation Centre - 2008

Parameter	10-00 25-Jun-08	11a-00 25-Jun-08	11b-00 25-Jun-08	12a-00 25-Jun-08
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:	< 0.2	< 0.2	< 0.2	< 0.2
1,1,2-Trichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1-Dichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dibromoethane:*	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloropropane:	< 0.1	< 0.1	< 0.1	< 0.1
1,3-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,4-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
Bromodichloromethane:	< 0.1	< 0.1	< 0.1	< 0.1
Bromoform:	< 0.2	< 0.2	< 0.2	< 0.2
Bromomethane:	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride:	< 0.1	< 0.1	< 0.1	< 0.1
Chlorobenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Chloroform:	< 0.1	< 0.1	< 0.1	< 0.1
Chloromethane:	< 0.5	< 0.5	< 0.5	< 0.5
Cis-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Cis-1,3-Dichloropropylene:				
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:	< 0.2	< 0.2	< 0.2	< 0.2
Toluene:	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
m-Xylene and p-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
MISA Group 18				
Acrolein:	< 10	< 10	< 10	< 10
Acrylonitrile:	< 5	< 5	< 5	< 5

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Parameter	12b-00 25-Jun-08	13a-01 26-Jun-08	13b-01 26-Jun-08	14a-01 27-Jun-08
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:	< 0.2	< 0.2	< 0.2	< 0.2
1,1,2-Trichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1-Dichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dibromoethane:*	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloropropane:	< 0.1	< 0.1	< 0.1	< 0.1
1,3-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,4-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
Bromodichloromethane:	< 0.1	< 0.1	< 0.1	< 0.1
Bromoform:	< 0.2	< 0.2	< 0.2	< 0.2
Bromomethane:	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride:	< 0.1	< 0.1	< 0.1	< 0.1
Chlorobenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Chloroform:	< 0.1	< 0.1	< 0.1	< 0.1
Chloromethane:	< 0.5	< 0.5	< 0.5	< 0.5
Cis-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Cis-1,3-Dichloropropylene:				
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:	< 0.2	< 0.2	< 0.2	< 0.2
Toluene:	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
m-Xylene and p-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
MISA Group 18				
Acrolein:	< 10	< 10	< 10	< 10
Acrylonitrile:	< 5	< 5	< 5	< 5

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Parameter	14b-01 25-Jun-08	15a-01 26-Jun-08	15b-01 26-Jun-08	16A-08 27-Jun-08
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:	< 0.2	< 0.2	< 0.2	< 0.2
1,1,2-Trichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1-Dichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dibromoethane:*	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloropropane:	< 0.1	< 0.1	< 0.1	< 0.1
1,3-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,4-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
Bromodichloromethane:	< 0.1	< 0.1	< 0.1	< 0.1
Bromoform:	< 0.2	< 0.2	< 0.2	< 0.2
Bromomethane:	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride:	< 0.1	< 0.1	< 0.1	< 0.1
Chlorobenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Chloroform:	< 0.1	< 0.1	< 0.1	< 0.1
Chloromethane:	< 0.5	< 0.5	< 0.5	< 0.5
Cis-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Cis-1,3-Dichloropropylene:				
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:	< 0.2	< 0.2	< 0.2	< 0.2
Toluene:	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
m-Xylene and p-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
MISA Group 18				
Acrolein:	< 10	< 10	< 10	< 10
Acrylonitrile:	< 5	< 5	< 5	< 5

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Parameter	16B-08 26-Jun-08	17A-08 26-Jun-08	17B-08 26-Jun-08	18A-08 27-Jun-08
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:	< 0.2	< 0.2	< 0.2	< 0.2
1,1,2-Trichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1-Dichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dibromoethane:*	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloropropane:	< 0.1	< 0.1	< 0.1	< 0.1
1,3-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,4-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
Bromodichloromethane:	< 0.1	< 0.1	< 0.1	< 0.1
Bromoform:	< 0.2	< 0.2	< 0.2	< 0.2
Bromomethane:	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride:	< 0.1	< 0.1	< 0.1	< 0.1
Chlorobenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Chloroform:	< 0.1	< 0.1	< 0.1	< 0.1
Chloromethane:	< 0.5	< 0.5	< 0.5	< 0.5
Cis-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Cis-1,3-Dichloropropylene:				
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:	< 0.2	< 0.2	< 0.2	< 0.2
Toluene:	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
m-Xylene and p-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
MISA Group 18				
Acrolein:	< 10	< 10	< 10	< 10
Acrylonitrile:	< 5	< 5	< 5	< 5

ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 - Waste Resources Innovation Centre - 2008

Parameter	19A-08 27-Jun-08	19B-08 27-Jun-08	20A-08 27-Jun-08	20B-08 27-Jun-08
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:	< 0.2	< 0.2	< 0.2	< 0.2
1,1,2-Trichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,1-Dichloroethane:	< 0.1	< 0.1	< 0.1	< 0.1
1,1-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
1,2-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dibromoethane:*	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloroethane:	< 0.2	< 0.2	< 0.2	< 0.2
1,2-Dichloropropane:	< 0.1	< 0.1	< 0.1	< 0.1
1,3-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
1,4-Dichlorobenzene:	< 0.2	< 0.2	< 0.2	< 0.2
Bromodichloromethane:	< 0.1	< 0.1	< 0.1	< 0.1
Bromoform:	< 0.2	< 0.2	< 0.2	< 0.2
Bromomethane:	< 0.5	< 0.5	< 0.5	< 0.5
Carbon Tetrachloride:	< 0.1	< 0.1	< 0.1	< 0.1
Chlorobenzene:	< 0.1	< 0.1	< 0.1	< 0.1
Chloroform:	< 0.1	< 0.1	< 0.1	< 0.1
Chloromethane:	< 0.5	< 0.5	< 0.5	< 0.5
Cis-1,2-Dichloroethylene:	< 0.1	< 0.1	< 0.1	< 0.1
Cis-1,3-Dichloropropylene:				
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:	< 0.2	< 0.2	< 0.2	< 0.2
Toluene:	< 0.2	< 0.2	< 0.2	< 0.2
o-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
m-Xylene and p-Xylene:	< 0.1	< 0.1	< 0.1	< 0.1
MISA Group 18				
Acrolein:	< 10	< 10	< 10	< 10
Acrylonitrile:	< 5	< 5	< 5	< 5

ORGANIC ANALYSIS - ATG MISA Groups 16, 17 and 18 - Waste Resources Innovation Centre - 2008

Parameter	Trip Blank 25-Jun-08	WDFB 25-Jun-08
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:	< 0.2	< 0.2
1,2-Dichloropropane:	< 0.1	< 0.1
1,3-Dichlorobenzene:	< 0.2	< 0.2
1,4-Dichlorobenzene:	< 0.2	< 0.2
Bromodichloromethane:	< 0.1	< 0.1
Bromoform:	< 0.2	< 0.2
Bromomethane:	< 0.5	< 0.5
Carbon Tetrachloride:	< 0.1	< 0.1
Chlorobenzene:	< 0.1	< 0.1
Chloroform:	< 0.1	< 0.1
Chloromethane:	< 0.5	< 0.5
Cis-1,2-Dichloroethylene:	< 0.1	< 0.1
Cis-1,3-Dichloropropylene:		
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:	< 0.2	< 0.2
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

ORGANIC ANALYSIS (ATG MISA Groups 19 and 20) - Waste Resources Innovation Centre -2008

Parameter	2a-91 25-Jun-08	2b-91 25-Jun-08	5-96 25-Jun-08	6a-96 25-Jun-08
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	< 0.4	< 0.4
2,3,4,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,4-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,6-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dinitrophenol:	< 2	< 2	< 2	< 2
2,4-Dimethylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
2,6-Dichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
4,6-Dinitro-o-Cresol:				
2-Chlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloro-3-methylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
4-Nitrophenol:	< 1	< 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	1	0.6	0.5

ORGANIC ANALYSIS (ATG MISA Groups 19 and 20) - Waste Resources Innovation Centre -2008

Parameter	6b-96 25-Jun-08	7-96 25-Jun-08	8-96 25-Jun-08	9-96 25-Jun-08
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	< 0.4	< 0.4
2,3,4,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,4-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,6-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dinitrophenol:	< 2	< 2	< 2	< 2
2,4-Dimethylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
2,6-Dichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
4,6-Dinitro-o-Cresol:				
2-Chlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloro-3-methylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
4-Nitrophenol:	< 1	< 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	0.9

ORGANIC ANALYSIS (ATG MISA Groups 19 and 20) - Waste Resources Innovation Centre -2008

Parameter	10-00 25-Jun-08	11a-00 25-Jun-08	11b-00 25-Jun-08	12a-00 25-Jun-08
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	< 0.4	< 0.4
2,3,4,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,4-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,6-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dinitrophenol:	< 2	< 2	< 2	< 2
2,4-Dimethylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
2,6-Dichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
4,6-Dinitro-o-Cresol:				
2-Chlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloro-3-methylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
4-Nitrophenol:	< 1	< 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	0.7	< 0.5	< 0.5

ORGANIC ANALYSIS (ATG MISA Groups 19 and 20) - Waste Resources Innovation Centre -2008

Parameter	12b-00 25-Jun-08	13a-01 26-Jun-08	13b-01 26-Jun-08	14a-01 27-Jun-08
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	< 0.4	< 0.4
2,3,4,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,4-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,6-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dinitrophenol:	< 2	< 2	< 2	< 2
2,4-Dimethylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
2,6-Dichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
4,6-Dinitro-o-Cresol:				
2-Chlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloro-3-methylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
4-Nitrophenol:	< 1	< 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 Resources Innovation Centre -2008

Parameter	14b-01 25-Jun-08	15a-01 26-Jun-08	15b-01 26-Jun-08	16A-08 27-Jun-08
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:	27	< 2	< 2	16
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	< 0.4	< 0.4
2,3,4,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,4-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,6-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dinitrophenol:	< 2	< 2	< 2	< 2
2,4-Dimethylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
2,6-Dichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
4,6-Dinitro-o-Cresol:				
2-Chlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloro-3-methylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
4-Nitrophenol:	< 1	< 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

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Parameter	16B-08 26-Jun-08	17A-08 26-Jun-08	17B-08 26-Jun-08	18A-08 27-Jun-08
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	< 0.4	< 0.4
2,3,4,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,4-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,6-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dinitrophenol:	< 2	< 2	< 2	< 2
2,4-Dimethylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
2,6-Dichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
4,6-Dinitro-o-Cresol:				
2-Chlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloro-3-methylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
4-Nitrophenol:	< 1	< 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	1.3

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Parameter	19A-08 27-Jun-08	19B-08 27-Jun-08	20A-08 27-Jun-08	20B-08 27-Jun-08
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	5	< 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	< 0.4	< 0.4
2,3,4,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5,6-Tetrachlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,4-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,3,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,5-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4,6-Trichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dinitrophenol:	< 2	< 2	< 2	< 2
2,4-Dimethylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
2,4-Dichlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
2,6-Dichlorophenol:	< 0.5	< 0.5	< 0.5	< 0.5
4,6-Dinitro-o-Cresol:				
2-Chlorophenol:	< 0.3	< 0.3	< 0.3	< 0.3
4-Chloro-3-methylphenol:	< 0.5	< 0.5	< 0.5	< 0.5
4-Nitrophenol:	< 1	< 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

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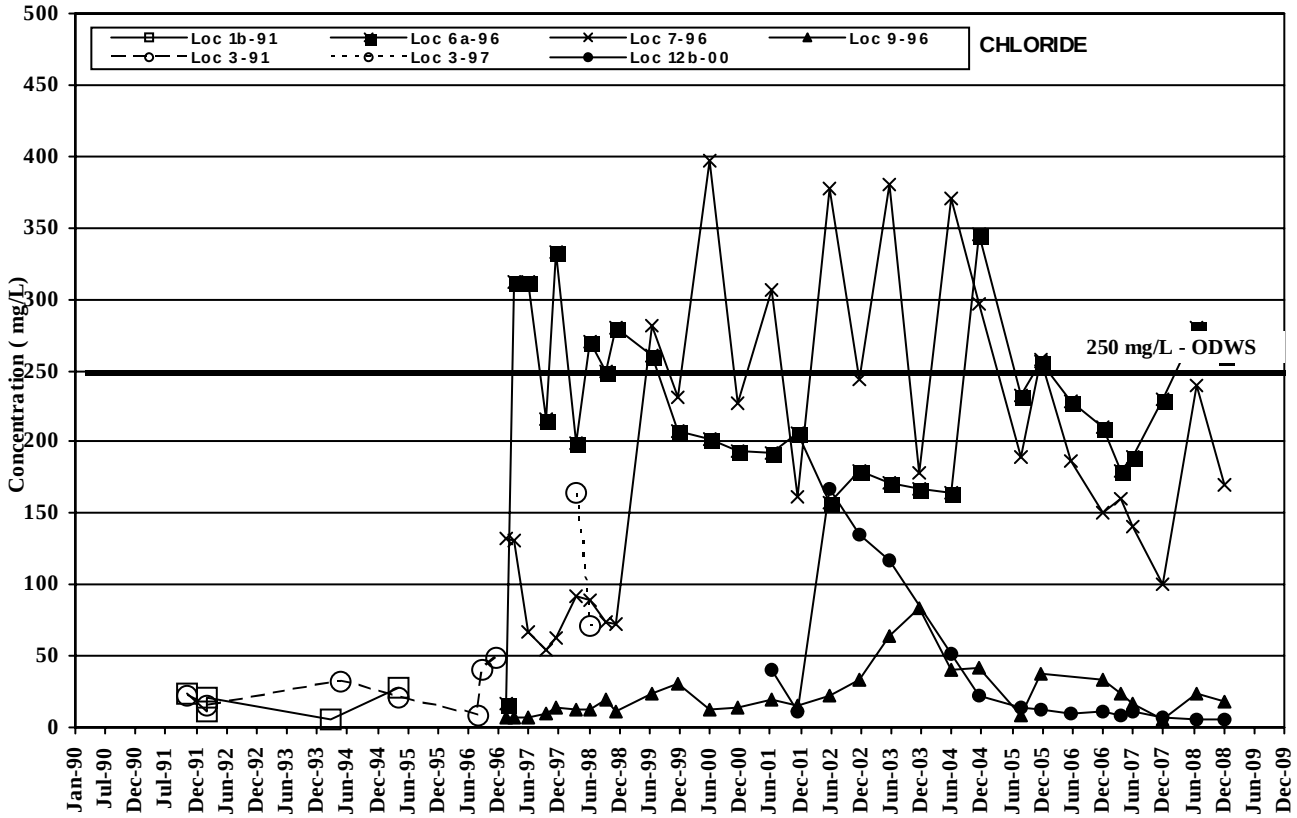
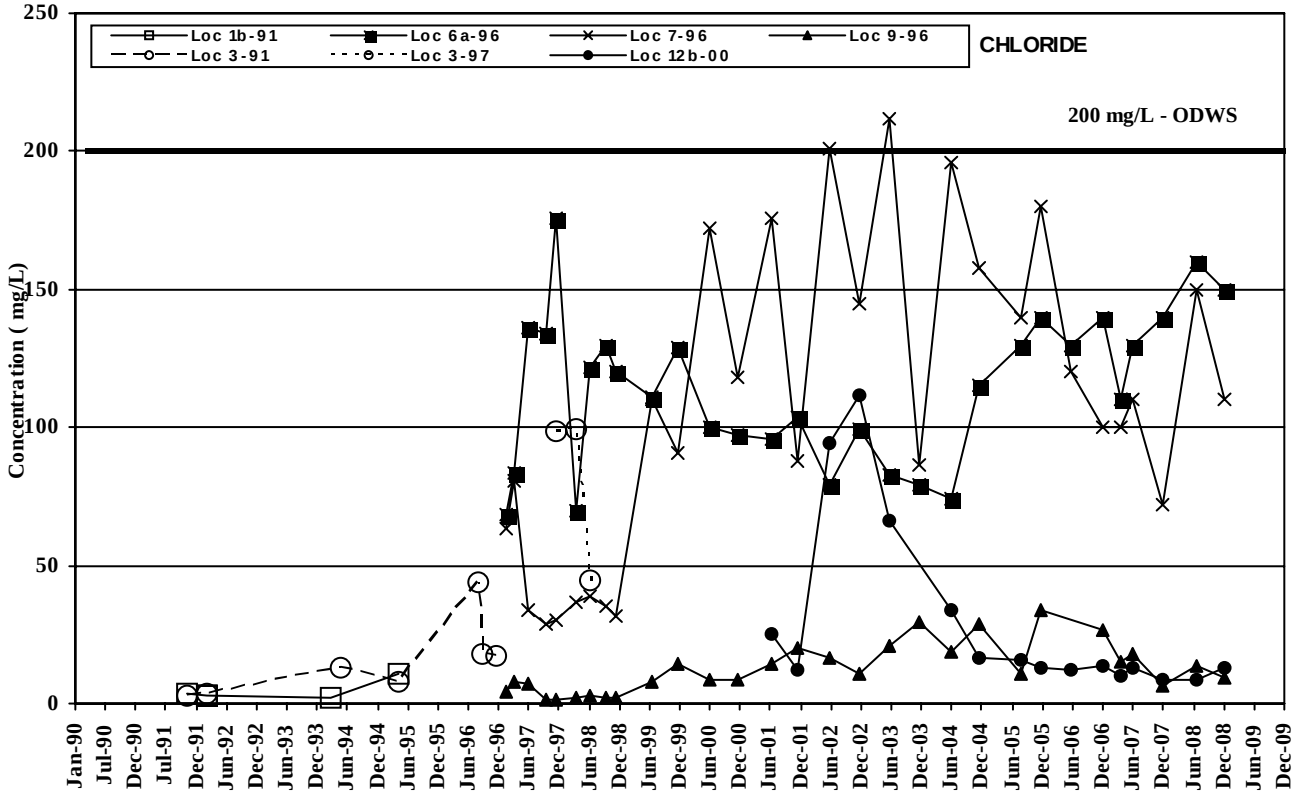
Parameter	Trip Blank 25-Jun-08	WDFB 25-Jun-08
MISA Group 19		
Acenaphthene:	< 0.2	< 0.2
5-Nitroacenaphthene:	< 1	< 1
Acenaphthylene:	< 0.2	< 0.2
Anthracene:	< 0.2	< 0.2
Benzo(a)anthracene:	< 0.2	< 0.2
Benzo(a)Pyrene:	< 0.2	< 0.2
Benzo(b)Fluoranthene:	< 0.2	< 0.2
Benzo(g,h,i)perylene:	< 0.2	< 0.2
Benzo(k)Fluoranthene:	< 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:	0.3	< 0.2
Perylene:	< 0.2	< 0.2
Phenanthrene:	0.3	< 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:	< 0.4	< 0.4
2,3,4,6-Tetrachlorophenol:	< 0.5	< 0.5
2,3,5,6-Tetrachlorophenol:	< 0.5	< 0.5
2,3,4-Trichlorophenol:	< 0.5	< 0.5
2,3,5-Trichlorophenol:	< 0.5	< 0.5
2,4,5-Trichlorophenol:	< 0.5	< 0.5
2,4,6-Trichlorophenol:	< 0.5	< 0.5
2,4-Dinitrophenol:	< 2	< 2
2,4-Dimethylphenol:	< 0.5	< 0.5
2,4-Dichlorophenol:	< 0.3	< 0.3
2,6-Dichlorophenol:	< 0.5	< 0.5
4,6-Dinitro-o-Cresol:		
2-Chlorophenol:	< 0.3	< 0.3
4-Chloro-3-methylphenol:	< 0.5	< 0.5
4-Nitrophenol:	< 1	< 1
o-Cresol:	< 0.5	< 0.5
m-,p-Cresol:	< 0.5	< 0.5
Pentachlorophenol:	< 1	< 1
Phenol:	0.6	< 0.5





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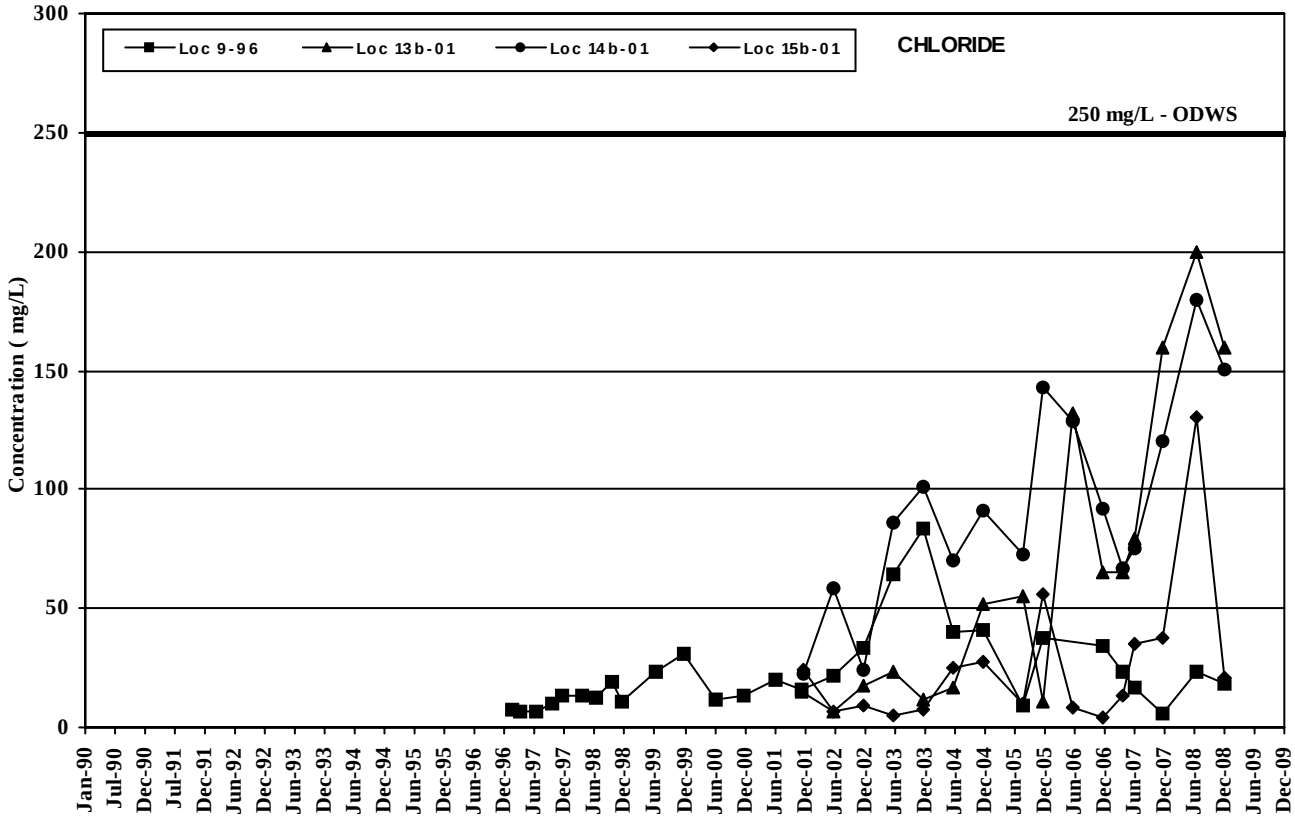
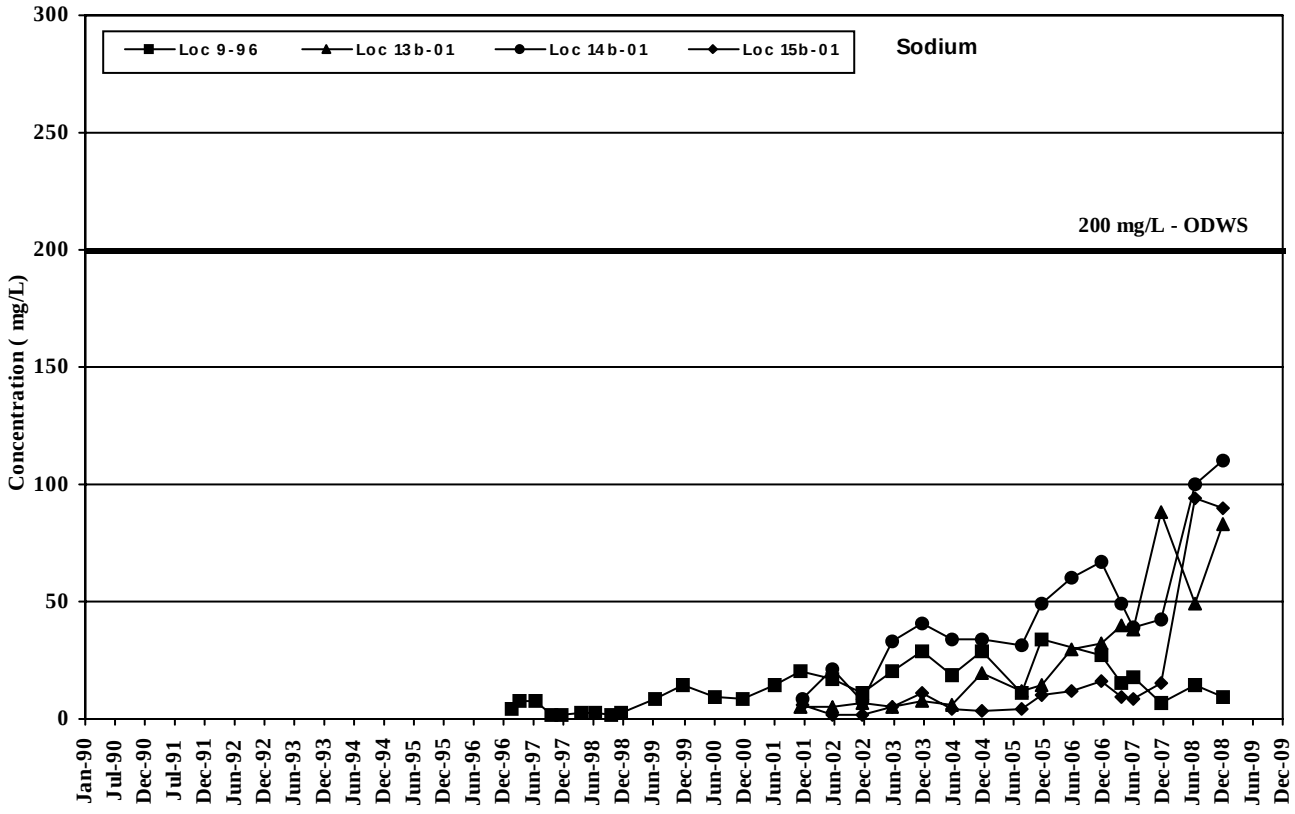
Waste Resource Innovation Centre

Ground Water Chemistry Trends
Overburden Locations on Wet/Dry Facility

FIGURE
B1

111409
12 Cl-NA Location WestOB





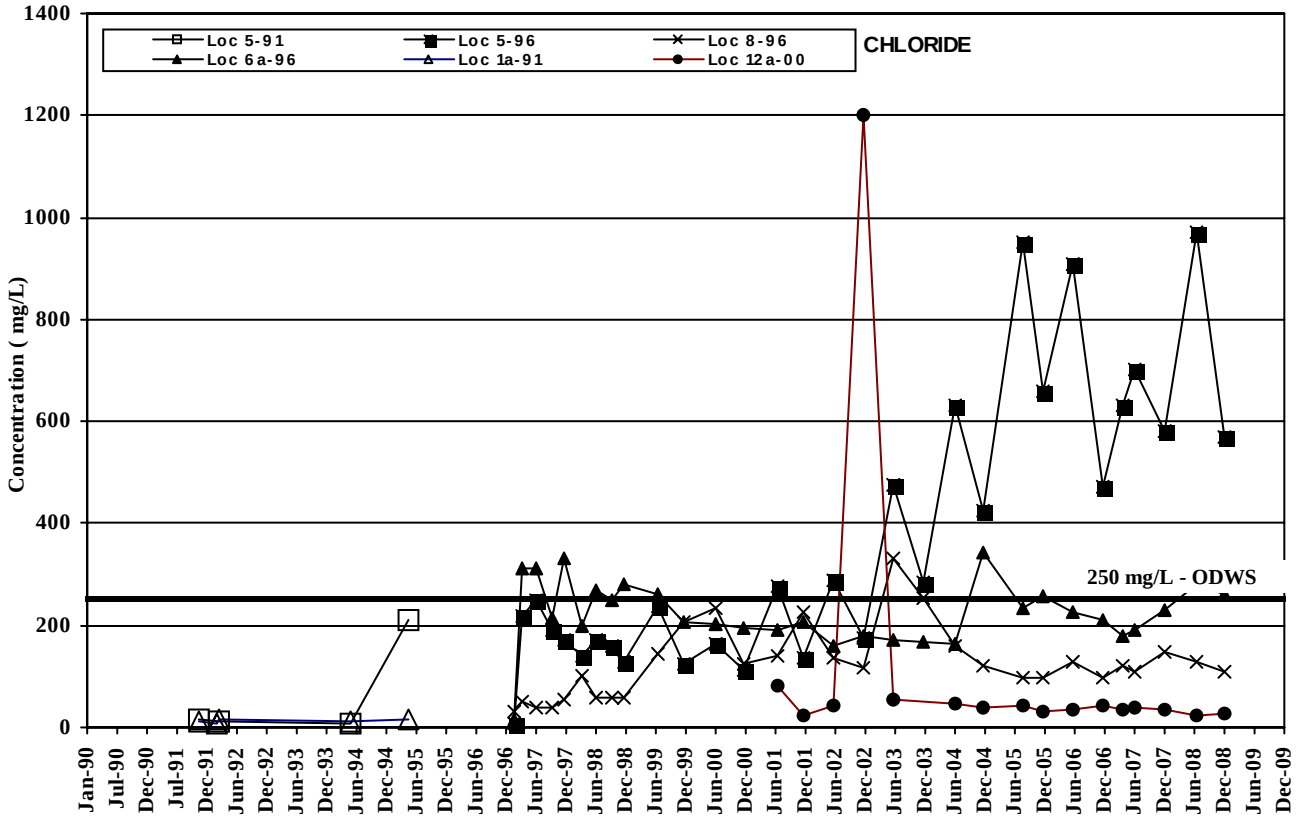
AECOM

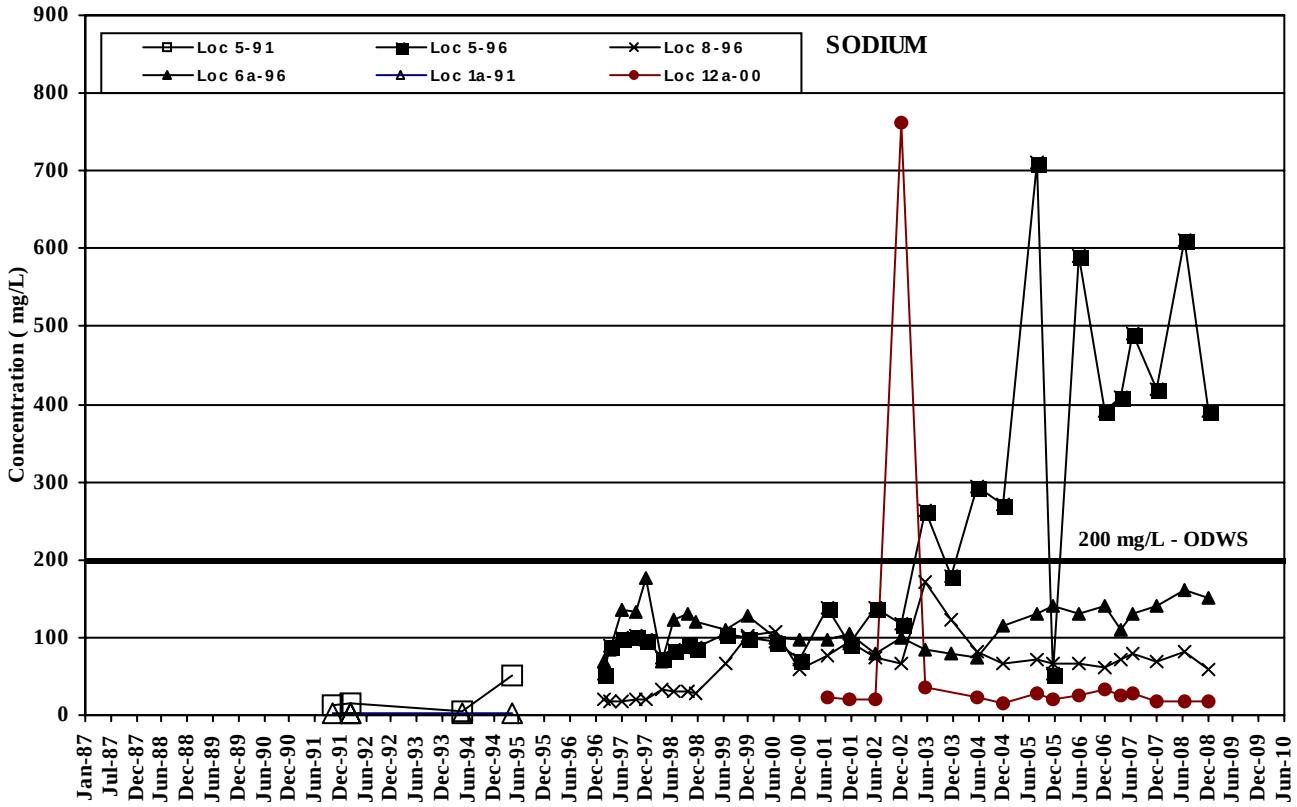
Waste Resource Innovation Centre

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

FIGURE
B2

111409
12 Cl-NA Location EastOB





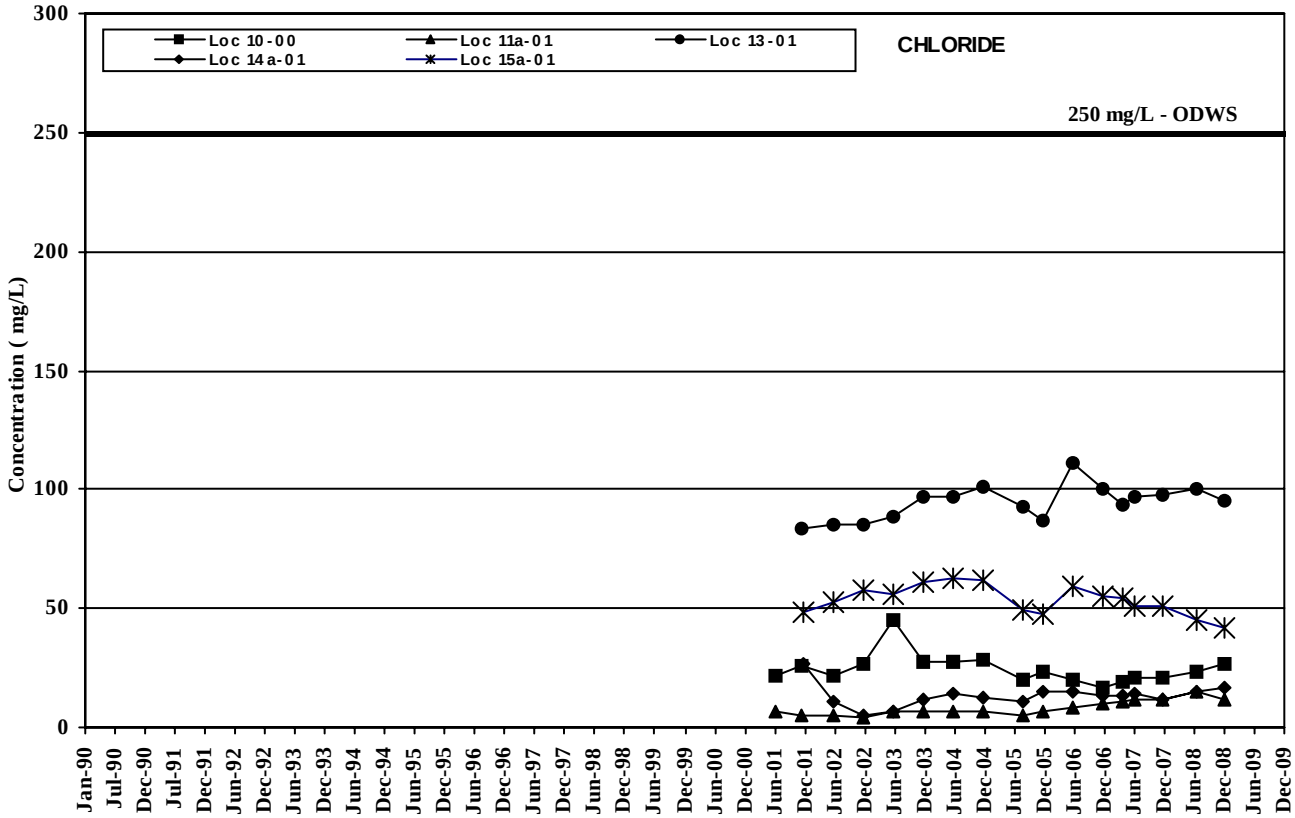
AECOM

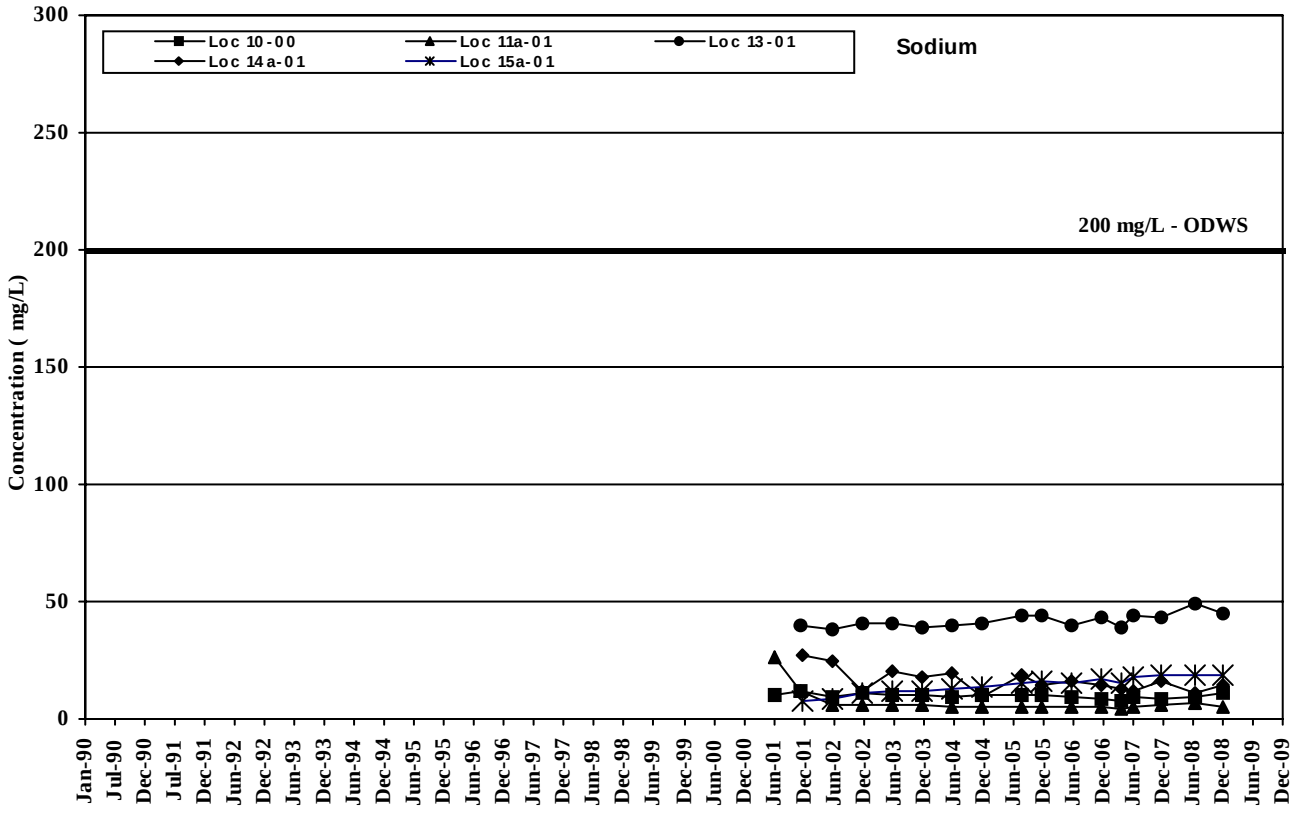
Waste Resource Innovation Centre

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

FIGURE
B3

111409
12 Cl-NA Location WestBed





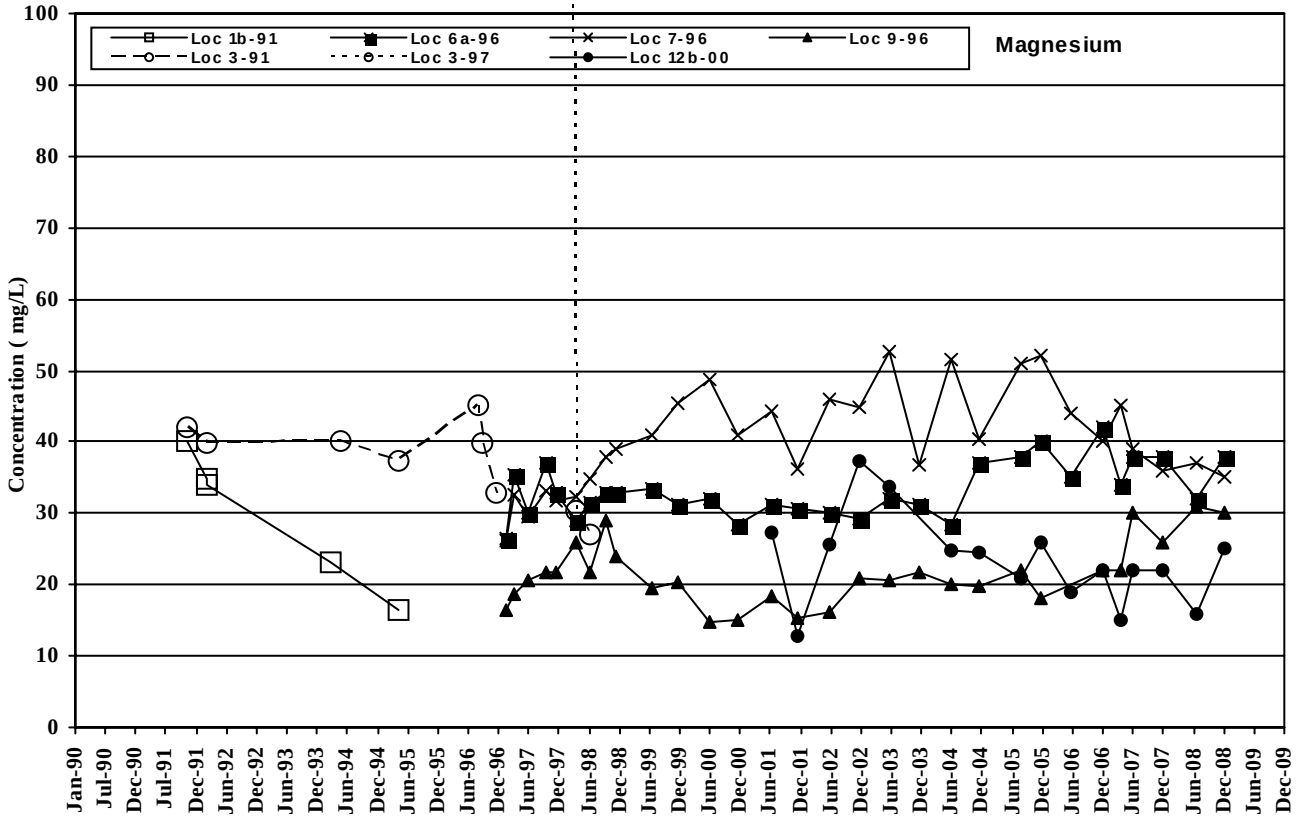
AECOM

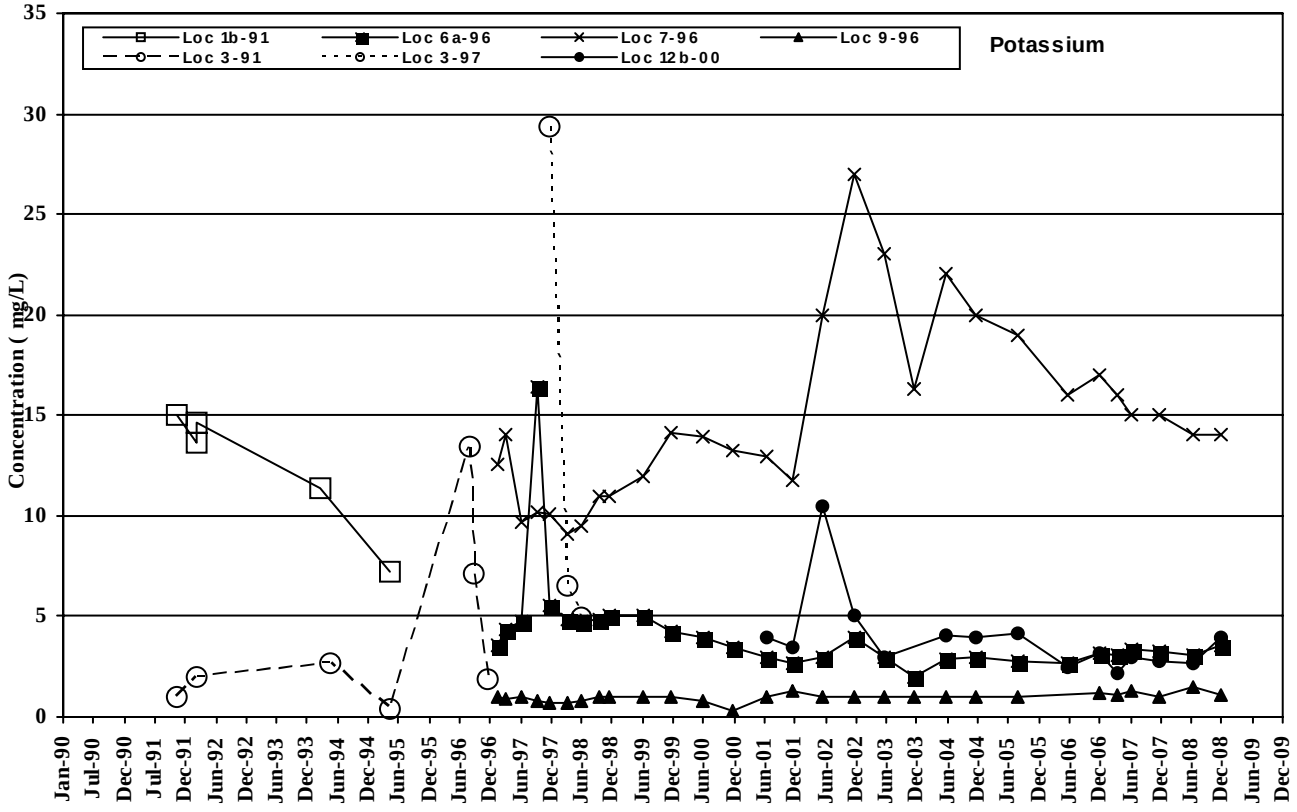
Waste Resource Innovation Centre

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

FIGURE
B4

111409
12 Cl-NA Location EastBed





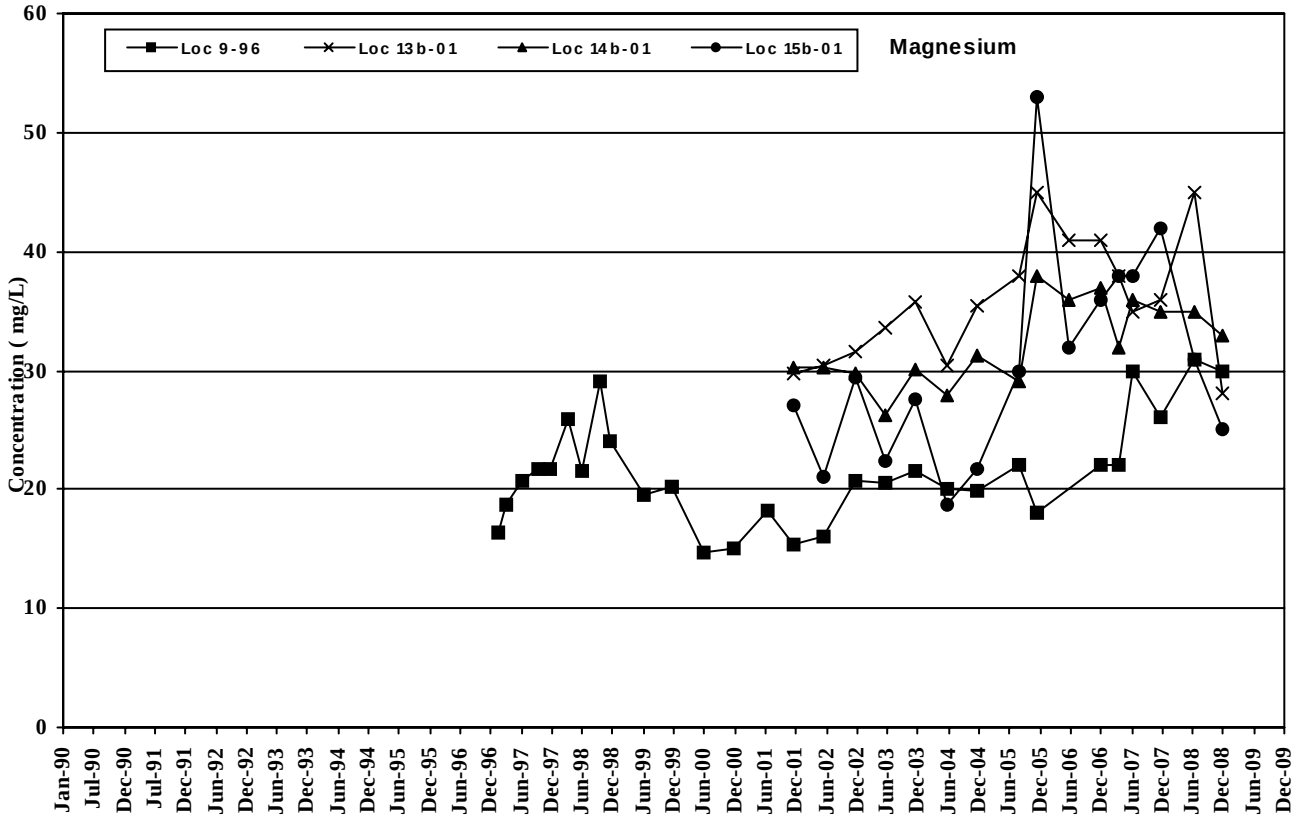
AECOM

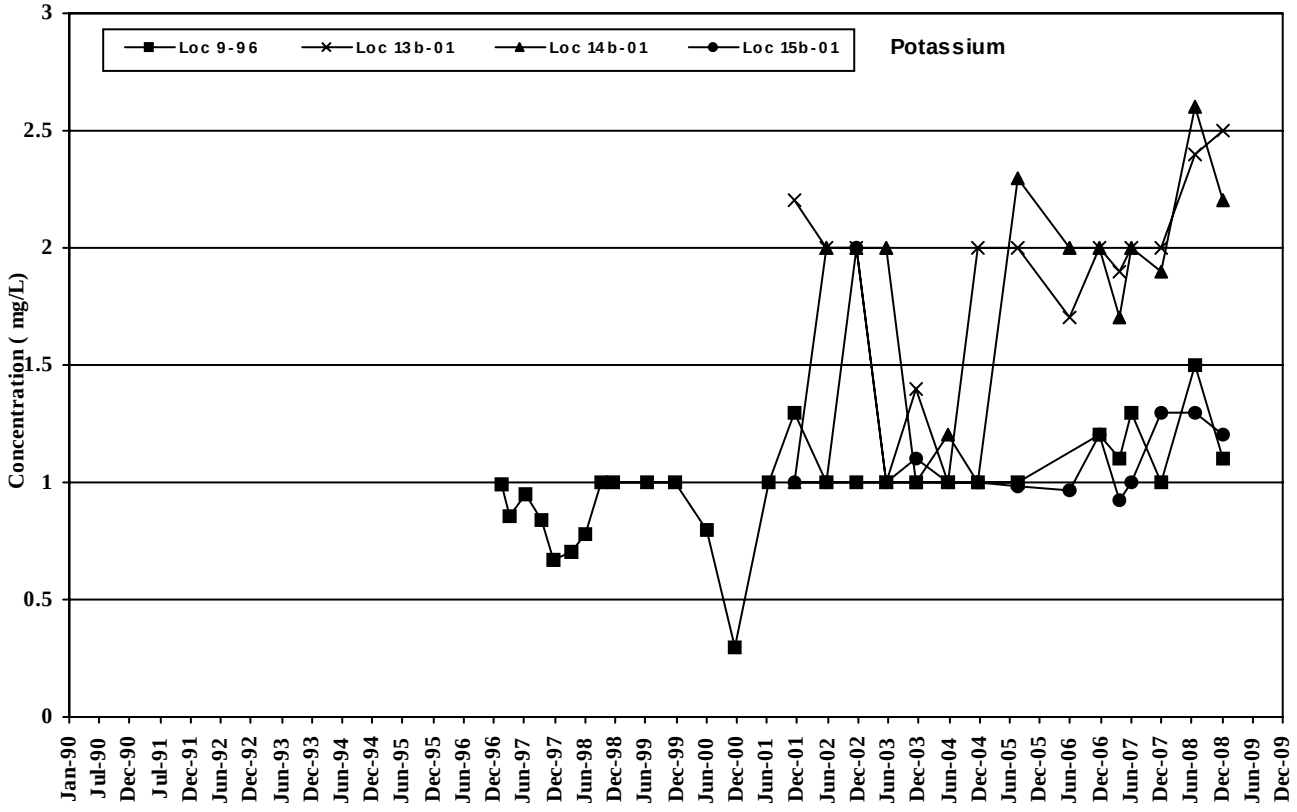
Waste Resource Innovation Centre

Ground Water Chemistry Trends
Overburden Locations on Wet/Dry Facility

FIGURE
B5

111409
12 Mg-K Location WestOB





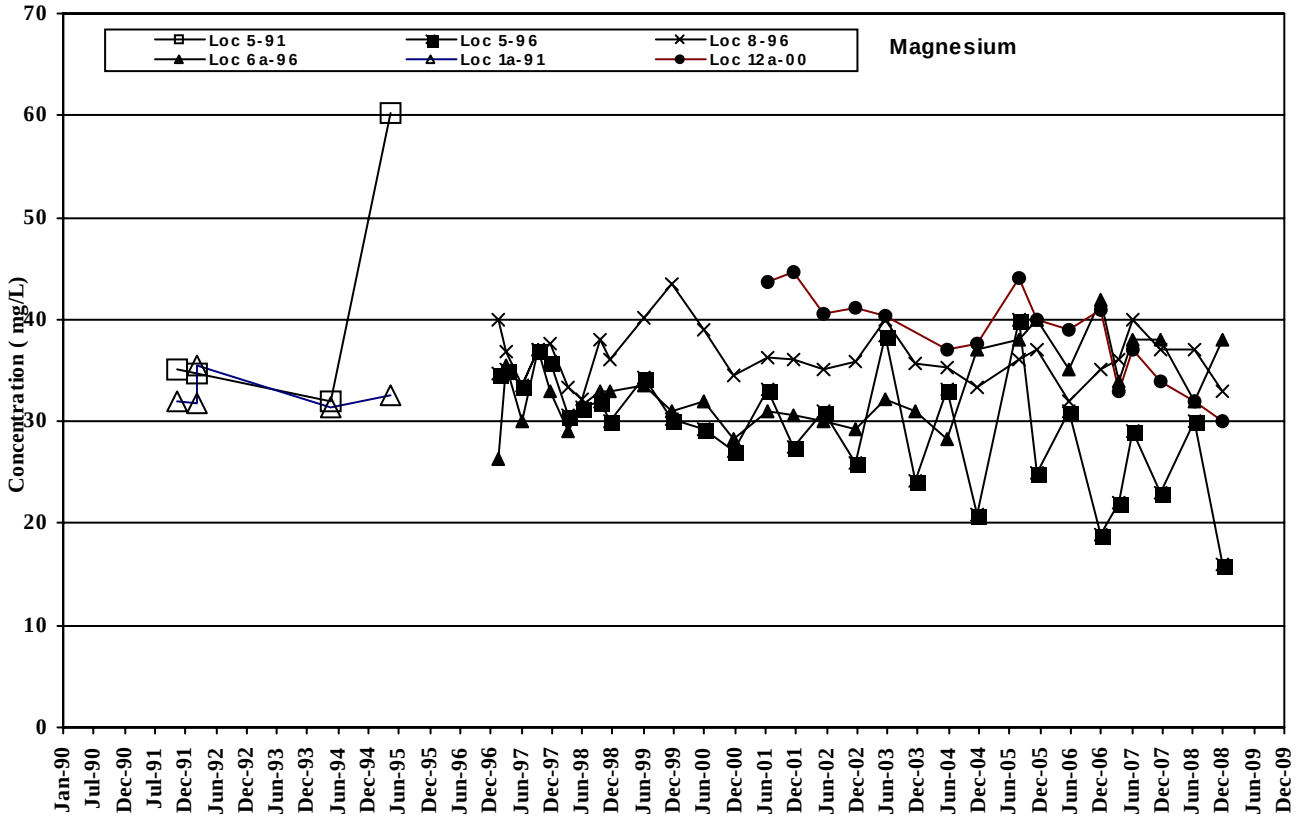
AECOM

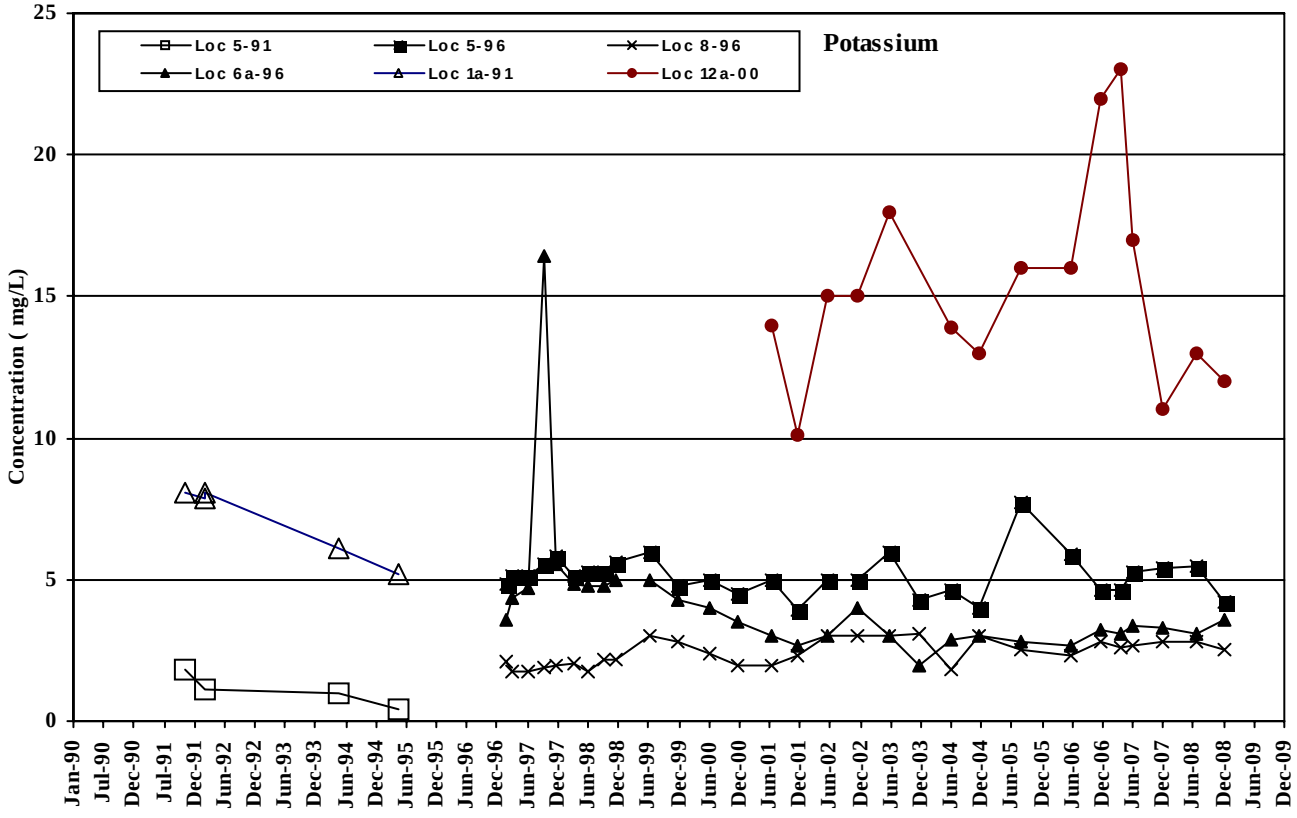
Waste Resource Innovation Centre

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

FIGURE
B6

111409
12 Mg-K Location EastOB





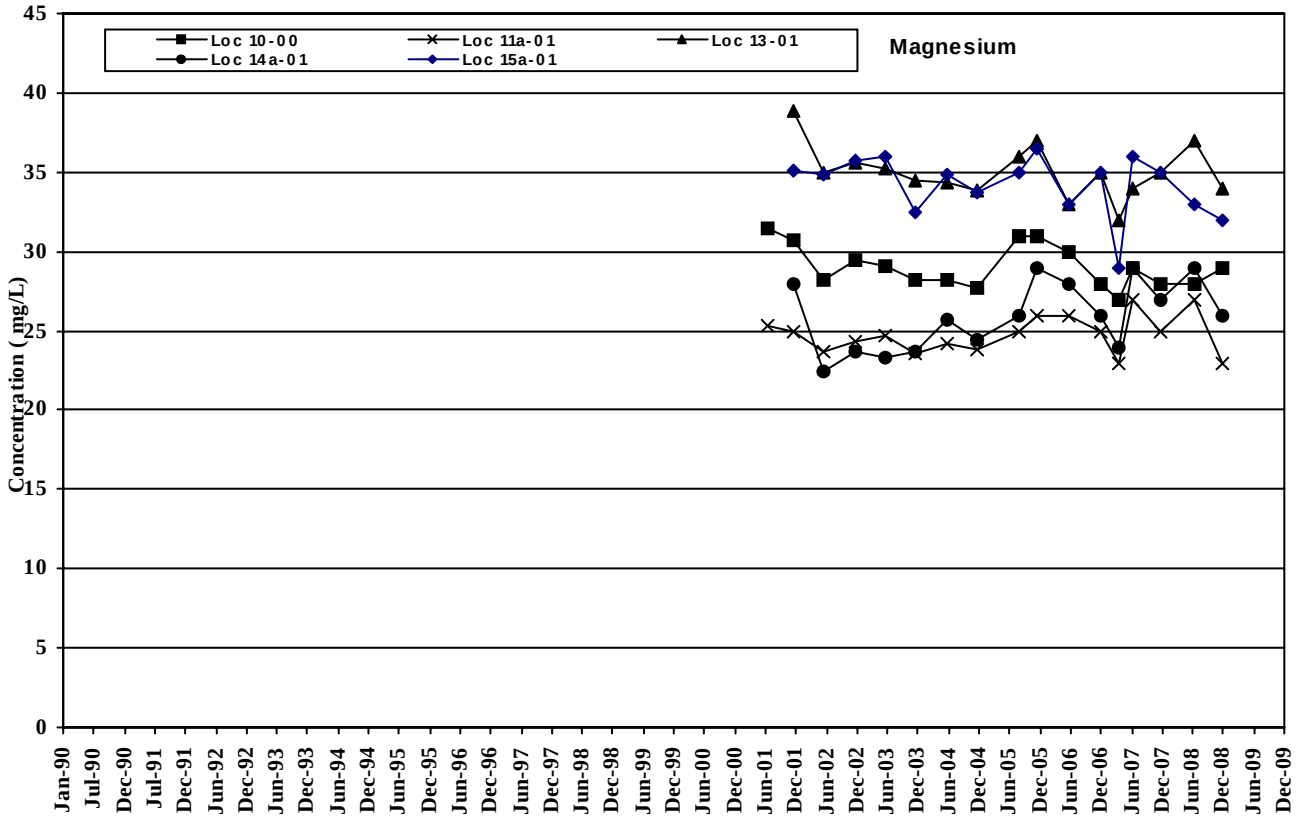
AECOM

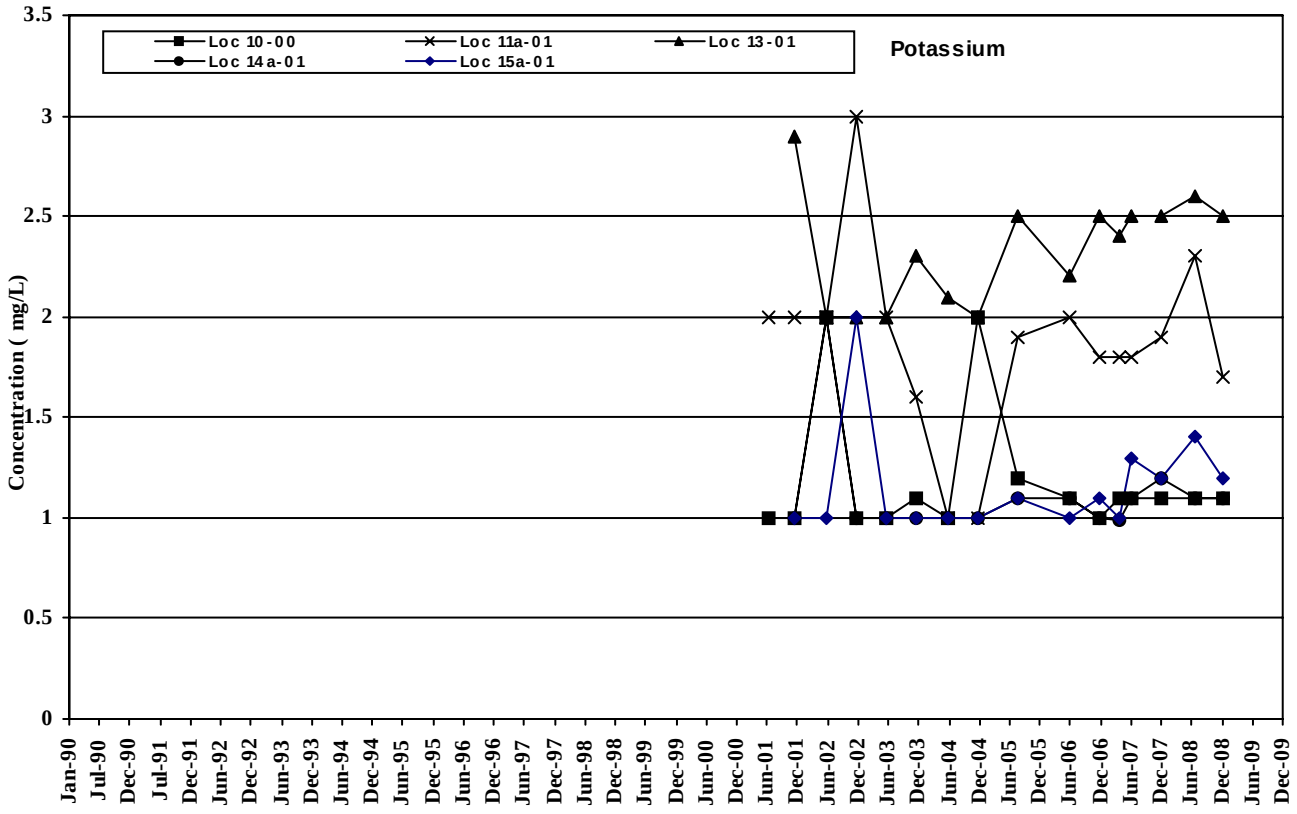
Waste Resource Innovation Centre

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

FIGURE
B7

111409
12 Mg-K Location WestBed





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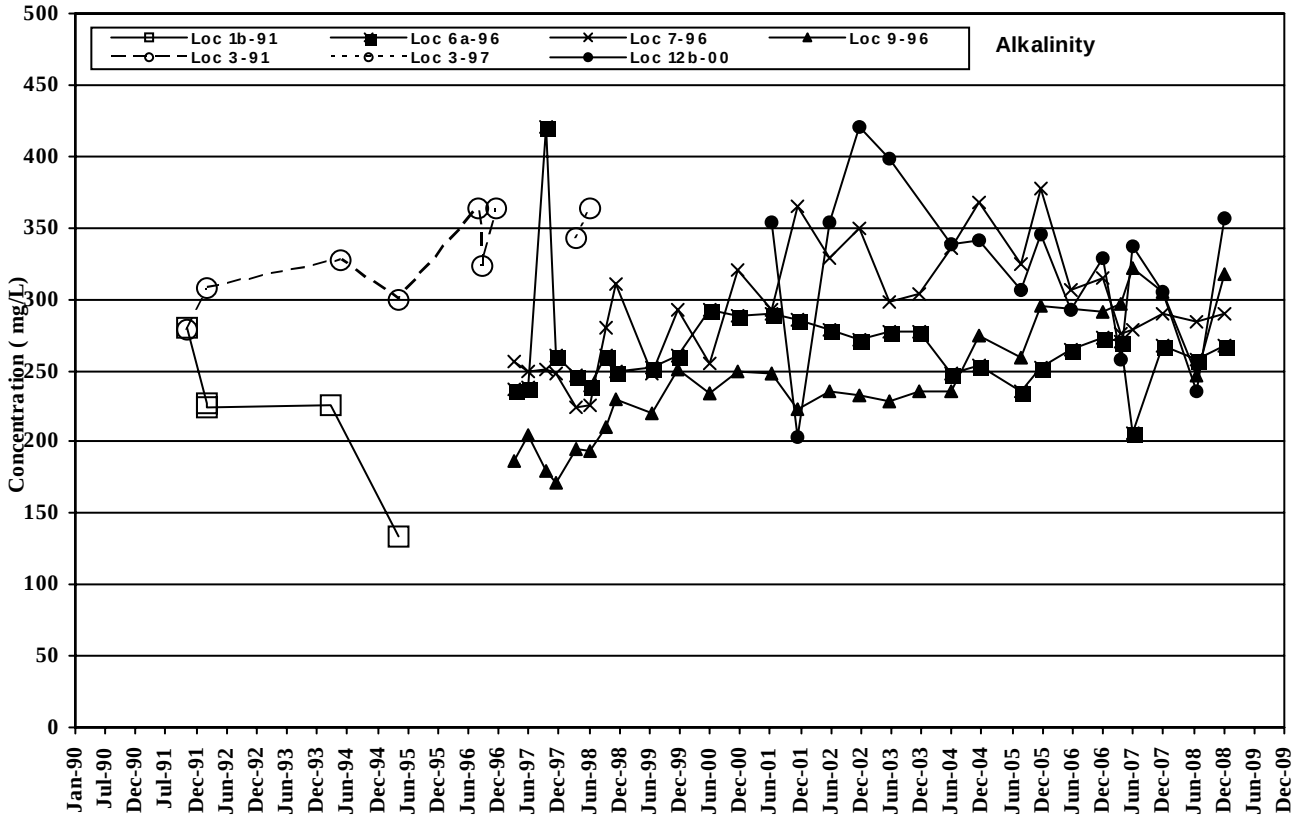
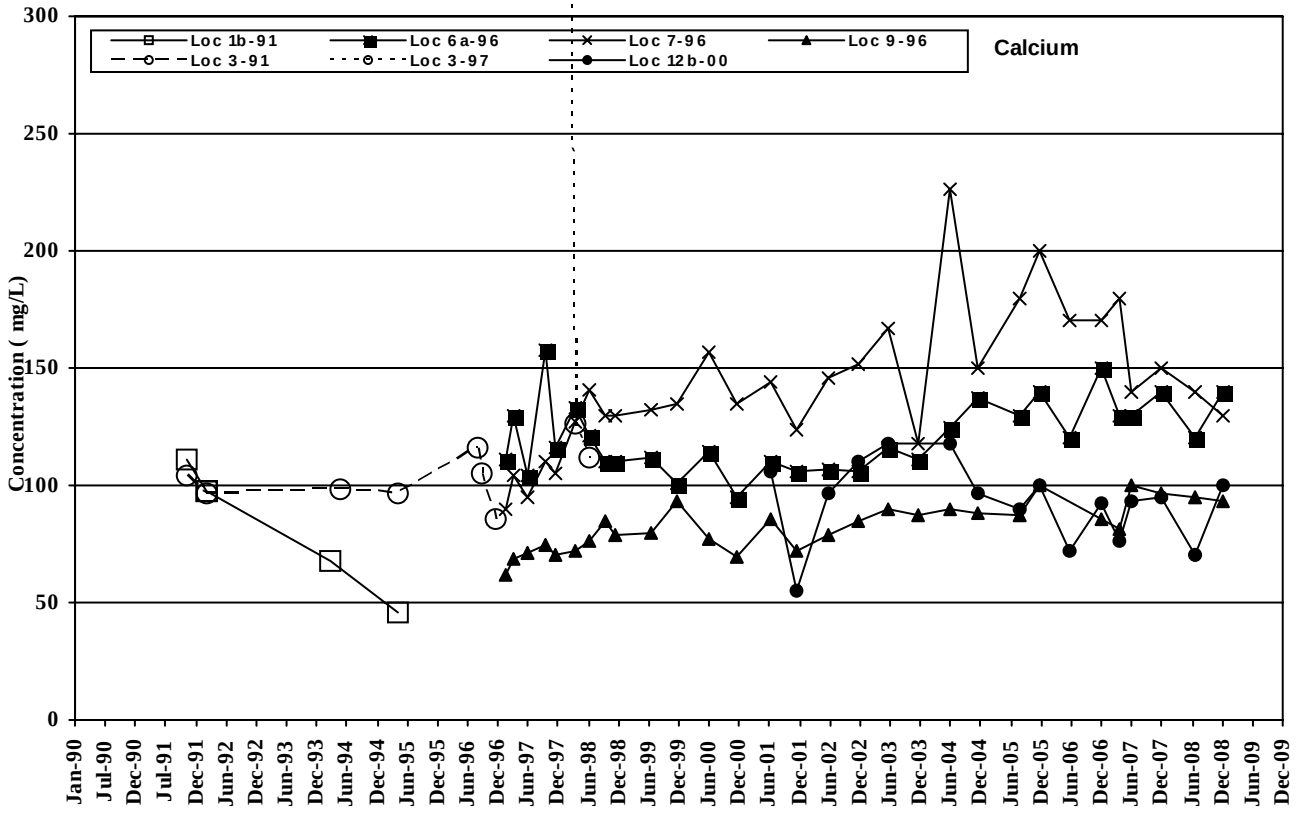
Waste Resource Innovation Centre

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

FIGURE
B8

111409
12 Mg-K Location EastBed





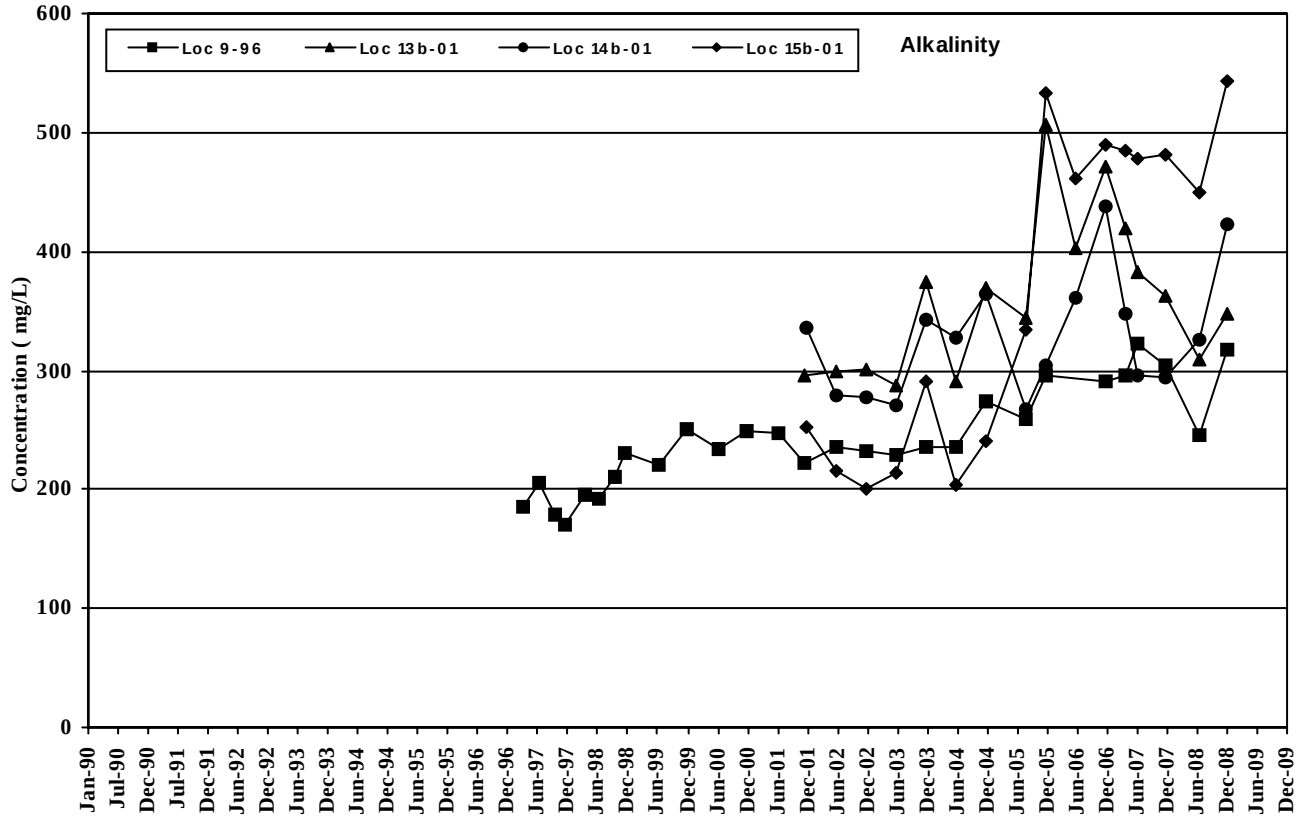
AECOM

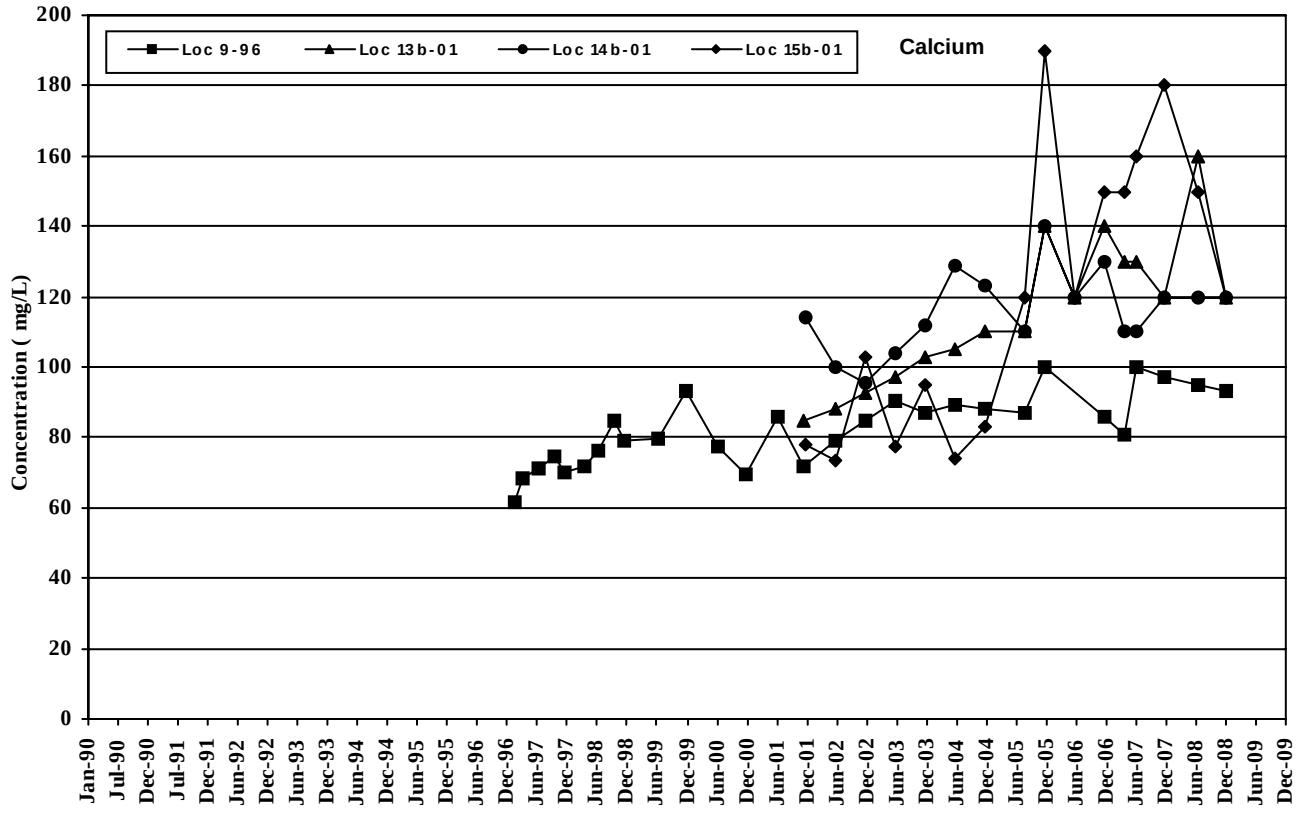
Waste Resource Innovation Centre

Ground Water Chemistry Trends
Overburden Locations on Wet/Dry Facility

FIGURE
B9

111409
12 Alk-Ca Location WestOB





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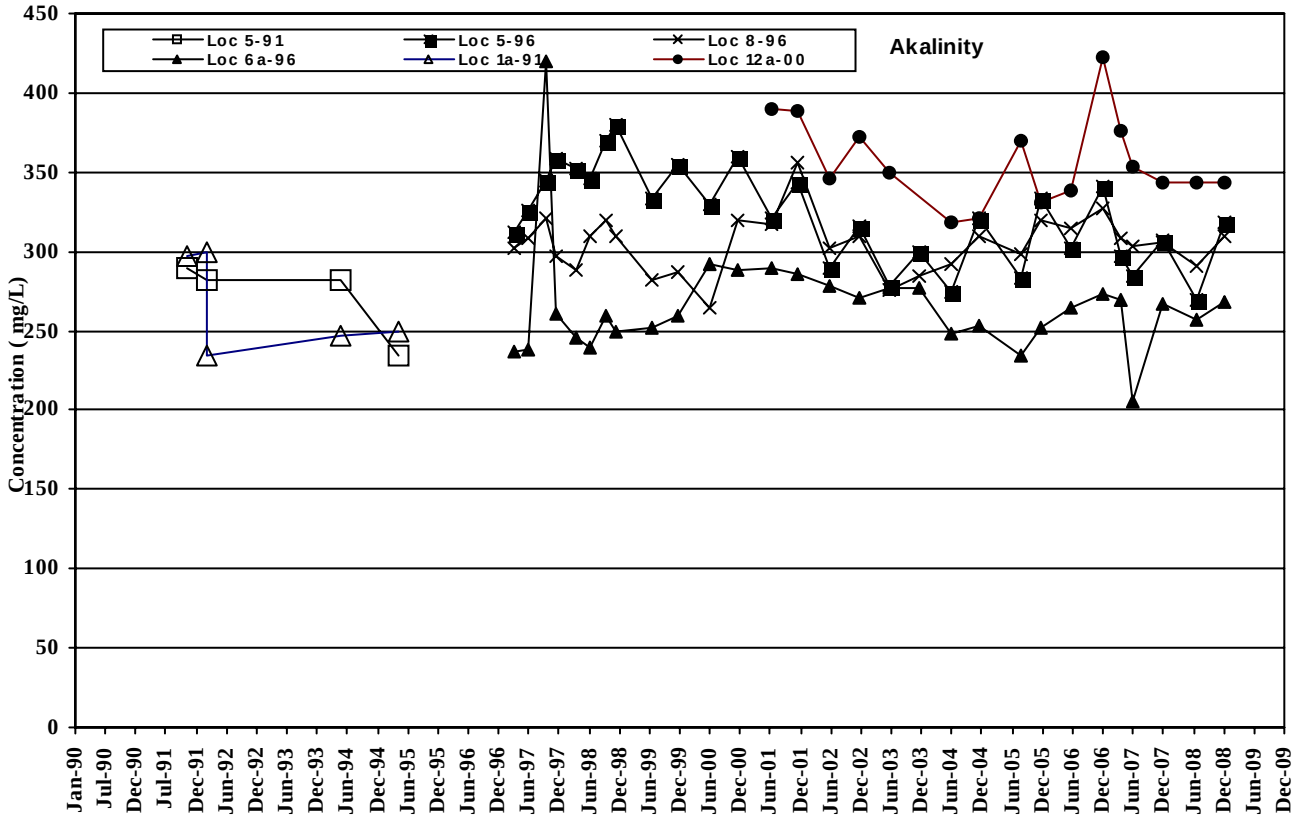
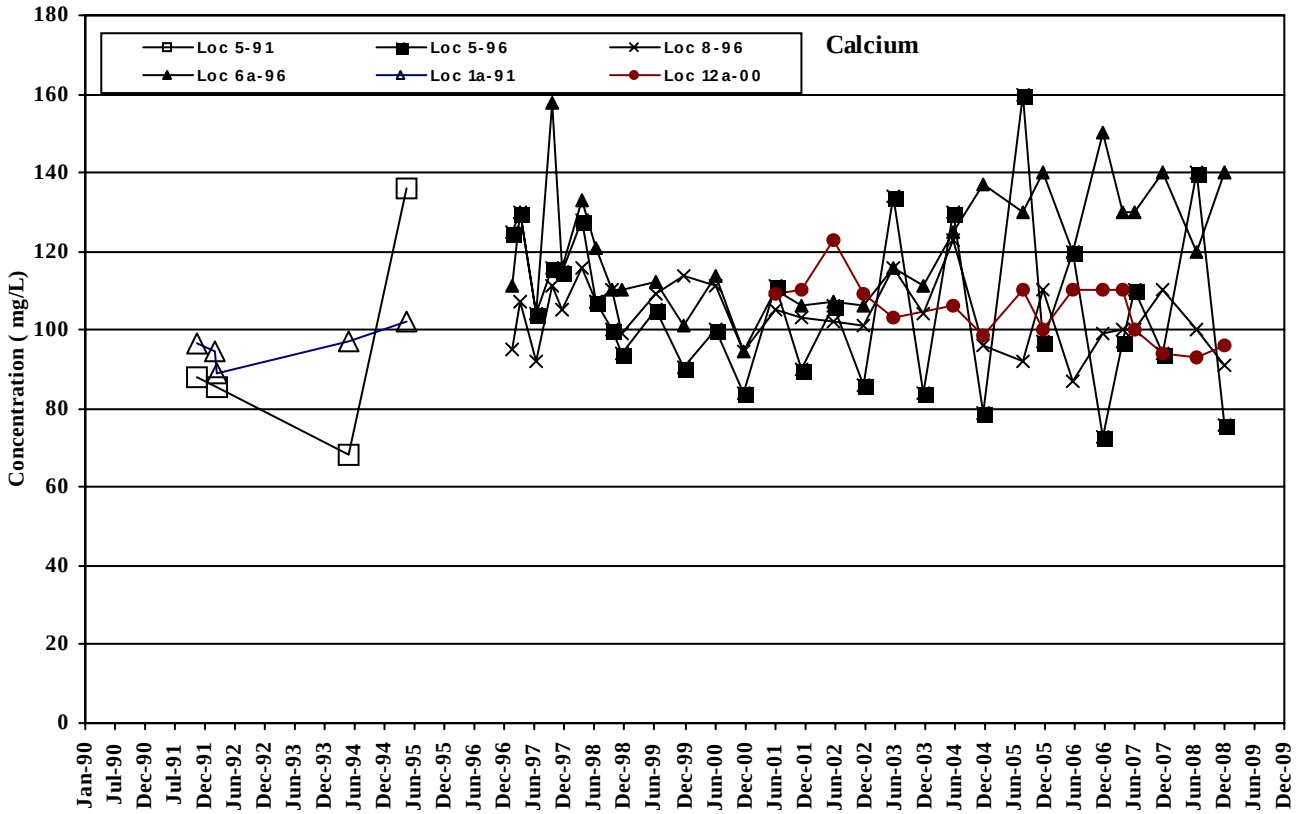
Waste Resource Innovation Centre

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

FIGURE
B10

111409
12 Alk-Ca Location EastOB





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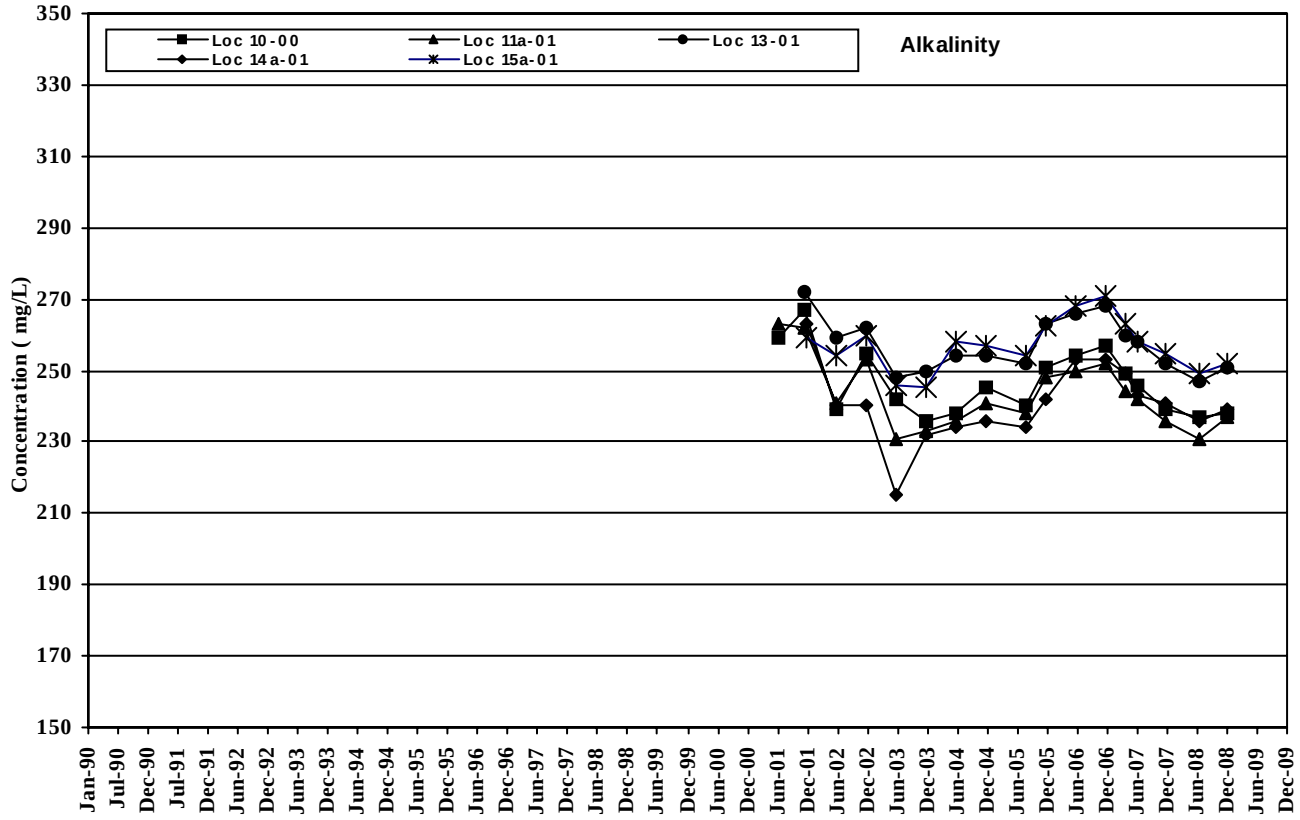
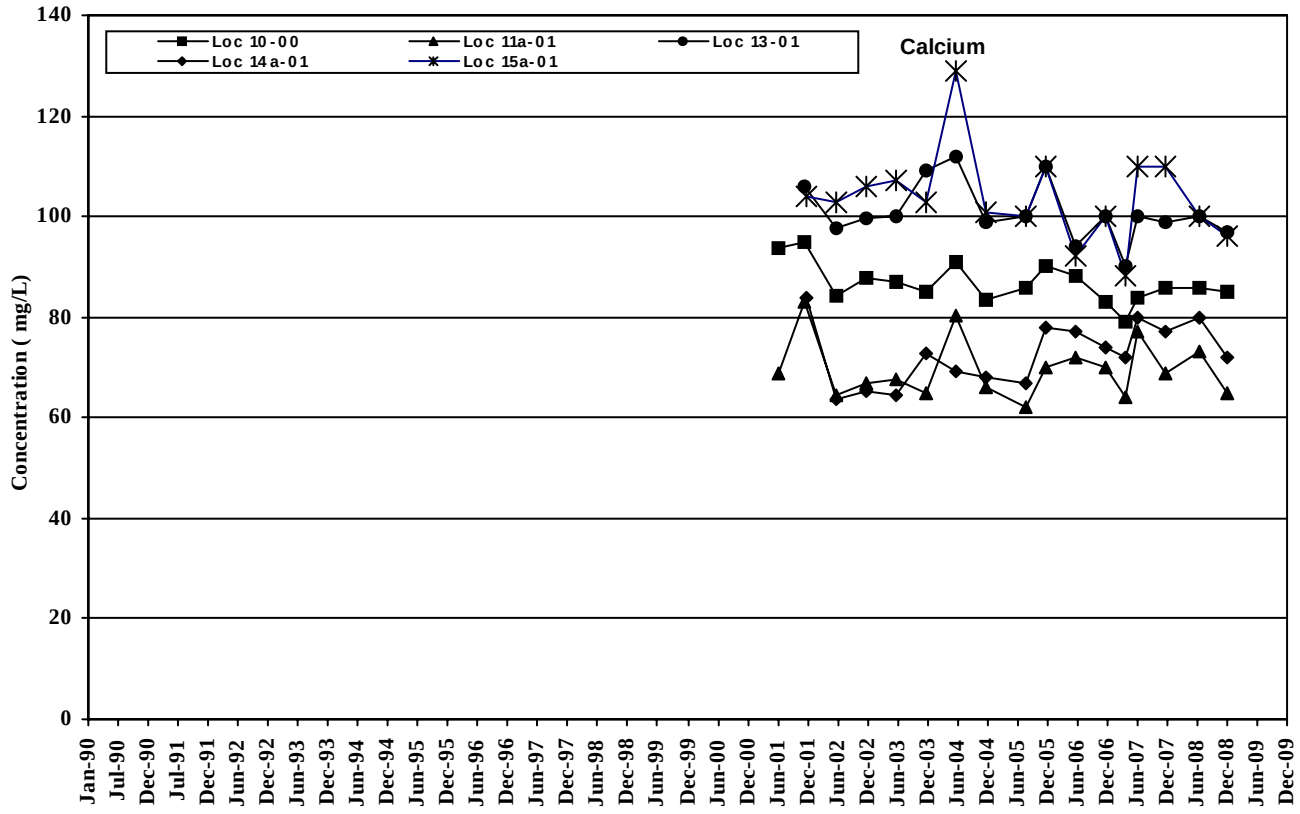
Waste Resource Innovation Centre

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

FIGURE
B11

111409
12 Alk-Ca Location WestBed





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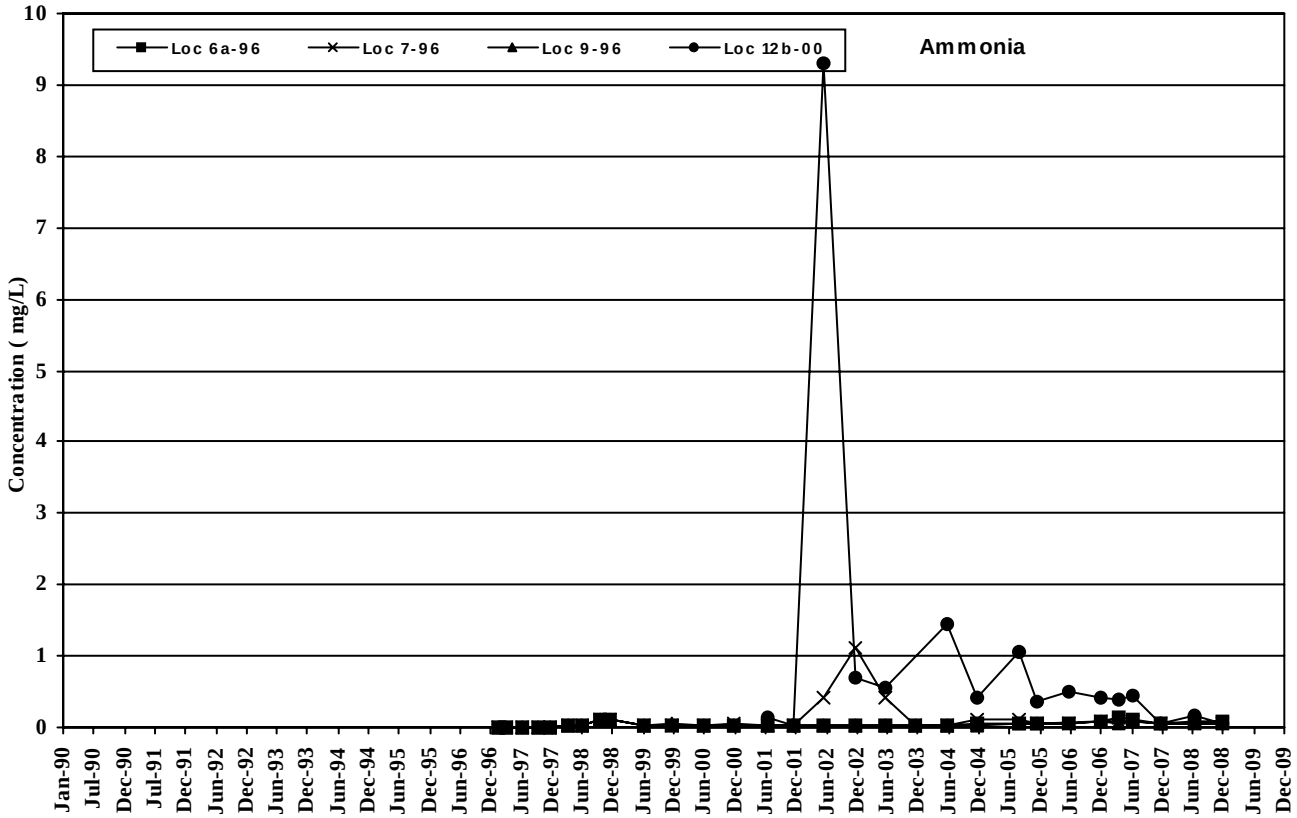
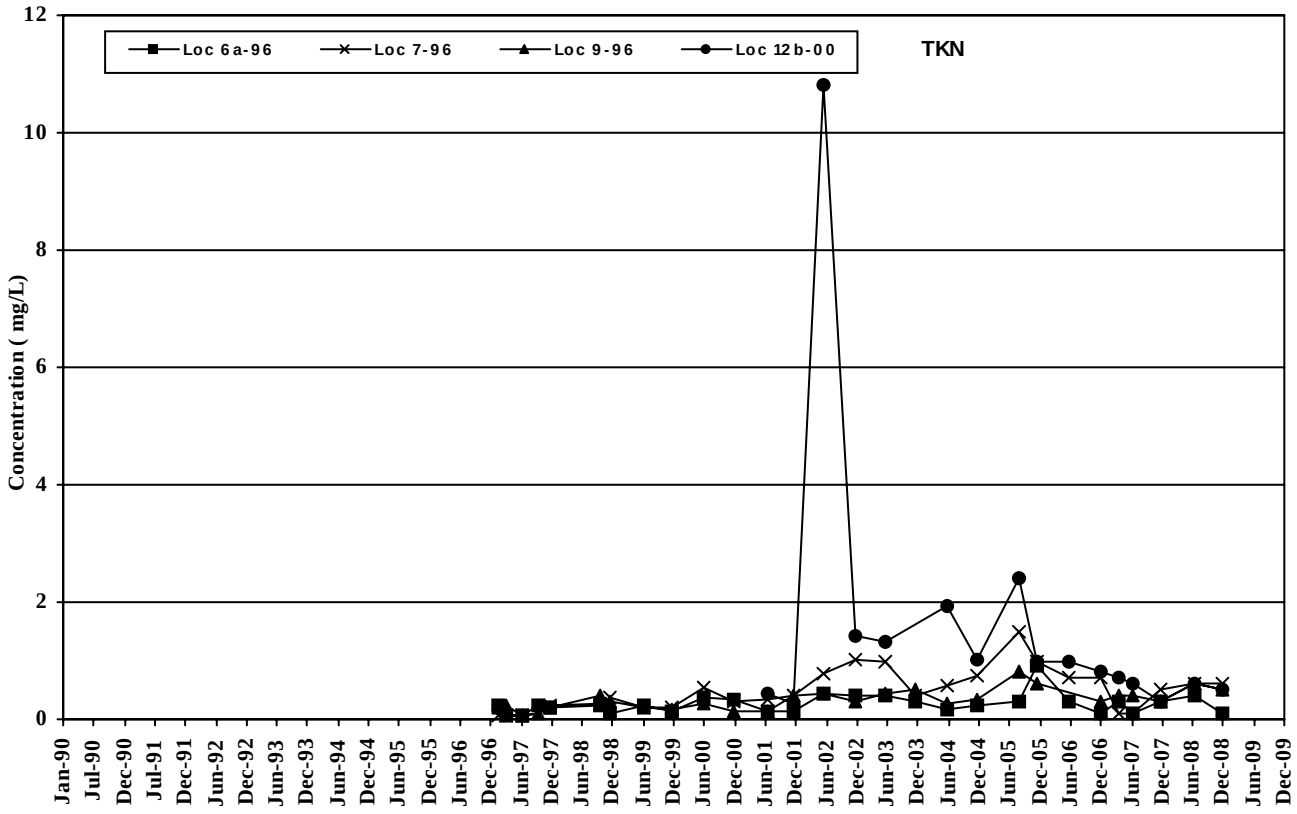
Waste Resource Innovation Centre

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

FIGURE
B12

111409
12 Alk-Ca Location EastBed





AECOM

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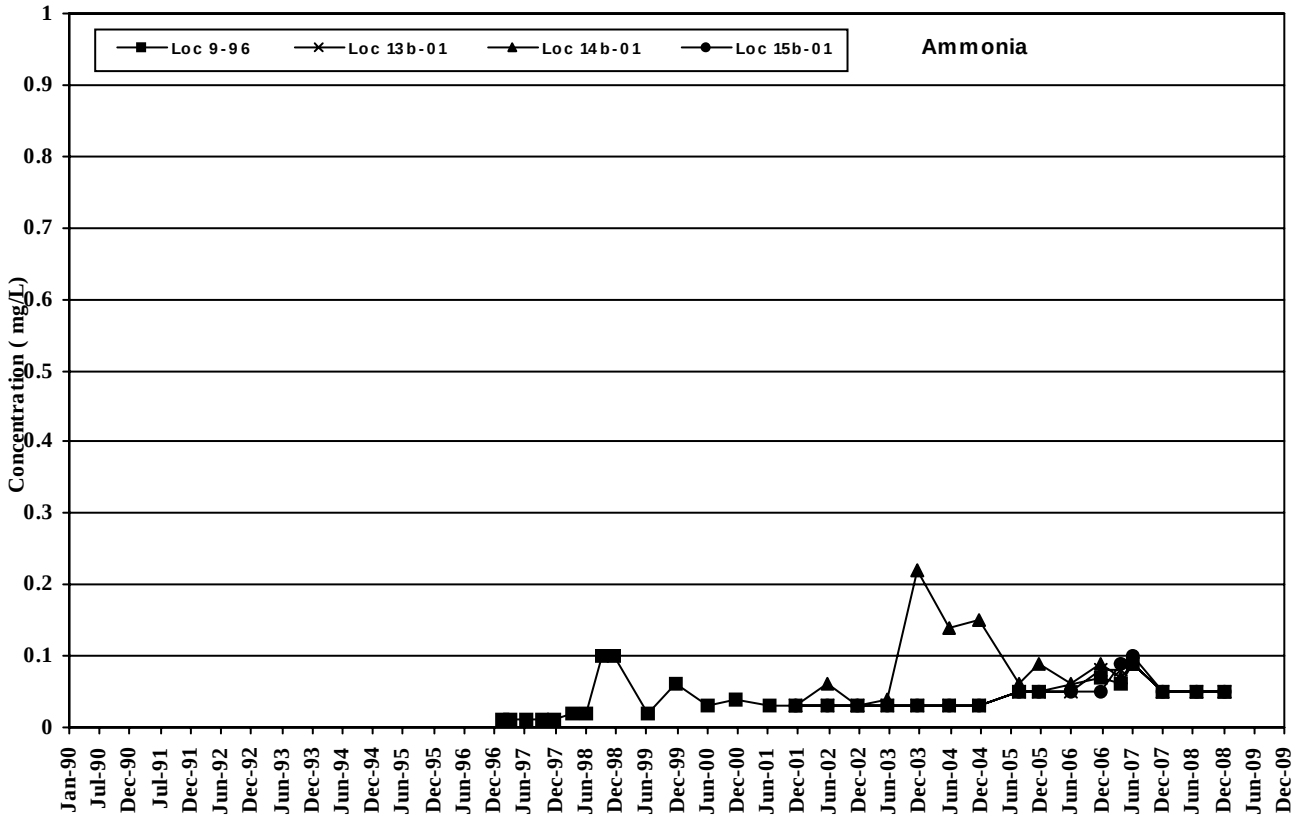
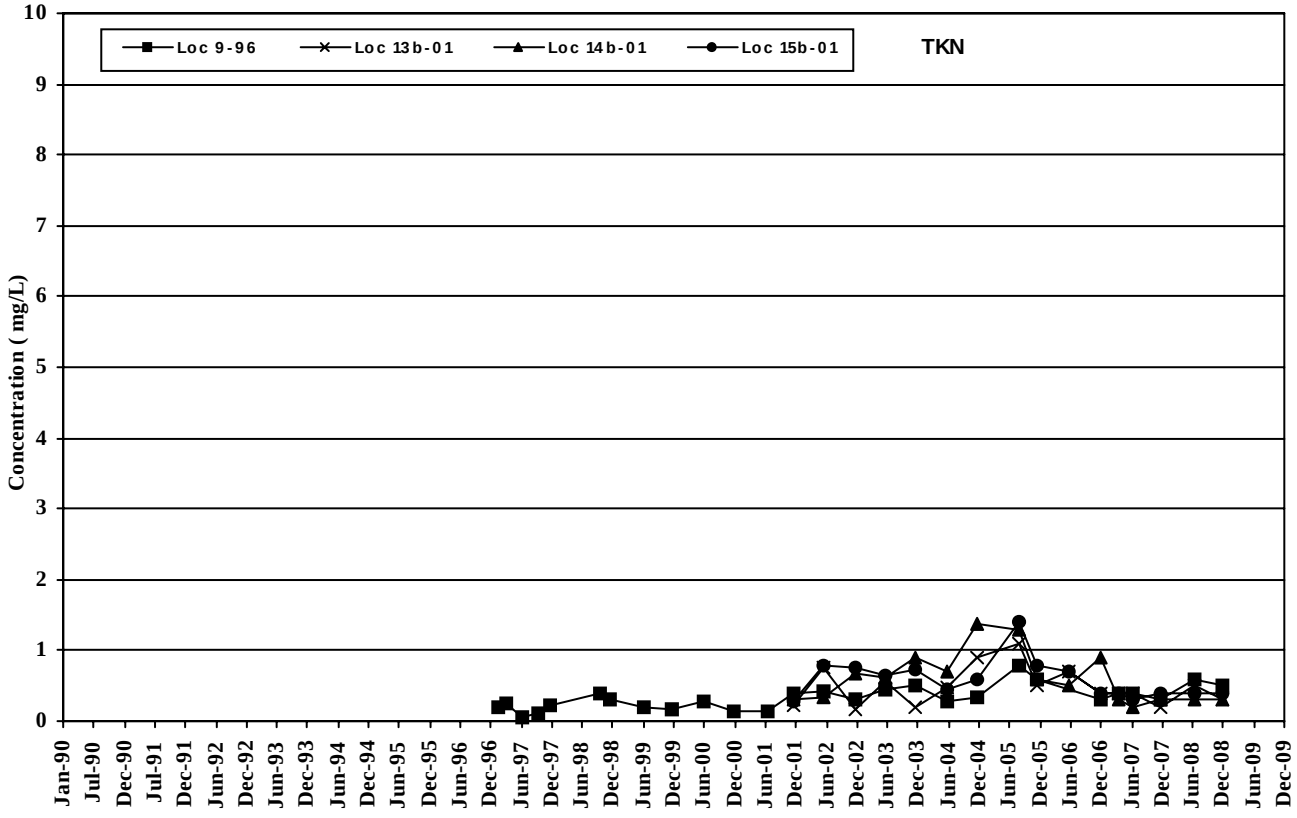
Ground Water Chemistry Trends
Overburden Locations on Wet/Dry Facility

FIGURE
B13

#Error
12 NH3-TKN Location WestOB





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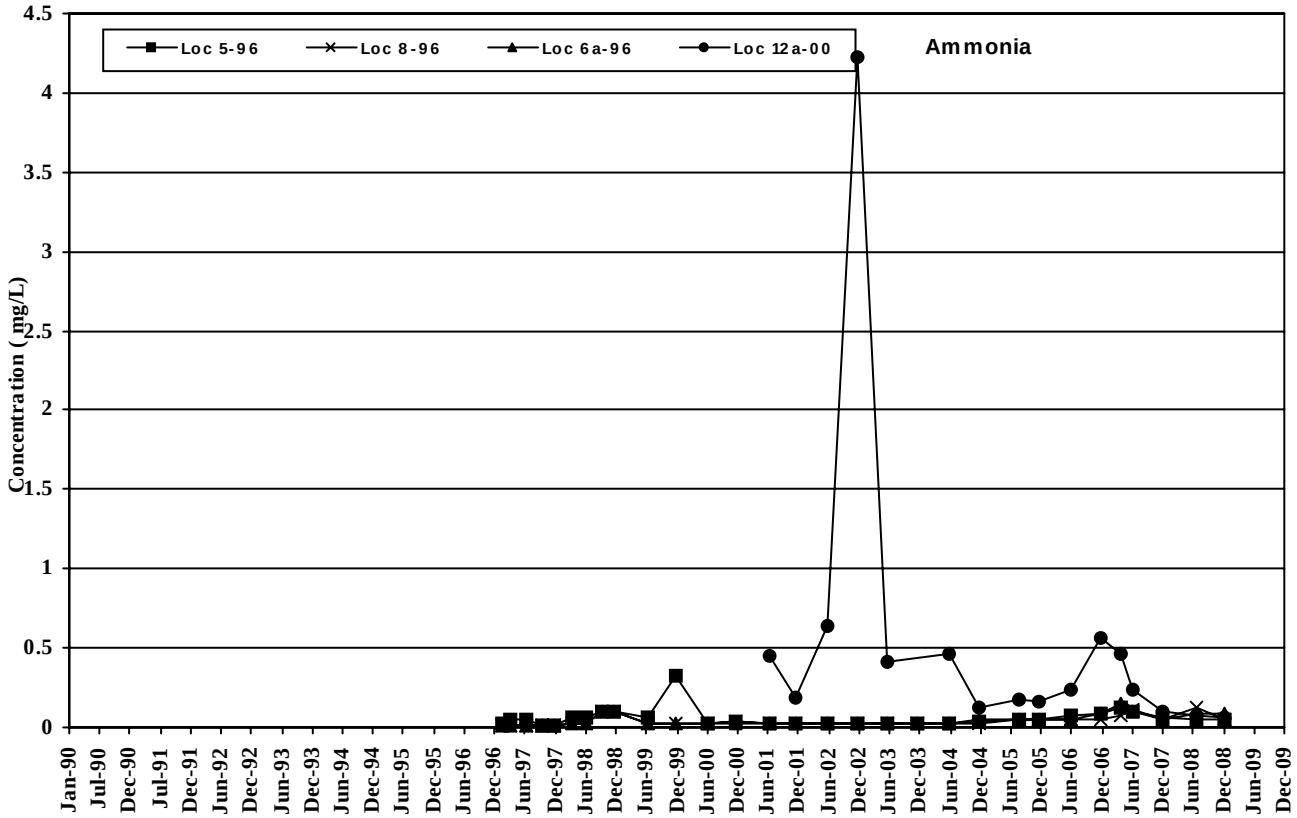
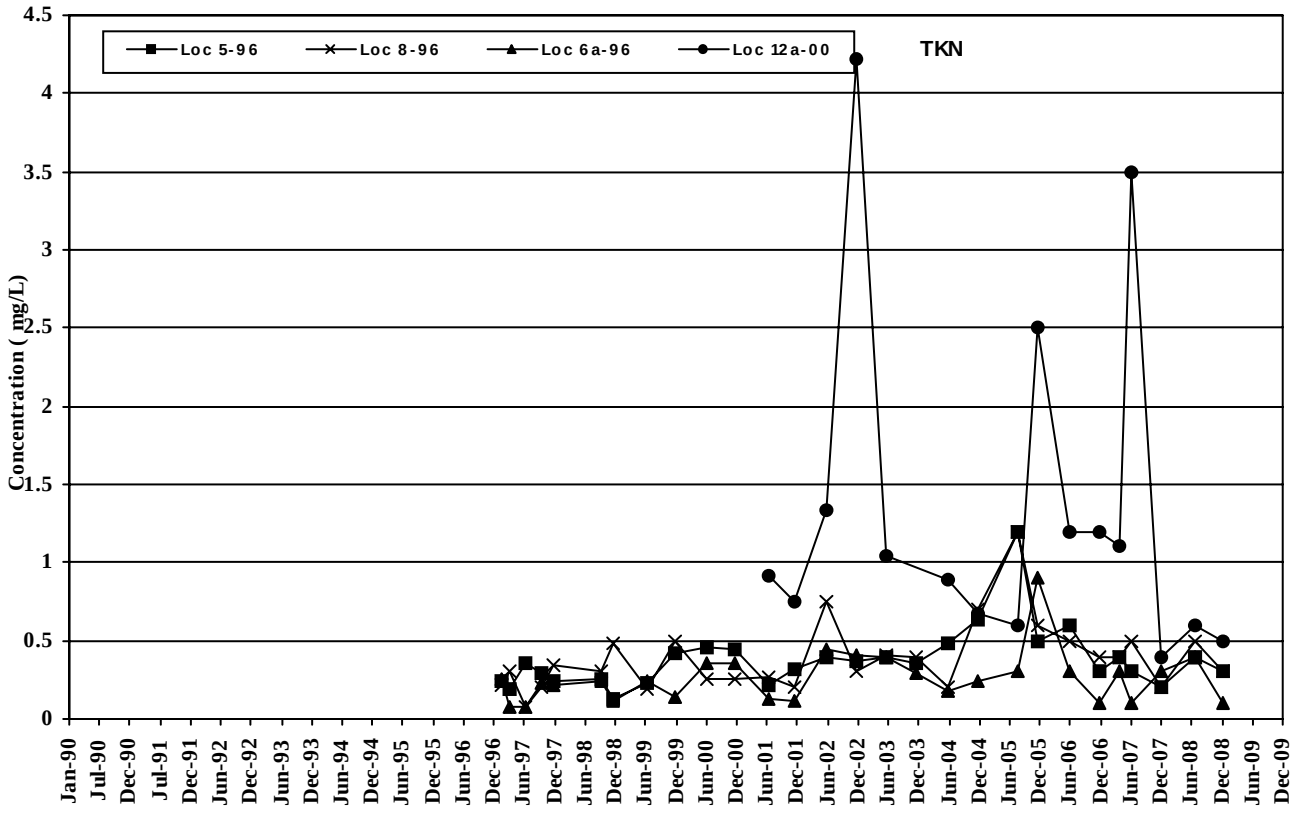
Waste Resource Innovation Centre

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

FIGURE
B14

111409
12 NH3-TKN Location EasttOB





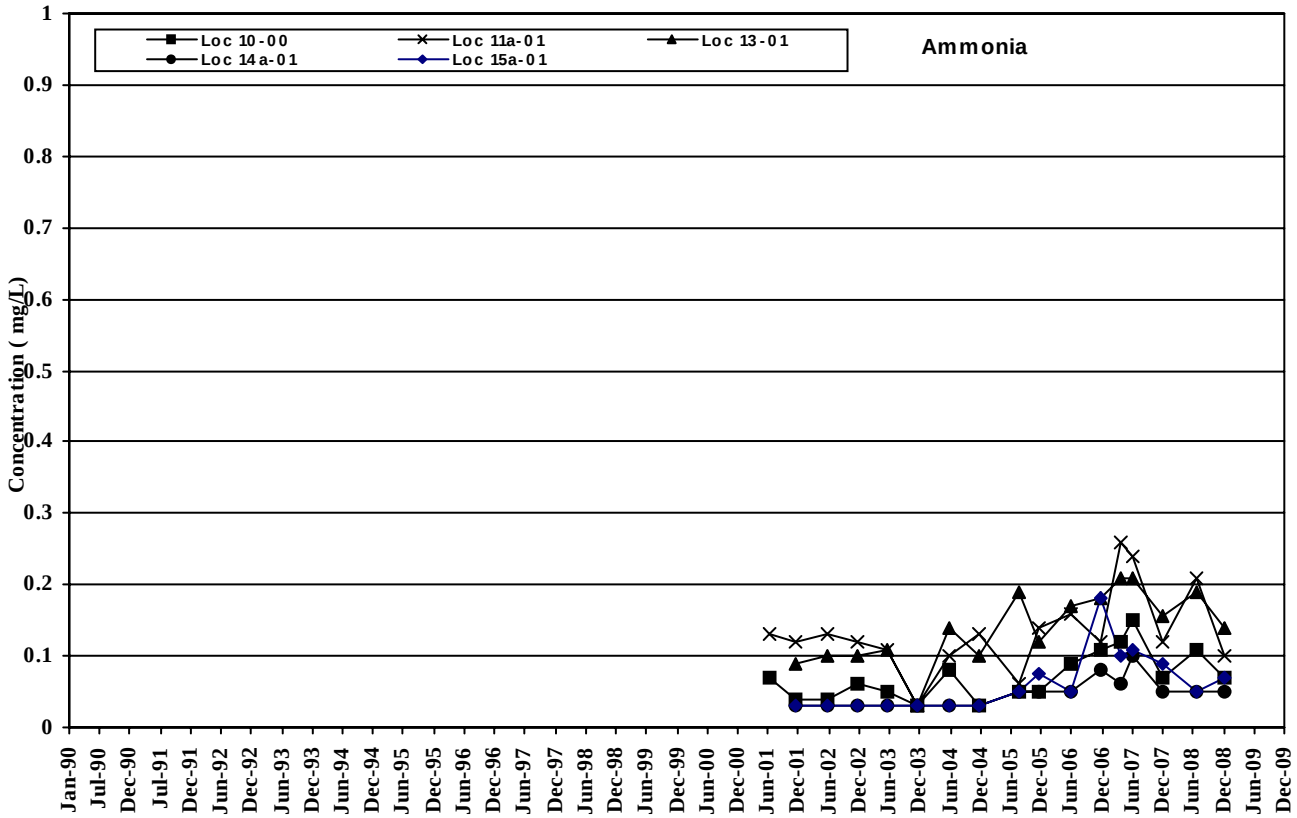
AECOM

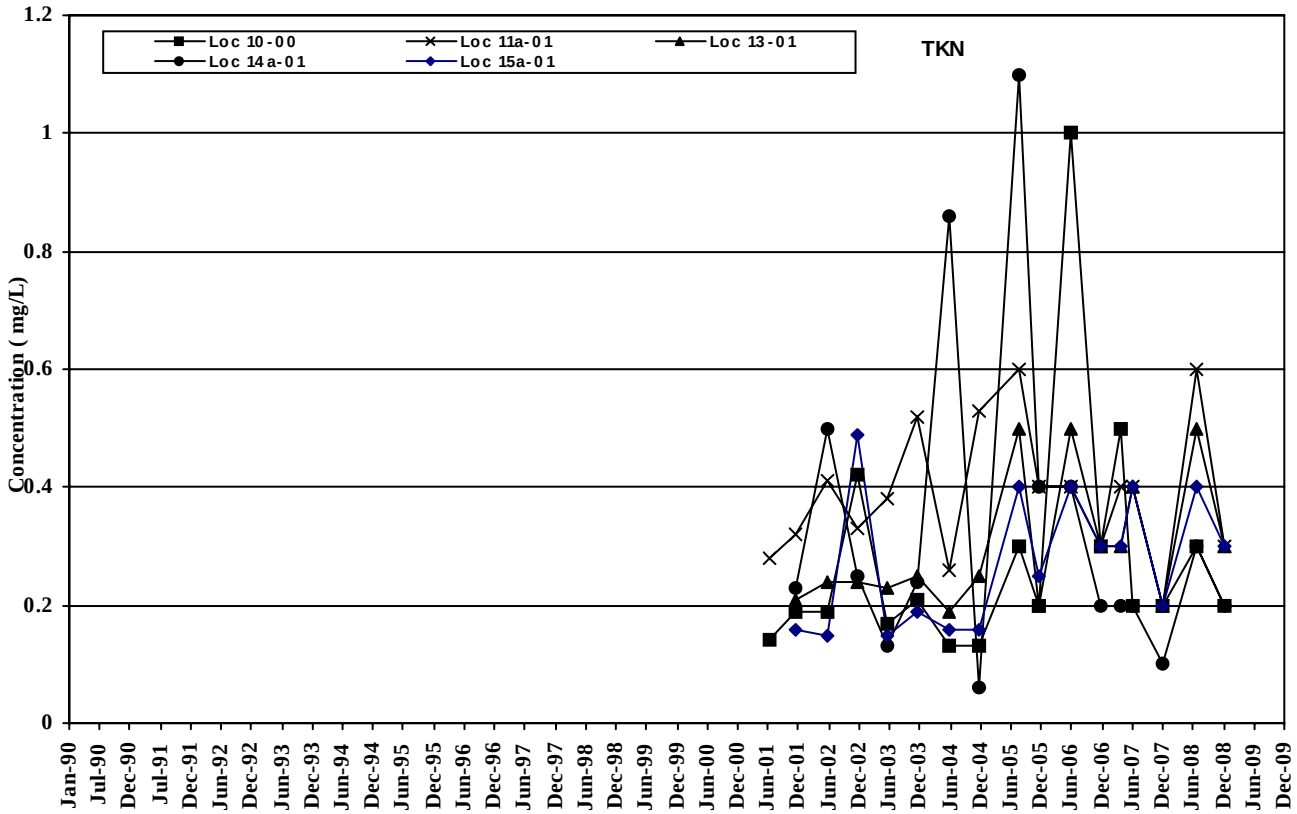
Waste Resource Innovation Centre

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

FIGURE
B15

111409
12 NH3-TKN Location WestBed





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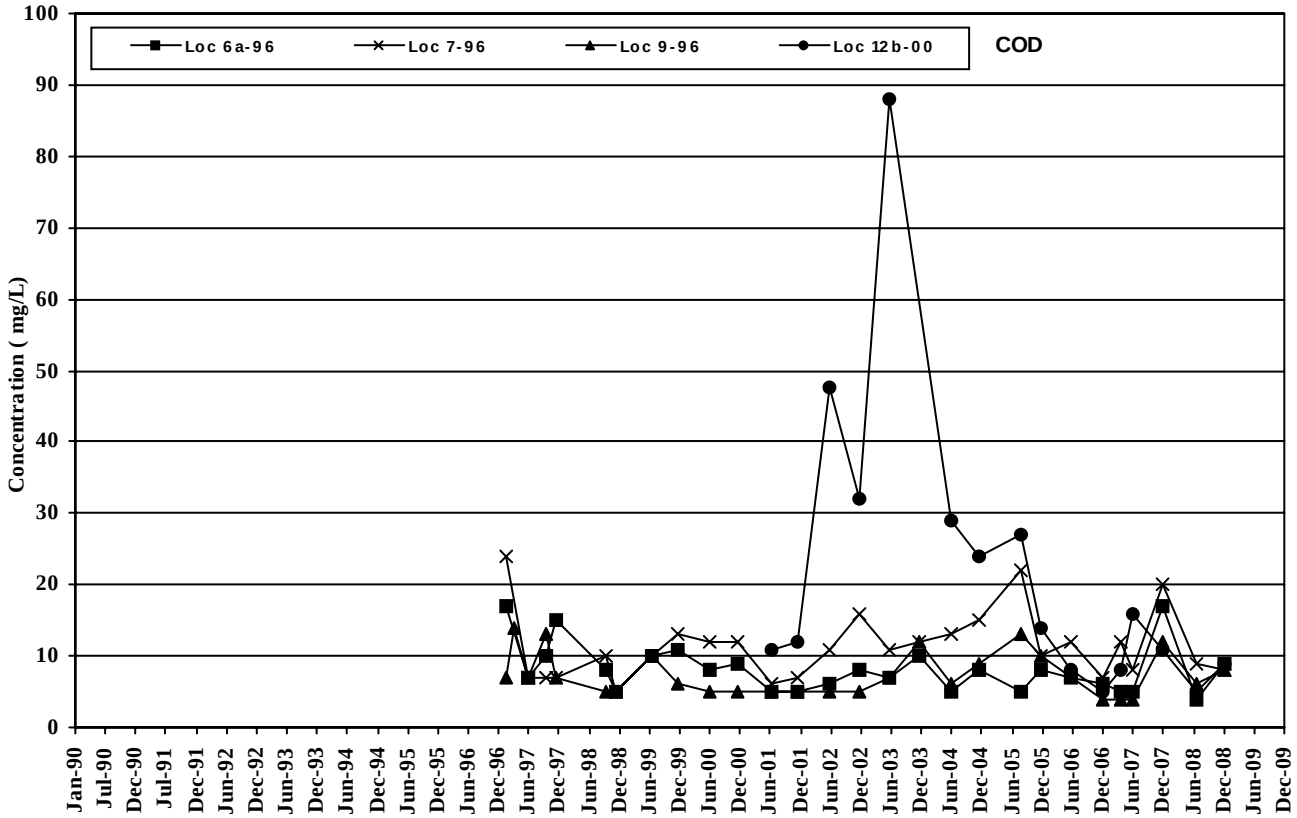
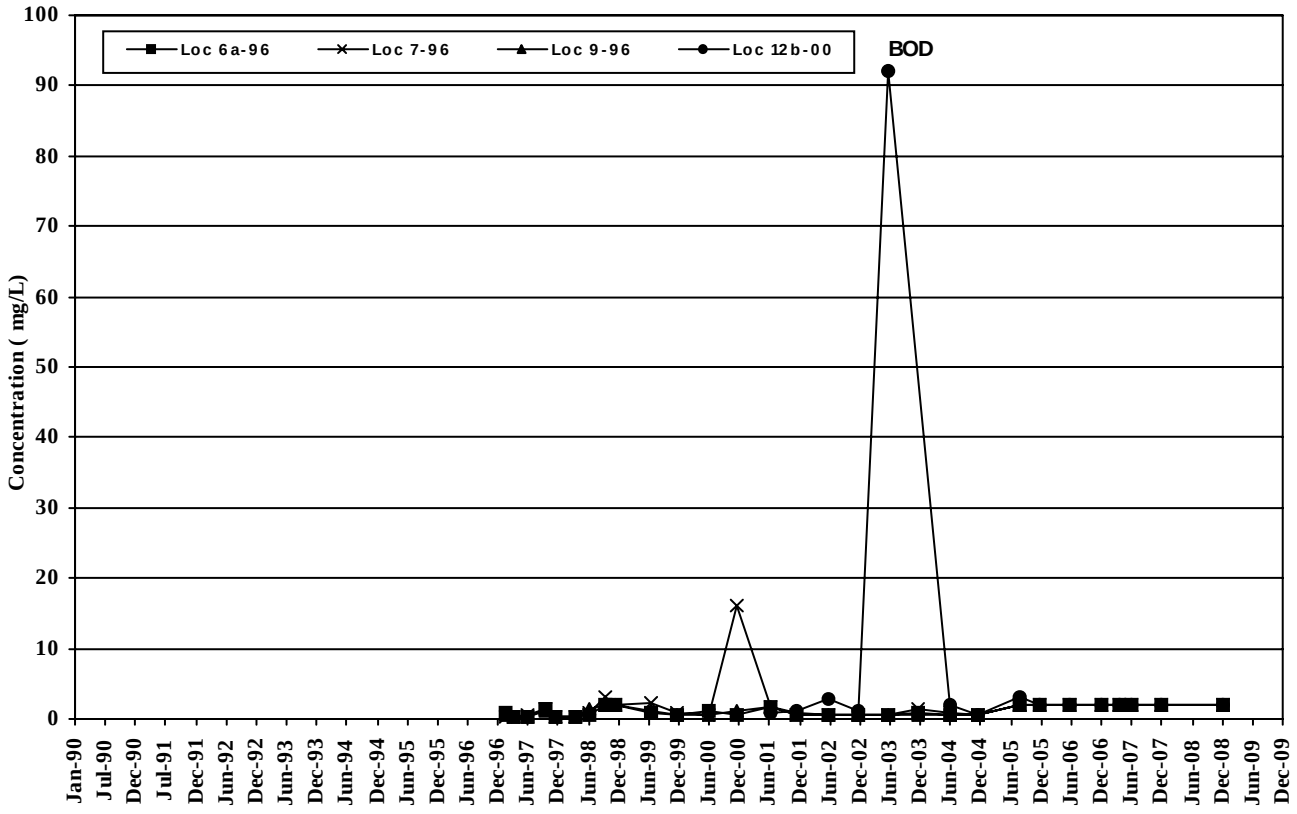
Ground Water Chemistry Trends
Bedrock Locations East of Wet/Dry or on Transfer Station Property

FIGURE
B16

111409
12 NH3-TKN Location EasttBed





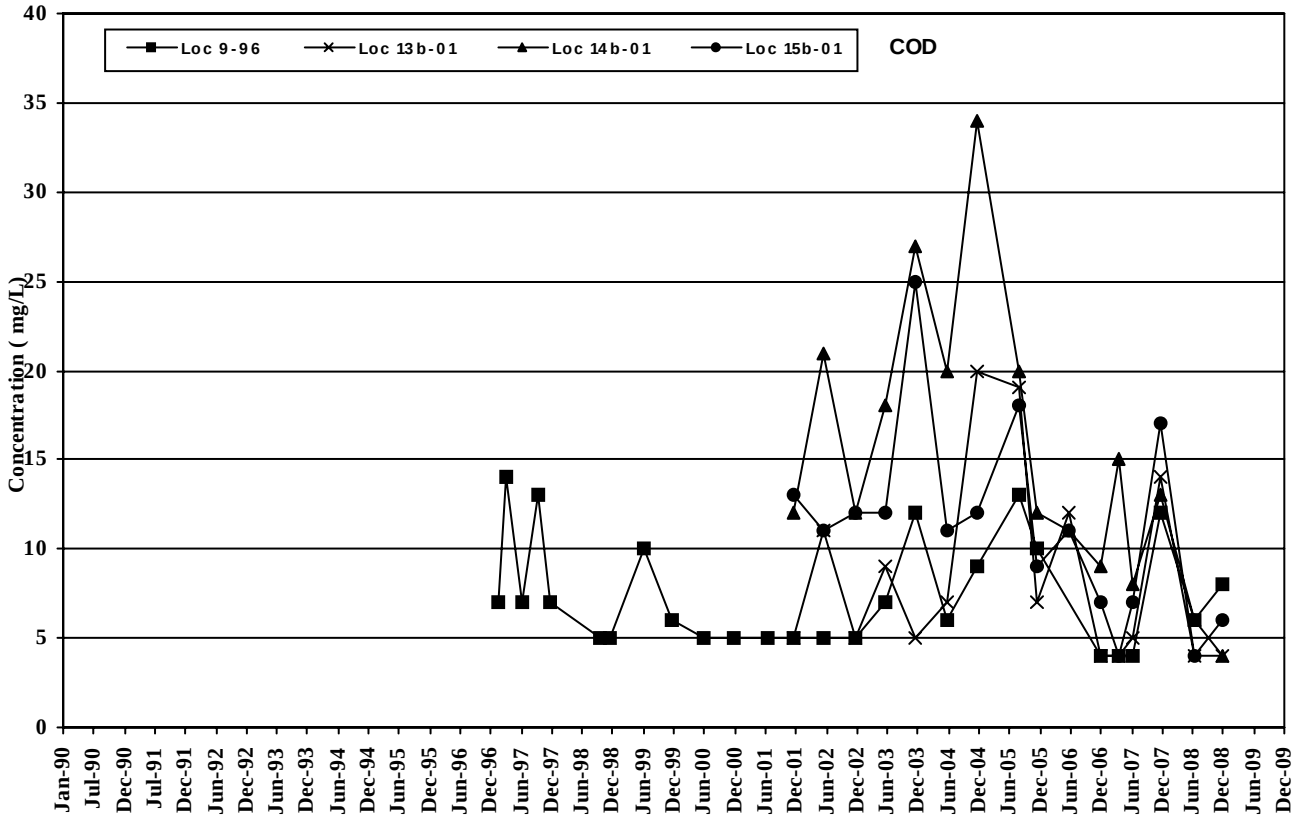
AECOM

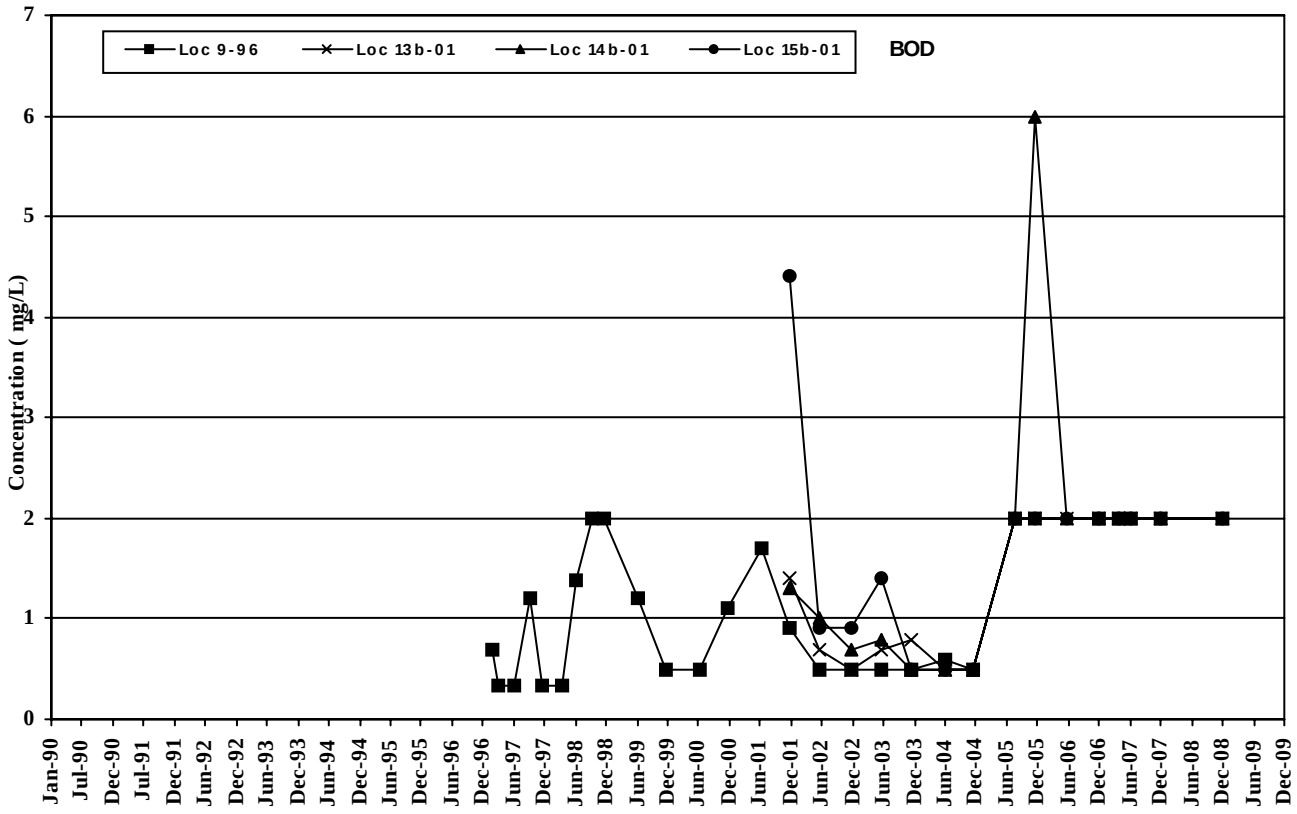
Waste Resource Innovation Centre

Ground Water Chemistry Trends
Overburden Locations on Wet/Dry Facility

FIGURE
B17

111409
12 COD-BOD Location WestOB





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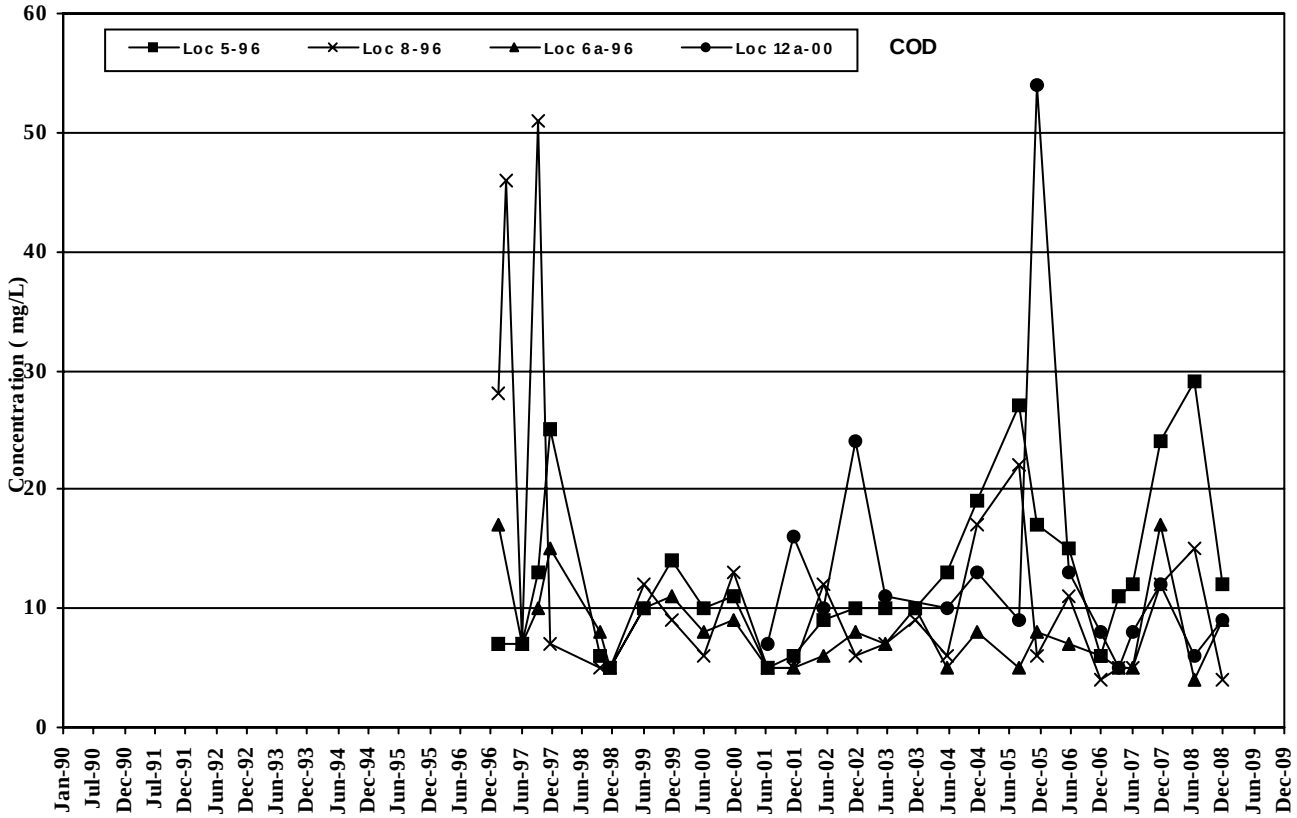
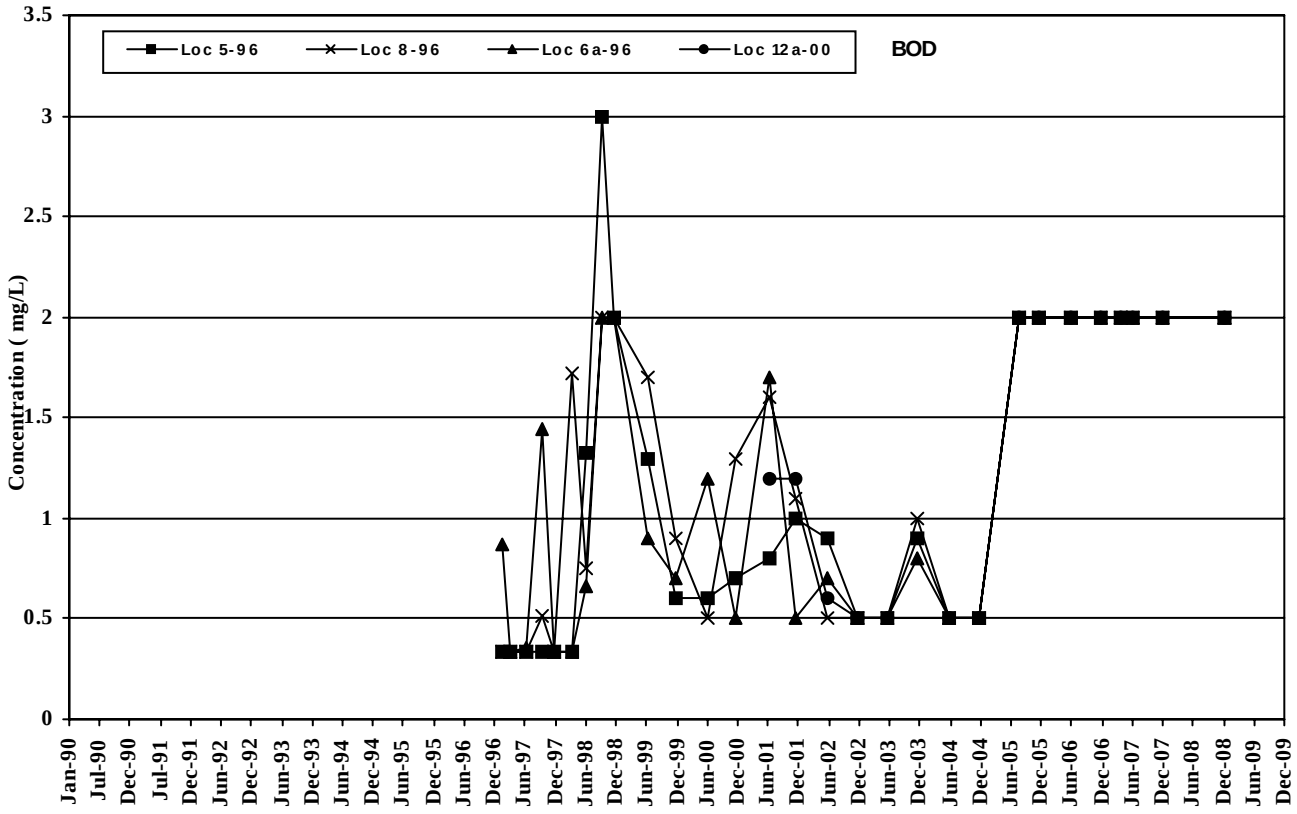
Waste Resource Innovation Centre

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

FIGURE
B18

111409
12 COD-BOD Location EastOB





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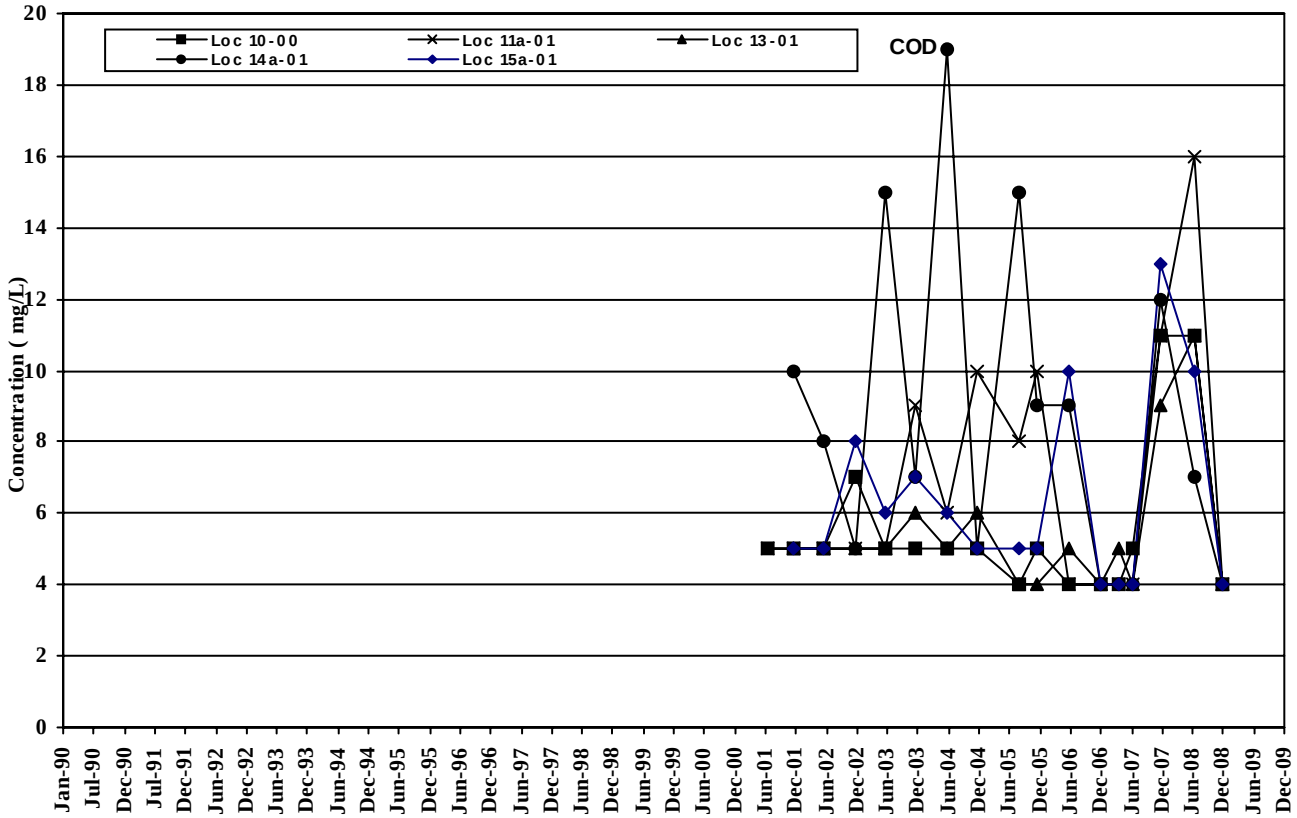
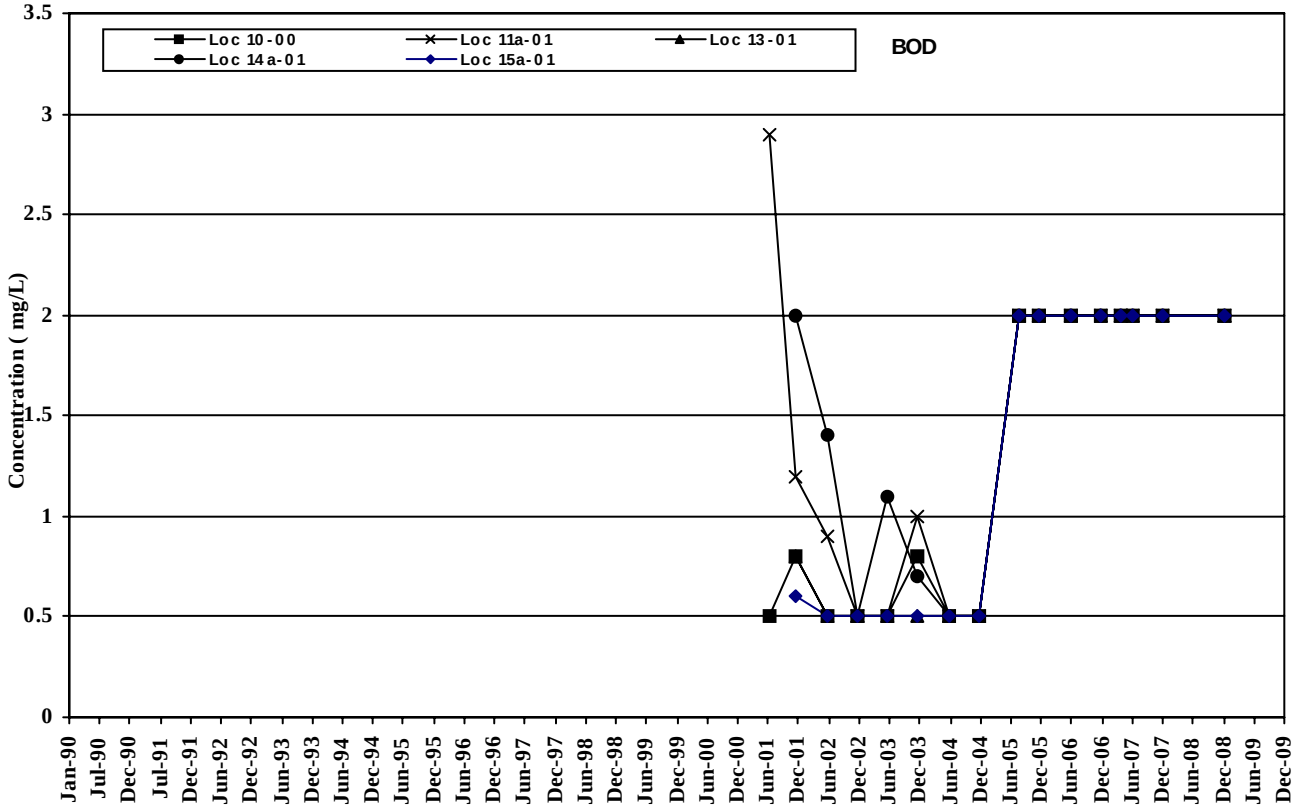
Waste Resource Innovation Centre

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

FIGURE
B19

111409
12 COD-BOD Location WestBed





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Waste Resource Innovation Centre

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

FIGURE
B20

111409
12 COD-BOD Location EastBed

Appendix C

Surface Water Chemistry – Routine and Organics

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

Date	Lab	pH	Cond-uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	TSS mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L
SW 1		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02
13-Apr-96	ENT	7.6	310	60						392		123		< 0.5	59.4				0.02		
29-May-96	ENT	7.8			4.74	5.32	< 10	22	1	0.04	0.22	21	14.1	7	42.2	29.8	32.4	0.51	0.06	0.2	0.08
03-Jul-96	ENT						13		2.4	0.19	0.08	73		1							
22-Aug-96	ENT	7.82			0.46	13.1	< 10	< 10	0.56	0.27	0.23	10	7.4	< 0.5	19.7	20.5	38.6	0.25	0.3	0.18	< 0.0004
18-Sep-96	ENT						< 10		2	0.13	0.07	6		< 0.5							
16-Oct-96	ENT						< 10		2	0.13	0.01	1		< 1							
20-Nov-96	ENT						< 10		3	0.08	0.15	7		15							
11-Dec-96	ENT	7.94			6.84	9.6	< 10	93	1.34	0.08	0.18	4	12.6	1	272	155	41.7	0.59	0.02	0.15	0.02
08-Apr-97	WBL	8.64	2840	118	8.09	18.3	9.24	170	2.73	< 0.01	0.206	19	18	< 0.72	732	434	49.7	1.05	< 0.02	< 0.03	0.03
06-May-97	WBL	8.29	1450	81	4.47	9.81	5.7	134	1.37	0.067	0.174	39	13.2	1.15	423	236	27.3	1.73	0.02	0.16	0.07
26-Jun-97	WBL	9.23	826	111	3.86	11.1	4.11	57	1.35	< 0.01	0.124	5	14.3	< 0.72	164	114	26.3	0.74	0.06	0.13	0.02
31-Jul-97	WBL	9.53	1460	123	4.79	13.1	2.82	88	3.51	0.119	0.234	4	15	0.99	394	245	24.2	0.87	0.05	0.23	0.02
11-Sep-97	WBL	8.73	527	94.1	4.47	12.3	2.17	71	1.48	0.017	0.072	< 6	14.7	< 0.72	89.6	76	25.4	0.56	0.1	0.1	0.02
26-Nov-97	WBL	7.6	960				3.12		1.72	0.084	0.139	542		< 0.72							
09-Dec-97	WBL	7.79	970	132	7.02	12.5	1.94	59	1.6	0.014	0.095	3	13.9	< 0.72	198	140	45.7	0.38	0.02	0.08	0.01
08-Jan-98	WBL	7.65	545				6.3		1	0.2	0.31	357		7							
28-Feb-98	Froze																				
31-Mar-98	WBL	8.32	1480	121	3.48	6.75	2.53		1.52	0.023	0.107	5	12.7	< 0.72	443	250	35.5	0.54	0.05	0.11	0.007
30-Apr-98	Dry																				
12-May-98	WBL	7.55	1420				8.52		4.02	0.795	0.3	840		0.72							
24-Jun-98	WBL	9.52	597	112	4.14	9.73	5.58		2.73	0.058	0.245	< 2	10.9	< 0.72	109	72.8	27.7	0.64	0.06	0.25	0.02
31-Jul-98	Dry																				
31-Aug-98	Dry																				
30-Sep-98	Dry																				
31-Oct-98	Dry																				
30-Nov-98	Dry																				
31-Dec-98	Dry																				
31-Jan-99	Froze																				
28-Feb-99	Froze																				
31-Mar-99	Barr	8.01	1624	142	7.49	13	6.7	68	3.6	0.37	0.27	21	33	< 2	441	298	52.7	0.5	0.05	0.4	0.03
30-Apr-99	Dry																				
31-May-99	Dry																				
29-Jun-99	Barr	7.91	307	77	2.9	9	6.4	51	1.72	0.84	0.057	12	15		41.9	34.3	20.6	0.12		0.4	0.02
31-Jul-99	Dry																				
31-Aug-99	Dry																				
30-Sep-99	Dry																				
31-Oct-99	Dry																				
30-Nov-99	Dry																				
14-Dec-99	Barr	8.01	716	168	16.7	18	19.4	49	2.77	1.05	0.11	40	46.9	< 1	57.4	42.5	65.5	0.01	0.04	0.2	0.02
30-Jan-00	Froze																				
28-Feb-00	Froze																				
31-Mar-00	Philip	7.37	2380	123	10.2	15	9.1	87	3.31	0.07	0.224	17	21	< 1	634	370	59.7	0.62	0.03		0.03
27-Apr-00	Philip	7.13	2595	140	29.8	43	16.5	117	115	104	0.423	23	35.8	1	123	85.7	146	0.36	0.06	0.5	0.04
23-May-00	Philip	7.46	1930	142	25.9	53	3.2	137	66.3	68.2	0.47	13	35.3	< 1	96.5	70.2	120	0.42	0.09	0.6	0.07
30-Jun-00	Philip	7.33	88	241	3.7	10	27	60	1.92	0.19	0.286	5	6.6	< 1	23.6	19	24.9	0.36		0.4	0.03

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

Date	Lab	pH	Cond-uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	TSS mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L
SW 1		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02
30-Jul-00	Dry																				
29-Aug-00	Dry																				
28-Sep-00	Philip	7.81	374	97	4.32	12.4	12.8	57	2.5	0.08	0.194	128	15.5	< 1	51.8	40.1	30.5	0.16	0.03	0.23	0.04
30-Oct-00	Dry																				
28-Nov-00	Philip	7.63	778	90	7.41	16.8	6	57	2.54	0.08	0.5	29	24.4	< 1	193	109	73.7	0.96	0.02	0.7	0.11
07-Dec-00	Froze																				
31-Jan-01	Froze																				
28-Feb-01	Froze																				
31-Mar-01	Froze																				
24-Apr-01	Philip	7.9	747	175	6.13	11	2.2	65	3.16	0.17	0.12	6	9.8	2	140	122	34.4	0.83		0.4	0.02
28-May-01	Philip	7.29	333	119	3.93	9	8.3	77	2.4	0.11	0.288	10	13.2	< 1	39.4	46	49.4	0.58	0.03	0.4	0.05
30-Jun-01	Dry																				
25-Jul-01	Philip	7.3	322	105	4.82	15	8.1	143	5.3	0.3	0.765	21	21.7	< 1	30.3	29.7	56.9	0.96	0.06	1	0.10
31-Aug-01	Dry																				
27-Sep-01	Philip	7.5	383	128	5.48	15	3	57	1.64	0.07	0.318	2	19	< 1	33.8	31.7	30.5	0.09	0.03	0.3	0.02
18-Oct-01	Philip	7.84	304	125	4.94	9	3.4	50	2.94	< 0.03	0.294	7	4.3	< 1	19.3	24.8	31.7	0.91	0.04	0.4	0.04
30-Nov-01	Philip	7.48	104	39	1.72	4	1.3	24	0.87	0.03	0.3	11	1.5	< 1	4.5	6.8	9.38	0.54	< 0.01	0.2	0.03
04-Dec-01	Philip	7.57	153	61	3.04	6.3	3.1	26	0.68	< 0.03	0.128	1	2.7	< 1	6.5	8.8	19.2	0.31	0.01	0.4	0.04
31-Jan-02	Froze																				
28-Feb-02	Froze																				
29-Mar-02	Froze																				
29-Apr-02	Philip	7.52	398	77	2.9	5	5.6	58	1.88	0.06	0.456	11	7.3	< 1	69.3	57.4	30.8	0.57	0.02	0.5	0.36
31-May-02	Dry																				
05-Jun-02	Philip	7.8	228	55	2.46	4	5.2	75	2.19	0.14	0.438	16	5.6	< 1	28.9	26.4	18.1	0.87	0.02	0.6	0.1
31-Jul-02	Dry																				
30-Aug-02	Dry																				
27-Sep-02	Dry																				
31-Oct-02	Dry																				
29-Nov-02	Dry																				
20-Dec-02	Dry																				
31-Jan-03	Froze																				
28-Feb-03	Froze																				
29-Mar-03	Froze																				
30-Apr-03	Dry																				
31-May-03	Dry																				
05-Jun-03	Philip	6.99	240	68	2.89	4	6.1	51	6	0.16	0.934	118	6.1	< 1	26.1						
31-Jul-03	N/A																				
30-Aug-03	N/A																				
27-Sep-03	Dry																				
31-Oct-03	Dry																				
29-Nov-03	Dry																				
01-Dec-03	Philip	7.21	256	52	3.16	4	4.2	24	0.63	< 0.03	0.146	12	6	< 1	49.7	28.9	18.8	0.54	< 0.01	0.3	0.07
31-Jan-06	Dry																				
28-Feb-06	Dry																				
09-Mar-06	MAX	7.5	245	25	2.2	2	4	22	1.3	0.29	0.17	24	5	2	53	37	8.9	1.8	< 0.02	0.2	0.09

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

Date	Lab	pH	Cond-uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	TSS mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L
SW 1		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02
30-Apr-06	Dry																				
16-May-06	MAX	7.6	346	126	4.8	7.6	3	43	1.6	0.16	0.21	3	4	< 1	36	43	31	0.43	0.02		0.02
30-Jun-06	Dry																				
31-Jul-06	Dry																				
31-Aug-06	Dry																				
13-Sep-06	N/A																				
31-Oct-06	Dry																				
30-Nov-06	Dry																				
31-Dec-06	Dry																				
31-Jan-07	Snow																				
28-Feb-07	Snow																				
14-Mar-07	MAX	7.3	238	22	2.4	5.3	3	25	1.3	0.53	0.26	4	7	< 1	49	33	8.7	0.16	< 0.01		0.02
29-Mar-07	MAX	7.8	686	101	6.7	4.4	3	31	1.5	0.08	0.19	10	13	1	140	120	34	0.93	0.02		0.04
30-Apr-07	Dry																				
31-May-07	Dry																				
30-Jun-07	Dry																				
31-Jul-07	Dry																				
31-Aug-07	Dry																				
28-Sep-07	Dry																				
31-Oct-07	Dry																				
21-Nov-07	MAX	7.9	239	69	4.4	8	3	33	1.3	0.09	0.41	8	10	< 1	24	24	15	0.56	0.01		0.04
31-Dec-07	Snow																				
08-Jan-08	MAX	7.5	731	83	5.7	5.4	2	31	1.4	0.06	0.22	3	13	< 1	170	160	35	1.5	0.02		0.09
28-Feb-08	Snow																				
31-Mar-08	Snow																				
10-Apr-08	MAX	8.3	2260	225	20	9.5	< 2	22	0.9	< 0.05	0.06	2	29	< 1	520	350	100	0.2	0.02		0.03
31-May-08	Dry																				
24-Jun-08	MAX	7.6	121	39	2.3	2.6	5	33	2.5	0.9	0.28	24	4	< 1	9	11	11	0.99	0.01		0.07
24-Jul-08	MAX	7.6	98	47	2.1	2.6	5	22	0.6	< 0.05	0.19	5	< 1	< 1	3	2.7	14	0.2	0.01		0.02
11-Aug-08	MAX	7.3	157	61	2.2	2.2	3	19	0.8	0.15	0.19	4	2	< 1	10	11	16	0.2	0.02		0.02
28-Sep-08	Dry																				
31-Oct-08	Dry																				
30-Nov-08	Dry																				
31-Dec-08	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
SW 2		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02
08-Apr-97	WBL	7.68	2050	120	7.79	35.1	17.3	380	4.91	0.329	0.495	37	20.8	< 0.72	497	293	42.6	2.14	< 0.02	0.58	0.05
06-May-97	WBL	7.98	1600	102	4.5	19.2	13	160	2.59	0.071	0.256	41	18.7	0.83	448	251	29.4	2.18	0.03	0.29	0.07
26-Jun-97	WBL	8.15	796	110	3.12	13.2	4.89	63	3.04	1.16	0.433	7	13.3	1.92	167	119	23.3	5.88	0.18	1.59	0.06
31-Jul-97	WBL	8.56	1020	137	3.74	15.7	14.9	145	5.36	0.079	0.88	54	33.3	1.05	196	154	26.2	2.97	0.06	0.88	0.03
11-Sep-97	WBL	7.43	376	83.4	2.98	13.2	2.83	54	1.85	0.38	0.342	9	26.6	< 0.72	42.5	46	22.8	2.45	0.27	0.49	0.26
26-Nov-97	WBL	7.73	340				3.15		1.12	< 0.01	0.08	220		< 0.72							
09-Dec-97	WBL	7.68	570	85	4.15	7.14	2.78	33	1.16	0.104	0.033	11	39.6	< 0.72	94.7	58	32.8	0.72	0.02	0.06	0.02
08-Jan-98	WBL	7.81	537				4.62		0.8	0.1	0.17	319		2							
28-Feb-98	Dry																				
31-Mar-98	WBL	7.84	1530	87.5	2.67	5.65	15.4		1	0.026	0.118	33	23.2	< 0.72	430	274	31.1	0.81	0.05	0.12	0.03
30-Apr-98	Dry																				
12-May-98	WBL	7.74	1120				5.55		2.32	1.22	0.13	654		0.72							
24-Jun-98	WBL	7.51	450	94.7	3.33	7.83	21.1		2.79	0.027	0.259	30	40.5	< 0.72	52.2	43.4	39.4	1.65	0.06	0.26	0.04
31-Jul-98	Dry																				
31-Aug-98	Dry																				
30-Sep-98	Dry																				
31-Oct-98	Dry																				
30-Nov-98	Dry																				
31-Dec-98	Dry																				
31-Jan-99	Froze																				
28-Feb-99	Froze																				
31-Mar-99	Dry																				
30-Apr-99	Dry																				
31-May-99	Dry																				
29-Jun-99	Dry																				
31-Jul-99	Dry																				
31-Aug-99	Dry																				
30-Sep-99	Dry																				
31-Oct-99	Dry																				
30-Nov-99	Dry																				
14-Dec-99	Dry																				
30-Jan-00	Froze																				
28-Feb-00	Froze																				
31-Mar-00	Dry																				
27-Apr-00	Dry																				
23-May-00	Dry																				
30-Jun-00	Dry																				
30-Jul-00	Dry																				
29-Aug-00	Dry																				
28-Sep-00	Dry																				
30-Oct-00	Dry																				
28-Nov-00	Dry																				
07-Dec-00	Froze																				
31-Jan-02	Dry																				
28-Feb-02	Dry																				

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Date	Lab	pH	Cond-uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	TSS mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L
SW 2		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02
29-Mar-02	Dry																				
30-Apr-02	Standi																				
31-May-02	Dry																				
28-Jun-02	Standi																				
31-Jul-02	Dry																				
30-Aug-02	Dry																				
27-Sep-02	Dry																				
31-Oct-02	Dry																				
29-Nov-02	Dry																				
20-Dec-02	Dry																				
31-Jan-03	Froze																				
28-Feb-03	Froze																				
29-Mar-03	Froze																				
30-Apr-03	Dry																				
31-May-03	Dry																				
05-Jun-03	Dry																				
31-Jul-03	N/A																				
30-Aug-03	N/A																				
27-Sep-03	Dry																				
31-Oct-03	Dry																				
29-Nov-03	Dry																				
20-Dec-03	Dry																				
31-Jan-06	Dry																				
28-Feb-06	Dry																				
09-Mar-06	MAX	7.5	278	29	2.1	1	8	42	1.1	0.23	0.19	38	6	< 1	60	40	9.7	1.6	< 0.02	0.2	0.08
30-Apr-06	Dry																				
16-May-06	MAX	7.4	117	45	1.8	1.4	< 2	44	0.6	0.09	0.08	4	2	< 1	9	12	12	0.4	< 0.01		0.02
30-Jun-06	Dry																				
31-Jul-06	Dry																				
31-Aug-06	Dry																				
13-Sep-06	N/A																				
31-Oct-06	Dry																				
30-Nov-06	Dry																				
31-Dec-06	Dry																				
31-Jan-07	Snow																				
28-Feb-07	Snow																				
14-Mar-07	Snow																				
29-Mar-07	MAX	8	2320	348	49	8.7	< 2	18	0.9	0.06	0.034	9	44	< 1	500	420	170	0.27	0.04		0.02
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	MAX	7.7	425	113	5.2	5.1	5	70	2.9	0.81	0.29	11	23	1	39	45	43	0.85	0.04		0.04

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

Date	Lab	pH	Cond-uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	TSS mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L
SW 2		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02
21-Nov-07	MAX	8	199	74	3.3	1.5	3	24	1.7	0.15	0.16	20	9	< 1	10	9.1	24	0.99	< 0.01		0.06
31-Dec-07	Snow																				
08-Jan-08	MAX	7	115	27	1.6	1.5	4	16	1.3	0.06	0.23	11	3	< 1	15	13	9.2	0.68	< 0.01		0.02
28-Feb-08	Snow																				
19-Mar-08	MAX	8.1	2170	300	23	6.1	< 2	38	1.1	0.06	0.16	15	24	< 1	490	290	99	< 0.1	0.02		0.03
10-Apr-08	MAX	8.2	2340	233	21	9.2	< 2	19	0.8	< 0.05	0.12	5	33	< 1	520	350	110	0.2	0.02		0.04
22-May-08	MAX	8	2270	387	32	8.5	7	30	1.5	< 0.05	0.12	8	21	< 1	480	320	120	0.3	0.02		0.03
24-Jun-08	MAX	7.5	148	38	1.6	4.8	7	33	1.7	0.34	0.3	13	3	2	20	12	9	0.55	< 0.01		0.03
24-Jul-08	MAX	7.6	170	50	3.1	3	3	20	0.8	< 0.05	0.15	4	< 1	< 1	21	21	17	0.3	0.01		0.02
11-Aug-08	MAX	7.4	215	55	2.9	2.3	3	13	1	0.38	0.11	4	2	< 1	28	19	16	0.3	0.01		0.01
17-Sep-08	MAX	8	1270	264	17	6.5	< 2	14	0.7	< 0.05	0.06	2	23	< 1	220	160	75	0.2	0.03		0.02
16-Oct-08	Dry																				
31-Oct-08	Dry																				
26-Nov-08	MAX	8	631	155	10	5.6	3	22	0.9	0.06	0.11	47	13	< 1	95	91	50	0.7	0.01		0.04
31-Dec-08	Dry																				

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

Date	Lab	pH	Cond-uctivity	Alk mg/L	Mg mg/L	K mg/L	BOD mg/L	COD mg/L	TKN mg/L	NH3-N mg/L	Total-P mg/L	TSS mg/L	SO4 mg/L	Phenol ug/L	Cl mg/L	Na mg/L	Ca mg/L	Fe mg/L	B mg/L	P mg/L	Zn mg/L
EPTS-01		6.5 - 8.5									0.03			1.0				0.30	0.20		0.02
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	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
02-May-08	MAX	8.3	610	213	19	1.1	< 2	< 4	0.6	0.05	0.02		17	< 1	51	30	68	< 0.02	< 0.01	< 0.1	0.07
25-Jun-08	MAX	8.1	593	217	20	1.3		11	0.7	0.12	< 0.02		15	< 1	45	26		< 0.02	< 0.01	< 0.1	0.05
11-Sep-08	MAX	8.2	574	228	20	1.4	< 2	11	0.6	< 0.05	< 0.02		16	< 1		21	75	< 0.02	0.01	< 0.1	0.07
09-Dec-08	MAX	8	787	262	20	1.6	< 2	< 4	0.3	< 0.05	< 0.02		19	< 1	80	47	80	< 0.02	0.02	< 0.1	0.13

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																				
08-Jan-08	MAX	7.9	1080	130	2.2	3.1	4	26	1.8	< 0.05	0.17	5	28	< 1	220	220	29	0.34	0.04		0.19
28-Feb-08	Snow																				
19-Mar-08	MAX	7.9	2150	83	1.9	2.6	3	32	0.9	0.27	0.14	4	24	< 1	580	420	20	0.2	0.02		0.07
10-Apr-08	MAX	8.2	542	117	5.3	1.9	6	30	0.9	< 0.05	0.07	2	8	< 1	90	70	35	0.4	0.02		0.007
22-May-08	MAX	8.3	612	140	7.3	3.9	3	50	1.5	< 0.05	0.035	2	18	< 1	98	88	34	0.1	0.04		0.007
24-Jun-08	MAX	8	272	87	3.8	1.8	6	39	1.5	0.12	0.11	10	5	1	26	25	25	0.44	0.02		0.02
24-Jul-08	MAX	8.2	633	193	10	9	5	74	2	0.25	0.12	6	1	< 1	82	53	58	1	0.03		< 0.005
11-Aug-08	MAX	7.5	403	147	7.1	3.4	4	30	1.3	0.21	0.059	4	4	< 1	38	34	40	0.7	0.02		< 0.005
17-Sep-08	MAX	7.8	506	195	8.9	4.4	3	43	1.4	< 0.05	0.073	6	12	< 1	38	40	64	0.9	0.04		0.01
16-Oct-08	MAX	7.7	346	117	3.9	3.1	4	26	0.9	< 0.05	0.11	10	31	< 1	19	22	44	0.5	0.05		0.02
26-Nov-08	MAX	8.1	2710	259	17	3.4	< 2	47	2.3	0.1	0.25	91	31	< 1	640	380	98	2	0.02		0.08
31-Dec-08	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																				
08-Jan-08	MAX	7.7	867	107	4	2.9	2	22	1.5	< 0.05	0.12	9	24	< 1	190	150	32	0.43	0.01		0.04
28-Feb-08	Snow																				
31-Mar-08	Snow																				
10-Apr-08	MAX	8.2	535	126	4.3	2.3	< 2	36	1.1	< 0.05	0.14	3	6	1	84	76	32	0.7	0.02		0.01
22-May-08	MAX	8.1	584	155	5.9	2.5	3	41	1.5	< 0.05	0.12	17	14	< 1	80	80	41	0.7	0.04		0.008
24-Jun-08	MAX	7.8	245	87	2.9	1.7	4	37	1.5	0.24	0.23	6	4	1	19	20	22	0.69	0.03		0.02
24-Jul-08	MAX	8	333	128	4.8	5.8	4	43	1.3	0.11	0.15	5	< 1	< 1	27	24	35	1.2	0.03		0.006
11-Aug-08	MAX	7.5	323	118	4.7	2.1	2	24	0.6	0.4	0.059	3	2	< 1	24	24	32	0.5	0.02		0.007
17-Sep-08	MAX	7.9	427	165	7.1	5.2	< 2	26	1.2	< 0.05	0.091	4	8	< 1	33	40	54	0.5	0.03		0.01
16-Oct-08	MAX	7.9	389	130	3.9	4.7	< 2	63	1.1	0.28	0.11	< 1	34	2	23	23	52	< 0.1	0.04		0.007
26-Nov-08	MAX	8.1	4740	243	16	4.2	< 2	36	0.8	0.06	0.056	2	34	< 1	1300	820	160	0.2	0.03		0.06
31-Dec-08	Snow																				

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

SW 3

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	S04 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
31-Jan-02	Dry																				
28-Feb-02	Dry																				
29-Mar-02	Dry																				
30-Apr-02	Dry																				
31-May-02	Dry																				
28-Jun-02	Dry																				
31-Jul-02	Dry																				
30-Aug-02	Dry																				
27-Sep-02	Dry																				
31-Oct-02	Dry																				
29-Nov-02	Dry																				
20-Dec-02	Dry																				
31-Jan-03	Froze																				
28-Feb-03	Froze																				
29-Mar-03	Froze																				
30-Apr-03	Dry																				
31-May-03	Dry																				
05-Jun-03	Philip	6.75	1129	184	10.8	102	172	102	31	5.65	4.3	84	72	6	140						
31-Jul-03	Dry																				
30-Aug-03	Dry																				
27-Sep-03	Dry																				
31-Oct-03	Dry																				
29-Nov-03	Dry																				
01-Dec-03	Philip	5.8	6243	459	73	179	1420	4900	65.8	9	23.4	639	65.8	1180	1880	979	218	8.7	0.14	21.1	0.47
31-Jan-06	Dry																				
28-Feb-06	Dry																				
09-Mar-06	MAX	7.6	2620	248	21	150	130	1200	120	23.1	12	230	< 50	51	628	390	87	11	0.09	10	0.67
30-Apr-06	Dry																				
16-May-06	MAX	7.8	3960	322	35	390	20	1000	53	3.3	2.5	60	61	6	862	550	110	3.2	0.13		0.21
30-Jun-06	Dry																				
31-Jul-06	Dry																				
31-Aug-06	Dry																				
13-Sep-06	N/A																				
31-Oct-06	Dry																				
30-Nov-06	Dry																				
31-Dec-06	Dry																				
31-Jan-07	Snow																				
28-Feb-07	Snow																				
14-Mar-07	MAX	7.5	441	33	1.9	3.3	5	33	1.5	0.57	0.31	21	6	6	100	75	10	0.68	0.01		0.03
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	MAX	7.9	565	211	9.6	31	5	130	5	0.22	1.2	18	40	3	30	28	64	0.9	0.06		0.04
21-Nov-07	MAX	6.6	504	116	19	52	180	770	13	1.76	5.2	130	< 20	300	50	13	67	5.7	0.05		0.22

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	S04 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
	31-Dec-07	Snow																				
	08-Jan-08	MAX	7.3	525	75	4.3	16	11	98	2	0.12	0.64	13	13	2	94	74	23	0.59	0.02		0.04
	28-Feb-08	Snow																				
	19-Mar-08	MAX	7.3	869	39	2.1	6.7	23	110	1.1	0.28	0.64	9	11	14	220	160	12	0.3	< 0.01		0.03
	10-Apr-08	MAX	7.7	648	126	7.7	36	150	490	4.1	0.3	2	13	15	18	100	71	34	0.9	0.04		0.04
	31-May-08	Dry																				
	30-Jun-08	Dry																				
	31-Jul-08	Dry																				
	31-Aug-08	Dry																				
	28-Sep-08	Dry																				
	31-Oct-08	Dry																				
	30-Nov-08	Snow																				
	31-Dec-08	Snow																				
CL-1	29-May-96	ENT	7.64			106.6	1130	4444	9828	650	368.7	17.28	255	398.1	144	1804	1160	339	6.21	0.84	8.8	1.04
	04-Sep-96	ENT	6.36			31.1	219	976	2027	38.6	18.54	9.56	198	145	56	418	212	118	2.8	2.41	6.55	1.69
	16-Oct-96	ENT	7.59			27.7	166	148	542	55.7	13.54	2.45	32	85.3	2	248	124	83.9	1.43	0.19	1.57	0.28
	20-Nov-96	ENT	7.13			50.1	5.69	720	1626	1.46	46.7	10.4	107	95.7	3050	824	265	168	2.48	0.23	5.55	0.2
	11-Dec-96	ENT	7.45			49.4	218	240	584	52.6	22	7.01	27	106	13	3978	2200	158	2.05	0.16	4.49	0.25
	27-Mar-97	WBL	7.91	7690	609	107	263	143	1320	248	228	3.72	108	112	13.3	441	367	667	1.54	0.26	3.16	0.38
	06-May-97	WBL	8.44	3580	1050	43.3	344	969	2110	173	105	6.36	750	50.3	304	441	262	136	5.99	0.28	5.6	0.48
	27-Jun-97	WBL	7.15	5590	1440	64.1	653	1890	3500	165	127	18.9	410	5.2	614	586	266	194	5.17	0.45	15.2	0.48
	11-Sep-97	WBL	8.25	6640	1870	97.1	925	541	1100	201	124	15.4	220	51.9	179	913	615	147	39.9	1.32	39.5	6.84
	01-Oct-97	WBL	8.12	17900	4190	214	1820	2090	7190	560	467	14.7	90	114	1240	2860	1800	370	8.68	1.81	29.6	2.44
	09-Dec-97	WBL	7.68	15200	2830	258	1380	570	4450	686	374	13.6	1740	188	745	2070	1360	865	1.44	0.97	12.8	0.45
	01-Apr-98	WBL	8.18	5910	1230	79.6	472	193			134		180	217	183	797	501	183	1.72	0.34	13.7	0.33
	24-Jun-98	WBL	7.54	3780	1490	70.4	316	771			61.6		388	125	81.1	331	216	326	8.25	0.27	7.39	2.53
	02-Oct-98	CAN	7.7	2000	420	38	160	52	370	38	6.5	3.4	40	130	9	210	130	110	2.8	0.18		0.43
	03-Dec-98	CAN	7.6	1800	490	37	110	64	520	45	6.8	3.4	210	97	35	170	110	98	1.5	0.14		0.36
	14-Dec-99	Barr	7.02	7051	2300	85.1	514	2870	5002	339	286	10.4	282	77.8	1130	734	571	181	0.37	0.52	7.4	0.04
	21-Jun-00	Philip	7.72	16840	1030	322	627	42.3	1393	918	930	6.7	489	363	< 1	1100	623	1270	4.57	0.76	6.8	1.01
	07-Dec-00	Philip	7.71	32400	5430	264	2210	5320	1E+04	672	627	11.2	785	42	2020	8770	6740	240	12.2	1.67		1.94
	27-Jun-01	Philip	8.07	28200	5370	213	3200	311	4719	2100	1490	12	2870	390	< 30	3580	2970	138	24.5	2.64	19	3.31
	04-Dec-01	Philip	7.67	1931	297	35.4	96.1	7.3	524	82	66.9	3.5	262	72	7	119	74.1	133	6.29	0.08	3.5	1.3
	05-Jun-02	Philip	7.93	365	99	9.01	12	134	121	8.11	0.75	1.4	311	21.8	3	37.4	26.1	36.3	2.98	0.02	1.7	0.37

Appendix D

City of Guelph Compliance Statement

The 2008 annual summary of any deficiencies, items of non-compliance or process aberrations, that occurred and remedial/mitigative action taken to correct them. As per condition 30(f) of C. of A. # A170128 – Annual reporting requirement

The WRIC Facility continues to strive to comply with its Certificate of Approval and to seek opportunities for continuous improvement. Detailed monthly summaries of the types, quantities, origins, processing and destinations of wastes and recyclable materials are provided in Section 4 of this report. Section 5 discusses the results of the annual groundwater, surface water and leachate monitoring program. Section 7 provides a review and summary of the current Contingency Plans for the site.

The City is not aware of any adverse environmental impacts from the operation of the Wet-Dry Facility in 2008 and that there were no odour complaints received about the facility. Two regular odour patrols a day have confirmed that there were no noticeable odours emanating from this facility in 2008.

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