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REPORT ON

GROUNDWATER MONITORING PROGRAM FOR FIFTH YEAR OF OPERATION WELL SITE NO. 7 VILLAGE OF WINCHESTER WATER SUPPLY SYSTEM EXPANSION PROJECT

Submitted to:

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EXECUTIVE SUMMARY

This document has been prepared to summarize the results of the groundwater monitoring program associated with the fifth year of operation of the Village of Winchester Well Site No. 7. One of the conditions of approval for the water supply expansion, as set out in the Environmental Study Report, is a groundwater monitoring program in the area of the Morewood esker. This involves water level monitoring and aquifer water quality monitoring. This is in addition to the ongoing monitoring of the water supply system quality that is carried out by the Ontario Clean Water Agency as part of the water works approval.

The objectives of this monitoring program were to monitor groundwater level variations, flow characteristics, and groundwater quality conditions on site and in the vicinity of Well Site No. 7 during the fifth year of operation, and to compare these to previous trends observed during the pre-operational groundwater monitoring program and during the first four years of operation.

Based on the groundwater level data obtained during the fifth year of operation, the interpreted general direction of groundwater flow remains consistent with pre-operational flow directions, with periodic slight variations in the immediate vicinity and to the north of the pumping wells.

In general, the ongoing land uses and the pumping operations at the Village of Winchester Well Site No. 7 do not appear to have adversely affected groundwater quality to date in the vicinity of the well site. The most noteworthy changes in groundwater quality observed during the monitoring program for the fifth year of operation were a continuing trend in increasing chloride concentrations over time at monitor 96-20 and significantly higher nitrate concentrations reported at monitor 96-21 in September 2001 and May 2002. It is recommended that particular attention be paid to the concentrations of these parameters at these locations during future monitoring programs.

Several upgrades and repairs were performed to the existing groundwater monitors during the fifth year of operation, including the installation of steel protective casings at several monitor locations. It is recommended that any deficiencies or required maintenance on groundwater monitors included in the monitoring program be documented on an on-going basis.

A proposed annual monitoring program for on-going operations is provided. It is understood that a Well Head Protection (WHP) Study is presently underway for this well field (and other wells servicing the Village of Winchester). It may be appropriate to modify the frequency and/or the scope of monitoring, pending the outcome of the WHP study.

It is considered appropriate to reduce the formal reporting frequency to once every two years. Monitoring should still be carried out on an annual basis with a review of data and analytical results as they become available. Any significant changes or observations should be reported

immediately. It is recommended that a brief summary letter be prepared following completion of the annual monitoring program during intervening years in which a formal report is not prepared in order to fulfil the annual reporting requirement set out in the Environmental Study Report and to highlight any significant or appropriate modifications to the monitoring program for the coming year.

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1.0 INTRODUCTION

This document has been prepared to summarize the results of the groundwater monitoring program associated with the fifth year of operation of the Village of Winchester Well Site No. 7. The scope of the monitoring program was described in Section 4.0 of Golder Associates (2001). Well Site No. 7 was put into operation on March 21, 1997. This report presents the results of monitoring activities conducted between April, 2001 and May, 2002.

One of the conditions of approval for the water supply expansion, as set out in the Environmental Study Report, is a groundwater monitoring program in the area of the Morewood esker. This involves water level monitoring and aquifer water quality monitoring. This is in addition to the ongoing monitoring of the water supply system quality that is carried out by the Ontario Clean Water Agency as part of the water works approval.

The objectives of the groundwater monitoring program for the fifth year of operation were:

- to monitor groundwater level variations and flow characteristics on-site and in the vicinity of Well Site No. 7 during the fifth year of operation, and to compare these to previous trends observed during the pre-operational groundwater monitoring program (Golder Associates, 1996) and during the first four years of operation (Golder Associates, 1998, 1999, 2000, 2001);

- to compare groundwater quality conditions on-site and in the vicinity of Well Site No. 7 during the fifth year of operation to baseline groundwater quality established in the pre-operational groundwater monitoring program (Golder Associates, 1996) and to groundwater quality data collected during the first four years of operation (Golder Assoicates, 1998, 1999, 2000, 2001).

The Village of Winchester Well Site No. 7 is located on Lot 15, Concession IX in the geographic Township of Winchester, Ontario (see Key Plan, Figure 1), now the Township of North Dundas. A site plan and overview of the study area, including the locations of all groundwater monitors included in the groundwater monitoring program for the fifth year of operation and the locations of the production wells (i.e., wells 7A, 7B and 7C), are shown on Figure 2.

2.0 PROCEDURES

A summary of the groundwater monitoring program for the fifth year of operation is provided in Table 1 including the sampling dates and locations, and the chemical and physical parameters that were measured in the field and in the laboratory.

2.1 Groundwater Level Monitoring

Groundwater level measurements were recorded in April, June, August and September of 2001 and in April and May of 2002. All groundwater level measurements were conducted by personnel from South Nation Conservation (SNC).

In comparison to the proposed program for the fifth year of operations (Table 4 of Golder Associates, 2001), the groundwater level monitoring program carried out by SNC did not include water level measurements in November 2001 or January 2002. The water level monitoring session proposed for March 2002 was carried out in April 2002 and an additional groundwater level monitoring session was carried out in May 2002. A groundwater level could not be determined at monitor 94-4 in April of 2001 and groundwater monitor 95-13 was excluded from the list of groundwater monitors in the groundwater level monitoring sessions.

2.2 Groundwater Quality Monitoring

All groundwater sampling and field analyses during the groundwater monitoring program for the fifth year of operation were conducted by SNC personnel.

Groundwater quality monitoring sessions were conducted in September 2001 and May 2002, as indicated in Table 1. This was in accordance with the proposed program for the fifth year of operations (Table 4 of Golder Associates, 2001), with the exception that the proposed March 2002 sampling session was carried out by SNC in May 2002 due to scheduling difficulties.

The groundwater monitors included in the monitoring sessions were 94-5, 94-11, 96-19, 96-20, 96-21 and 96-22.

The groundwater monitors were developed through the removal of at least three standing volumes of water using dedicated sampling devices consisting of a length of flexible low density polyethylene (LDPE) tubing and a Model D-25 foot valve manufactured by Waterra Pumps Ltd. of Toronto, Ontario. Groundwater samples were collected from each monitor immediately after well development.

The temperature, pH and conductivity of the groundwater samples collected during each sampling session were measured in the field at the time of sample collection. The pH and

conductivity meters were calibrated prior to use. All samples were entered on a Chain of Custody Form and placed in coolers with ice packs until they were delivered in person to the private analytical laboratory.

The groundwater samples were collected, prepared and preserved in the field as follows:

- one plastic bottle, unfiltered and unpreserved for analysis of chloride, nitrate, sodium and potassium
- one plastic bottle, unfiltered and preserved to pH<2 with sulphuric acid for analysis of total phosphorus
- one amber glass vial with Teflon septum, unfiltered and unpreserved with no headspace for analysis of BTEX (Benzene, Toluene, Ethylbenzene, Xylenes)
- one amber glass bottle with foil lined cap, unfiltered and unpreserved for analysis of atrazine

Accutest Laboratories Ltd. in Nepean, Ontario performed all laboratory chemical and physical analyses on the groundwater samples.

2.3 Groundwater Monitor Inspection and Repair

Installation of protective steel casings at groundwater monitors 94-1, 94-3, 94-4, 94-8A/8B, 95-13, 95-14 and WESA-16 was approved by the Township of North Dundas in March 2001. Following recommendations in Section 4.0 of Golder Associates (2001), SNC documented any deficiencies or required maintenance on groundwater monitors included in the monitoring program during the June 2001 groundwater level monitoring session. On July 20, 2002, Golder Associates performed necessary maintenance to ensure that the groundwater monitors in the monitoring program were functioning and installed the above listed protective steel casings.

As a result of the groundwater monitor maintenance work carried out by Golder Associates, the elevation of the tops of some of the monitoring well casings was changed. The updated top of casing elevations (which serve as groundwater level measurement reference elevations) are indicated in Table 2.

3.0 DISCUSSION

3.1 Pumping Data

The Ontario Clean Water Agency (OCWA) forwarded monthly pumping data for 2001 to Golder Associates. The Annual Record of Water Taking form containing this monthly pumping data is included in Appendix C. For comparison, the Annual Record of Water Taking form for 2000 is also included in Appendix C.

The total volume of water pumped from the wells at Well Site No. 7 during 2001 was about 26% higher than the total volume of water pumped during 2000. On a monthly basis, the total volume of water pumped during the months of January to October 2001 ranged between about 17 to 47% higher in 2001, compared to the same months in 2000. The highest increase occurred during the month of August in 2001. The volume of water pumped from the wells at Well Site No. 7 during November and December 2001 was similar to the volume pumped during these months in 2000.

SNC observed that the pumps were running during each groundwater level monitoring session conducted since August 2001. Observation of whether or not the pumps were running at the time of monitoring was requested during the Water Resources Protection Committee Meeting No. 5, held on July 13, 2001 at the Township of North Dundas Municipal Office.

It is noteworthy that a "Class 2 Drought" situation was declared for the area in August 2001.

3.2 Groundwater Levels

The groundwater levels measured during the groundwater monitoring program for the fifth year of operation are provided in Table 3. The groundwater elevations in Table 3 were calculated using the elevation data presented in Table 2. These groundwater elevations along with historical groundwater levels measured during the pre-operational monitoring program and the five years of operation are represented graphically on Figures 3 through 6.

Precipitation data have not been reviewed by Golder Associates. Therefore discussion in this report regarding groundwater elevations recorded during the fifth year of operation in comparison to the first four years of operation and pre-operating groundwater elevations is strictly factual. Any suggestions for causes of changes in groundwater elevations over time due to weather fluctuations are hypothetical and for evaluation there would need to be a comparison to precipitation data in addition to the pumping data in order to more thoroughly examine the possible reasons for any changes over time related to weather.

Figure 3 shows groundwater level fluctuations on, and in the immediate vicinity of, the Village of Winchester well site (Well Site No. 7). The screens of these groundwater monitors are located in the core of the Morewood esker in unconfined fine sand and sand and gravel deposits.

The trend depicted in Figure 3 shows seasonal variation with groundwater levels typically highest in the spring months and lowest in the fall/winter months. The water levels reported in April and May 2002 at these groundwater monitors were lower than water levels that have typically been observed during the spring (approximately 1 metre lower). The lowest groundwater level recorded during the fifth year of operation at monitor 94-5 was slightly lower than the lowest groundwater level recorded at this monitor during previous years. The lowest groundwater levels recorded at monitors 94-1 and 94-3 during the fifth year of operation (excluding April and May 2002) were slightly higher than the lowest groundwater levels recorded at these monitors during previous years. Too few data exist for monitors 94-4 and 95-14 to comment on trends in water levels measured during the fifth year of operation, compared to previous years.

The lowest groundwater levels recorded at the monitors in the immediate vicinity of Well Site No. 7 during the fifth year of operation (excluding April and May 2002) were about 0.7 to 1.5 metres lower than the lowest water levels recorded during the pre-operational monitoring program.

Figure 4 shows groundwater level fluctuations in other groundwater monitors located in the core of the Morewood esker to the south of Well Site No. 7 (with the exception of 94-7, which was on the road allowance directly north of the well site). The screens of these monitors are all in unconfined sand and gravel. Groundwater monitor 94-7 was destroyed after November 1996. The trend depicted in Figure 4 is similar to that in Figure 3 with the lowest groundwater levels typically occurring in the fall/winter months.

The water levels reported in April and May 2002 at the WESA-16 monitor were lower than water levels that have typically been observed during the spring (approximately 1 metre lower) at this monitor. A similar observation was made in the water level at monitor 94-6 in April 2002, while the April and May 2002 water levels at monitor 94-11 were more typical. The unusual decrease in groundwater level observed in April 2000 at monitor 94-11, as reported in Golder Associates (2001), was not observed during the fifth year of operation, as more typical groundwater levels were reported at this monitor. With the exception of the April 2002 water level, all water levels measured at monitor 94-6 during the monitoring program for the fifth year of operation were approximately 0.5 to 1.5 metres higher than the levels that have typically been recorded at this monitor in the past. Excluding the April and May 2002 water level data, the lowest groundwater level reported during the fifth year of operation at monitor 94-6 was about 1.5 metres higher than the lowest groundwater levels reported at this monitor during the first four years of operation. The lowest groundwater level reported at monitor 94-11 during the fifth year of operation was similar to the lowest groundwater levels in previous years, while the lowest groundwater level

reported at WESA-16 was between 0.5 and 1.0 metres lower than typical low levels in previous years.

The groundwater levels recorded at monitors 94-6, 94-11 and WESA-16 in the late summer of 2001 were approximately 1.2 metres lower to 0.8 metres higher than in the fall of 1996 (pre-operational groundwater levels). Based on historical trends, it is considered that the groundwater levels in monitors 94-6, 94-11 and WESA-16 continue to reflect influence from the pumping activities on Well Site No. 7 on the order of about 0.5 to 0.8 metres of drawdown.

Figure 5 depicts groundwater level variations in various other geological formations in the vicinity of the Morewood esker. Monitors 94-8A and 94-9A are located in a confined (overlain by clay) silty sand deposit to the west of the core of the esker, while 94-8B and 94-9B are in the overlying silty clay layer in the same area. Monitor 94-10 is located in a confined glacial till unit to the east of the core of the Morewood esker. Monitor 94-12 is located northwest of Well Site No. 7 in a sand and gravel portion of the Morewood esker that is overlain by a thin silty clay layer.

Similar trends to Figure 3 are again seen in Figure 5, with a significantly lower piezometric surface in 94-9A, 94-9B and 94-12 than in the other groundwater monitors included in the groundwater level monitoring program. Riser pipe extensions were added to groundwater monitors 94-8A and 94-8B in June of 1999. Prior to this these monitors have been frequently artesian (water level above the top of the monitoring well riser pipe). Therefore comparison of groundwater levels in monitors 94-8A and 94-8B during wetter times of the year has not previously been possible. The groundwater levels at all of the monitors included in Figure 5 during April and May 2002 were lower than water levels that have typically been observed during the spring months. The lowest groundwater levels recorded during the fifth year of operation at all of the monitors included in Figure 5 (with the possible exception of monitor 94-12) were lower than the lowest levels that have typically been reported during previous years. The lowest groundwater level reported during the fifth year of operation at monitor 94-12 was similar to previous low levels. The groundwater levels observed at monitor 94-12 continue to reflect about 0.3 to 0.6 metres of drawdown in comparison to 1996, pre-operational groundwater levels at this monitor.

The groundwater levels in the monitors included in Figure 5 may represent a minor degree of influence from the pumping activities on the Village of Winchester Well Site No. 7, however it is considered that these monitors are more greatly influenced by seasonal variations than by the pumping activities.

Figure 6 represents the groundwater levels in the 96-Series groundwater monitors. Monitors 96-20, 96-21 and 96-22 are located in the Morewood esker to the north of Well Site No. 7, in

unconfined fine sand and sand and gravel. Monitor 96-19 is located within the esker to the south of the well site, in confined fine sand.

The trends in Figure 6 are similar to the trends in Figure 3 with groundwater levels highest in the spring months and lowest in the late summer/early fall to late fall/early winter. The uncharacteristically lower spring groundwater levels that were observed in April and May of 2002 at several of the other groundwater monitors were not observed at the 96-Series groundwater monitors as the water levels reported at these monitors in the spring of 2002 were typical for that time of year. Moreover, the lower groundwater levels that were reported at monitor 96-20 in April 2000 and March 2001 were not observed during the spring of 2002. The lowest groundwater levels recorded in groundwater monitors 96-19, 96-20, 96-21 and 96-22 during the fifth year of operation were slightly lower than the lowest groundwater levels typically recorded at these monitors during the first four years of operation.

Deviations in groundwater levels in the 96-Series groundwater monitors between the lowest pre-operation groundwater levels and the lowest water levels reported during the fifth year of operation range from about 1.5 metres lower in September 2001 at monitor 96-20 (closest to the well site) to about 0.9 metres lower in September 2001 at monitor 96-22 (furthest from the well site). These deviations are between 0.2 and 0.5 metres greater than the ranges that have typically been observed at these monitors during previous years of operation. The groundwater levels during the fifth year of operation at the 96-Series monitors continue to suggest some influence from the pumping activities at Well No. 7. The degree of influence from pumping on the 96-Series groundwater monitors appears to be inversely proportional to the distance from the well site, as would be expected.

3.3 Flow Directions

Based on the groundwater elevation data available prior to the start of operation of Village of Winchester Well Site No. 7 on March 21, 1997, the general direction of natural (pre-operation) groundwater flow within the Morewood esker is to the north, following the long axis of the esker, as illustrated in Figure 2. As would be expected in permeable coarse grained deposits, the horizontal hydraulic gradient is quite low and was previously reported to be around $1x10^{-4}$ (Golder Associates, 1996).

A component of groundwater flow in a southerly direction was previously reported (Golder Associates, 1996) in the south portion of the esker, forming a groundwater divide approximately 500 metres north of County Road 3. It has been considered that this condition is likely a result of the topographic high spot that is present in this area (Golder Associates, 1996). Based on the groundwater level data available from monitor WESA-16, the presence of this groundwater divide does not appear to be altered by the pumping activities at Well Site No. 7. The interpreted position of this groundwater divide could also be influenced by activities at the sand and gravel

pit in this vicinity. Based on the groundwater level data reported at monitor 94-11 during the fifth year of operation, the interpreted position of the groundwater divide has been moved approximately 300 metres further to the north, to the north of the adjacent sand and gravel pit (see Figure 2). It is considered that the position of the groundwater divide may be somewhat transient and vary slightly in position.

In Golder Associates (1998) a decrease in the magnitude of the hydraulic gradient since the start of operation was described in the Morewood esker to the immediate north of the well site. This trend continued during the fifth year of operation, as evidenced by groundwater elevations recorded in monitors 96-20, 96-21 and 96-22. Periodic southerly components of groundwater flow in this area is interpreted based on groundwater elevation measurements recorded since the start of operation. To the north of monitor 96-22, groundwater flow appears to be toward the north, similar to pre-operation conditions.

Based on the groundwater level data obtained during the fifth year of operation, the interpreted general direction of groundwater flow remains consistent with pre-operational flow directions, with periodic slight variations in the immediate vicinity and to the north of the pumping wells. The interpreted direction of groundwater flow, based on groundwater elevation measurements obtained on September 18, 2001, is shown on Figure 2.

3.4 Groundwater Quality

The results of all field and laboratory chemical and physical analyses conducted during the groundwater monitoring program for the fifth year of operation, along with the relevant Ontario Drinking Water Standards/Objectives (ODWS/O) (Ministry of the Environment, 2001) are provided in Appendix A. Historical results are also provided in Appendix A for the groundwater monitors included in the groundwater monitoring program for the fifth year of operation. The Report of Analyses sheets from Accutest Laboratories Ltd. for all analyses conducted as part of the groundwater monitoring program for the fifth year of operation are included in Appendix B.

Discussion relating to compliance with the ODWS/O relates specifically to non-health related objectives (i.e. aesthetic parameters) and health related parameters for which a Maximum Acceptable Concentration (MAC) or Interim Maximum Acceptable Concentration (IMAC) have been established. The following provides a summary of the apparent trends in groundwater quality over time with particular attention to any discrepancies or changes in groundwater quality between the pre-operational monitoring program and the monitoring program for the fifth year of operation:

- Groundwater quality in all of the groundwater monitors included in the monitoring program for the fifth year of operation was generally consistent over time and met the ODWS/O for all

parameters monitored with the exception of nitrate at monitor 96-21 in September 2001 (11.20 mg/L) which slightly exceeded the ODWS/O (10.0 mg/L).

- Atrazine and BTEX (benzene, toluene, ethylbenzene, xylenes) were not detected at any of the monitoring locations included in the monitoring program for the fifth year of operation.

- Total phosphorus levels have been variable over time at all of the groundwater monitors included in the sampling program.

- Nitrate was not detected in any of the groundwater samples collected from monitors 94-5, 96-19 or 96-22 during the fifth year of operation.

- Nitrate was not detected in the groundwater sample collected from monitor 94-11 in September 2001 but was detected at a relatively low concentration (0.25 mg/L) in the sample collected in May 2002. Nitrate has typically been detected in groundwater samples collected from monitor 94-11 since September 1997 at concentrations between 0.11 mg/L and 3.03 mg/L.

- Nitrate has been consistently present (at slightly variable levels < 3.11 mg/L) at monitor 96-20 since the start of monitoring.

- Nitrate has been consistently present at variable levels at monitor 96-21 since the start of monitoring. The nitrate concentrations reported at monitor 96-21 during the fifth year of operation were significantly higher than the concentrations reported during previous years of operation.

- The field-measured electrical conductivity values in the groundwater samples collected during the September 2001 sampling session at monitors 94-11, 96-20 and 96-21 were unusually high. The concentrations of other parameters measured in the groundwater samples collected from these locations during this sampling session suggest that the reported electrical conductivity values may be erroneous.

- A gradual trend in increasing chloride levels has been observed at monitor 96-20 since May 1997. The chloride concentration reported at this monitor during the monitoring program for the fifth year of operation ranged between 41 mg/L in September 2001 and 49 mg/L in May 2002 (compared to the ODWS/O of 250 mg/L) compared to about 13 mg/L in early 1997.

- The chloride concentration reported in the groundwater sample collected from monitor 94-5 in May 2002 (13 mg/L) was slightly higher than previously reported at this location.

- The chloride concentrations reported in the groundwater samples collected from monitors 96-19 and 96-21 in September 2001 were slightly higher than previously reported at these locations, but still at low levels of 17 and 16 mg/L, respectively.

In general, the ongoing land uses and the pumping operations at the Village of Winchester Well Site No. 7 do not appear to have adversely affected groundwater quality to date in the vicinity of the well site. The most noteworthy changes in groundwater quality observed during the monitoring program for the fifth year of operation were a continuing trend in increasing chloride concentrations over time at monitor 96-20 and significantly higher nitrate concentrations reported at monitor 96-21 in September 2001 and May 2002. It is recommended that particular attention be paid to the concentrations of these parameters at these locations during future monitoring programs.

4.0 PROPOSED MONITORING PROGRAM ON-GOING OPERATIONS

A proposed annual monitoring program for on-going operations is summarized in Table 4.

The proposed annual monitoring program for on-going operations is identical to that proposed for the fifth year of operation with the exception that the number of proposed groundwater level monitoring sessions has been reduced from 7 sessions to 5 sessions (note that the proposed monitoring session for May 2002 has already been completed as part of the monitoring program described in this report). Based on the extensive groundwater level data collected during the first five years of operation, it is considered that this reduced frequency will still serve to monitor water levels seasonally and during the wet and dry periods of the year.

Should any changes be made to the operation of Well Site No. 7, it is recommended that the frequency of monitoring be adjusted appropriately in order to observe any effects caused as a result of such changes. Additionally, it is understood that a Well Head Protection (WHP) Study is presently underway for this well field (and other wells servicing the Village of Winchester). It may be appropriate to modify the frequency and/or the scope of monitoring, pending the outcome of the WHP study.

Several upgrades and repairs were performed to the existing groundwater monitors during the fifth year of operation, including the installation of steel protective casings at several monitor locations. It is recommended that SNC document any deficiencies or required maintenance on groundwater monitors included in the monitoring program on an on-going basis. Golder Associates could perform any required maintenance on a time and materials basis.

Further to discussion during the Water Resources Protection Committee Meeting No. 5, held on July 13, 2001 at the Township of North Dundas Municipal Office, consideration was given to reducing the frequency of preparing a formal report from annually to once every two years. Due to the extensive collection of groundwater level and water quality data during the monitoring programs conducted throughout the first five years of operation of Winchester Well Site No. 7, and based on the consistent nature of the groundwater level data collected and the results of analyses on groundwater samples, it is considered appropriate to reduce the formal reporting frequency to once every two years. Monitoring should still be carried out on an annual basis with a review of data and analytical results as they become available. Any significant changes or observations should be reported immediately. It is recommended that a brief summary letter be prepared following completion of the annual monitoring program during intervening years in which a formal report is not prepared in order to fulfil the annual reporting requirement set out in the Environmental Study Report (Section 6.3.4.2). This letter should confirm completion of the monitoring program for the previous operational year, indicate any difficulties (e.g., required groundwater monitor maintenance) or significant changes in groundwater levels or water quality, and any proposed modifications to the monitoring program.

5.0 LIMITATIONS AND USE OF REPORT

This annual report was prepared for the exclusive use of North Dundas Township. The report, which specifically includes all tables, figures and appendices, is based on data and information collected by Golder Associates and is based solely on the conditions of the property at the time of the work, supplemented by historical information and data obtained by Golder Associates as described in this report. Each of these annual reports must be read and understood collectively, and can only be relied upon in their totality.

Golder Associates has relied in good faith on all information provided and does not accept responsibility for any deficiency, misstatements, or inaccuracies contained in the reports as a result of omissions, misinterpretation, or fraudulent acts of the persons contacted or errors or omissions in the reviewed documentation.

The assessment of environmental conditions at this site has been made using the results of physical measurements and chemical analyses of liquids from a number of locations. The site conditions between sampling locations have been inferred based on conditions observed at the borehole locations. Subsurface conditions may vary from these sampled locations.

The services performed, as described in this report, were conducted in a manner consistent with that level of care and skill normally exercised by other members of the engineering and science professions currently practising under similar conditions, subject to the time limits and financial and physical constraints applicable to the services.

Any use which a third party makes of this report, or any reliance on, or decisions to be made based on it, are the responsibilities of such third parties. Golder Associates accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report.

The findings and conclusions of this report are valid only as of the date of this report. If new information is discovered in future work, including excavations, borings, or other studies, Golder Associates should be requested to re-evaluate the conclusions of this report, and to provide amendments as required. The groundwater monitors installed during the course of this investigation or previous investigations by Golder Associates have been left in place. These groundwater monitors are the property of the North Dundas Township and not Golder Associates.

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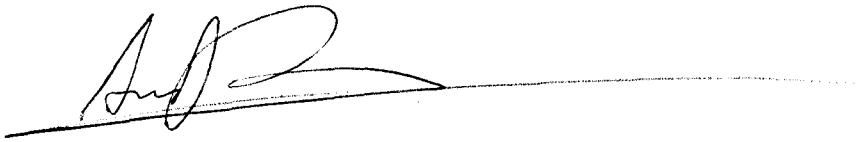

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TABLE 1

**SUMMARY OF GROUNDWATER MONITORING PROGRAM
FOR ON-SITE AND OFF-SITE BOREHOLES
FIFTH YEAR OF OPERATION**

1.0 WATER LEVEL MONITORING COMPONENT

1.1 Monitoring Sessions

April 23, 2001
June 22, 2001
August 14, 2001
September 18, 2001
April 19, 2002
May 15, 2002

1.2 Monitoring Locations

Groundwater Monitors 94-1, 94-3, 94-4, 94-5, 94-6, 94-8A, 94-8B, 94-9A, 94-9B, 94-10, 94-11, 94-12, 95-14
Monitor WESA-16
Monitors 96-19, 96-20, 96-21 and 96-22

2.0 WATER QUALITY MONITORING COMPONENT

2.1 Monitoring Sessions

September 18, 2001
May 15, 2002

2.2 Monitoring Locations

Groundwater Monitors 94-5 and 94-11
Monitors 96-19, 96-20, 96-21 and 96-22

2.3 Field Measured Physical Parameters

Temperature
Conductivity
pH

2.4 Laboratory Measured Chemical Parameters

Chloride
Nitrate
Sodium
Potassium
Total Phosphorus
Benzene
Toluene
Ethylbenzene
Xylenes
Atrazine

ELEVATION DATA

Monitor	Ground Surface Elevation (metres)	Groundwater Measurement Datum							
		Top of Casing Elevation (metres)	Stickup (metres)	Revised Top of Casing Elevaton 6/22/99 (metres)	Revised Stickup 6/22/99 (metres)	Revised Top of Casing Elevaton 9/1/00 (metres)	Revised Stickup 9/1/00 (metres)	Revised Top of Casing Elevaton 7/20/01 (metres)	Revised Stickup 7/20/01 (metres)
94-1	76.26	77.31	1.05						
94-2	76.19	77.18	0.99						
94-3	76.24	77.25	1.01					77.59	1.35
94-4	77.52	78.60	1.08			78.49	0.97	78.94	1.42
94-5	76.23	77.16	0.93			77.12	0.89	77.26	1.03
94-6	82.79	83.55	0.76						
94-7	80.56	80.47	-0.09						
94-8A	74.65	74.63	-0.02	75.29	0.63			75.54	0.88
94-8B	74.65	74.64	-0.01	75.36	0.71				
94-9A	73.08	73.08	0.00						
94-9B	73.08	73.08	0.00						
94-10	76.59	76.77	0.18						
94-11	82.62	82.52	-0.10						
94-12	79.58	79.51	-0.07						
95-13	76.27	77.32	1.05					77.15	0.88
95-14	76.21	77.23	1.02					77.19	0.98
WESA16	78.50	78.50	0.00					79.52	1.02
96-19	76.51	77.69	1.18						
96-20	79.34	80.09	0.75						
96-21	81.61	82.56	0.95						
96-22	81.50	82.34	0.84						

Note: "-" indicates top of casing is below ground surface.

TABLE 3

WATER LEVEL DATA

Monitor	4/23/01		6/22/01		8/14/01	
	Depth (BGS) (metres)	Elevation (metres)	Depth (BGS) (metres)	Elevation (metres)	Depth (BGS) (metres)	Elevation (metres)
94-1	1.23	75.03	1.62	74.64	1.74	74.52
94-2	destroyed	destroyed	destroyed	destroyed	destroyed	destroyed
94-3	1.42	74.82	1.55	74.69	1.33	74.91
94-4	damaged	damaged	2.67	74.86	3.09	74.43
94-5	0.85	75.38	1.23	75.00	1.64	74.59
94-6	6.17	76.62	6.36	76.43	6.22	76.57
94-7	destroyed	destroyed	destroyed	destroyed	destroyed	destroyed
94-8A	0.11	74.55	0.29	74.37	1.12	73.54
94-8B	0.66	73.99	0.85	73.80	1.07	73.58
94-9A	1.40	71.68	0.87	72.21	1.90	71.18
94-9B	1.92	71.16	1.01	72.07	1.83	71.25
94-10	0.31	76.28	0.72	75.87	1.53	75.06
94-11	6.82	75.80	7.18	75.44	7.52	75.10
94-12	7.47	72.11	7.33	72.25	7.56	72.02
95-13	nm	nm	nm	nm	nm	nm
95-14	1.71	74.50	1.56	74.65	1.87	74.34
WESA16	2.96	75.54	3.42	75.08	3.93	74.57
96-19	0.21	76.30	0.48	76.03	0.99	75.52
96-20	4.28	75.06	4.69	74.65	5.10	74.24
96-21	7.06	74.55	6.97	74.64	6.44	75.17
96-22	6.40	75.10	6.90	74.60	7.20	74.30

Notes:
All elevations are relative to Geodetic datum
BGS = "Below Ground Surface"
nm = not measured
Negative depth values indicate that groundwater level was *above* ground surface

WATER LEVEL DATA

Monitor	9/18/01		4/19/02		5/15/02	
	Depth (BGS) (metres)	Elevation (metres)	Depth (BGS) (metres)	Elevation (metres)	Depth (BGS) (metres)	Elevation (metres)
94-1	1.22	75.04	1.89	74.37	1.59	74.67
94-2	destroyed	destroyed	destroyed	destroyed	destroyed	destroyed
94-3	0.95	75.29	2.07	74.17	1.86	74.38
94-4	3.40	74.12	3.53	73.99	3.32	74.20
94-5	1.94	74.29	0.86	75.37	0.71	75.52
94-6	6.20	76.59	7.86	74.93	5.99	76.80
94-7	destroyed	destroyed	destroyed	destroyed	destroyed	destroyed
94-8A	1.26	73.40	0.48	74.18	0.37	74.29
94-8B	1.36	73.29	0.88	73.77	0.77	73.88
94-9A	2.33	70.75	1.75	71.33	1.35	71.73
94-9B	2.53	70.55	1.96	71.12	1.65	71.43
94-10	1.87	74.72	1.41	75.18	1.36	75.23
94-11	7.80	74.82	6.70	75.92	6.69	75.93
94-12	7.77	71.81	7.99	71.59	7.13	72.45
95-13	nm	nm	nm	nm	nm	nm
95-14	1.30	74.91	2.64	73.57	2.07	74.14
WESA16	4.25	74.25	4.54	73.96	4.00	74.50
96-19	1.15	75.36	0.38	76.13	0.06	76.45
96-20	5.39	73.95	4.27	75.07	4.10	75.24
96-21	7.71	73.90	6.68	74.93	6.47	75.14
96-22	7.45	74.05	6.63	74.87	6.36	75.14

Notes:
All elevations are relative to Geodetic datum
BGS = "Below Ground Surface"
nm = not measured
Negative depth values indicate that groundwater level was *above* ground surface

TABLE 4

PROPOSED ANNUAL GROUNDWATER MONITORING PROGRAM FOR ON-GOING OPERATIONS

1.0 WATER LEVEL MONITORING COMPONENT

1.1 Monitoring Sessions

May (already completed in 2002 as part of 5th year program)
July
September
December
March

1.2 Monitoring Locations

Groundwater Monitors 94-1, 94-3, 94-4, 94-5, 94-6, 94-8A, 94-8B, 94-9A, 94-9B, 94-10, 94-11, 94-12, 95-13, 95-14
Monitor WESA-16
Monitors 96-19, 96-20, 96-21 and 96-22

2.0 WATER QUALITY MONITORING COMPONENT

2.1 Monitoring Sessions

September
March

2.2 Monitoring Locations

Groundwater Monitors 94-5 and 94-11
Monitors 96-19, 96-20, 96-21 and 96-22

2.3 Field Measured Physical Parameters

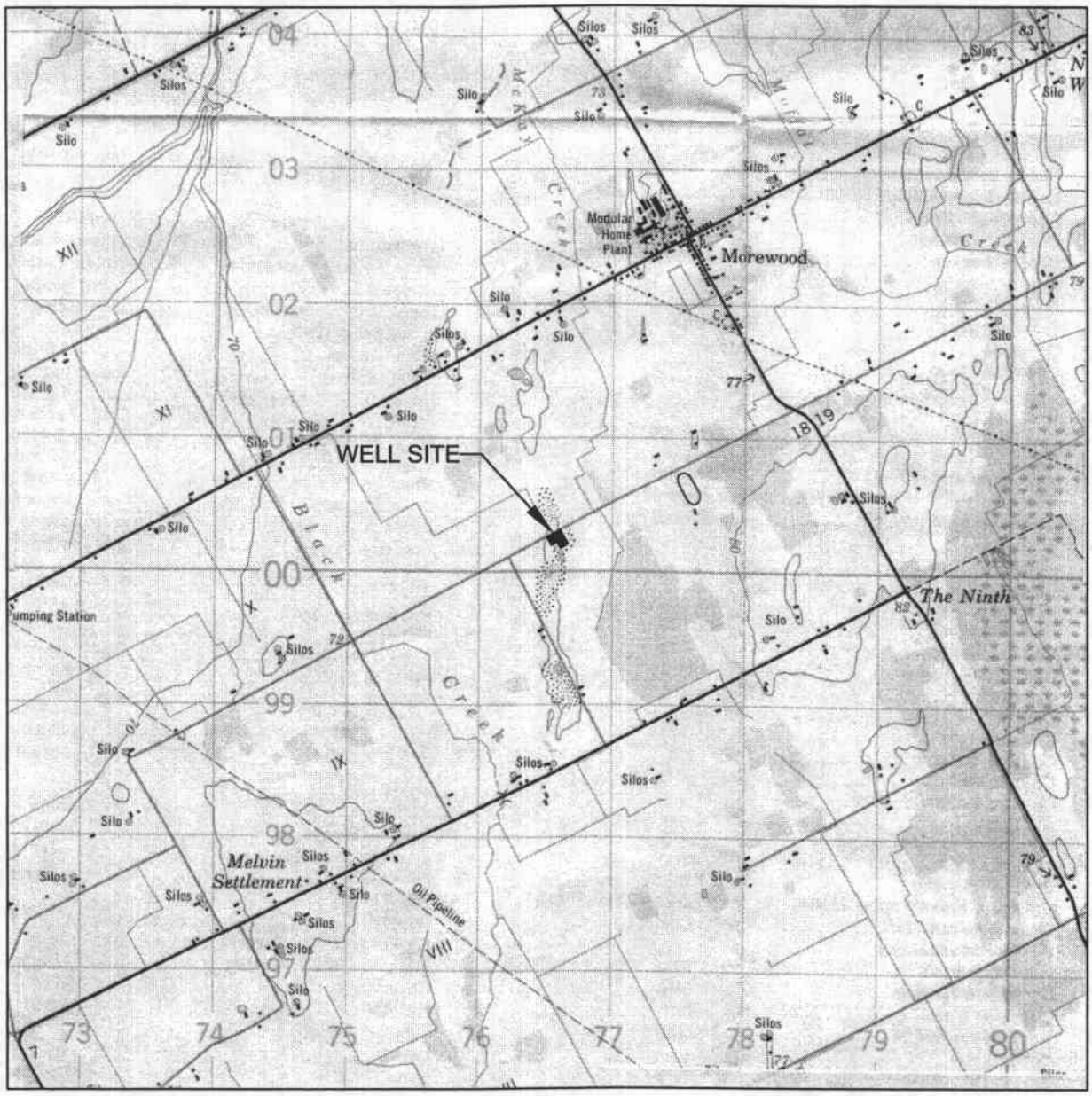
Temperature
Conductivity
pH

2.4 Laboratory Measured Chemical Parameters

Chloride
Nitrate
Sodium
Potassium
Total Phosphorus

Benzene
Toluene
Ethylbenzene
Xylenes
Atrazine

NOTE: All laboratory analyses on groundwater samples are to be performed by a private analytical laboratory and the method detection limits (MDLs) for the specific analyses are to be commensurate with the standards established in the Ontario Drinking Water Standards (MOE, 2001).



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Ottawa, Ontario

FILE No.	011-2886-1000-01.dwg
PROJECT No.	011-2886
REV.	

SCALE	1 : 50, 000
DATE	JULY 2002
DESIGN	
CADD	K.P.T.
CHECK	A. B.
REVIEW	PAS

TITLE

KEYPLAN

FIGURE 1

N/active/2800/011-2886/acad/011-28886-1000-01.dwg

FIGURE 3

Groundwater Elevations in Vicinity of the Village of Winchester Well Site

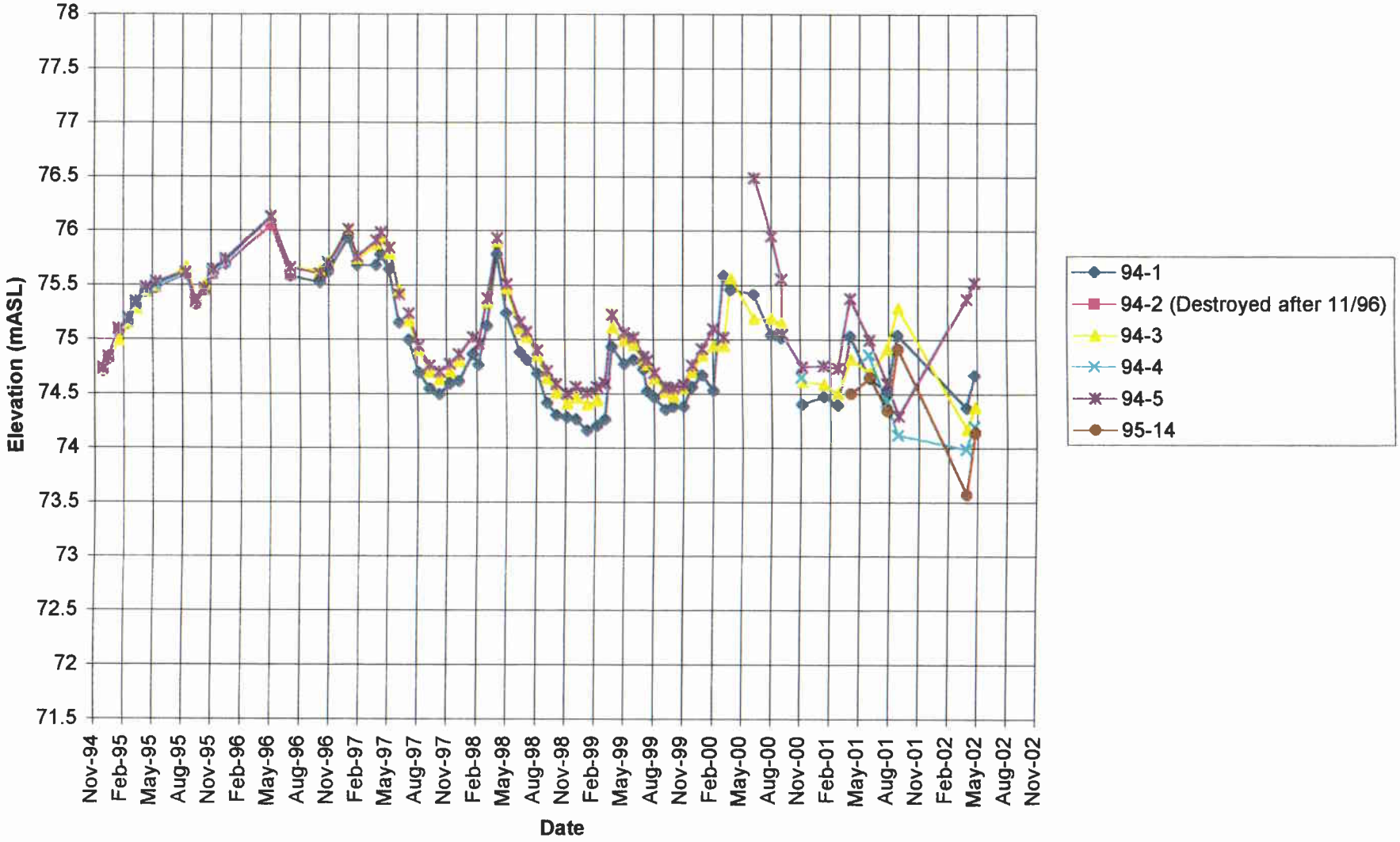
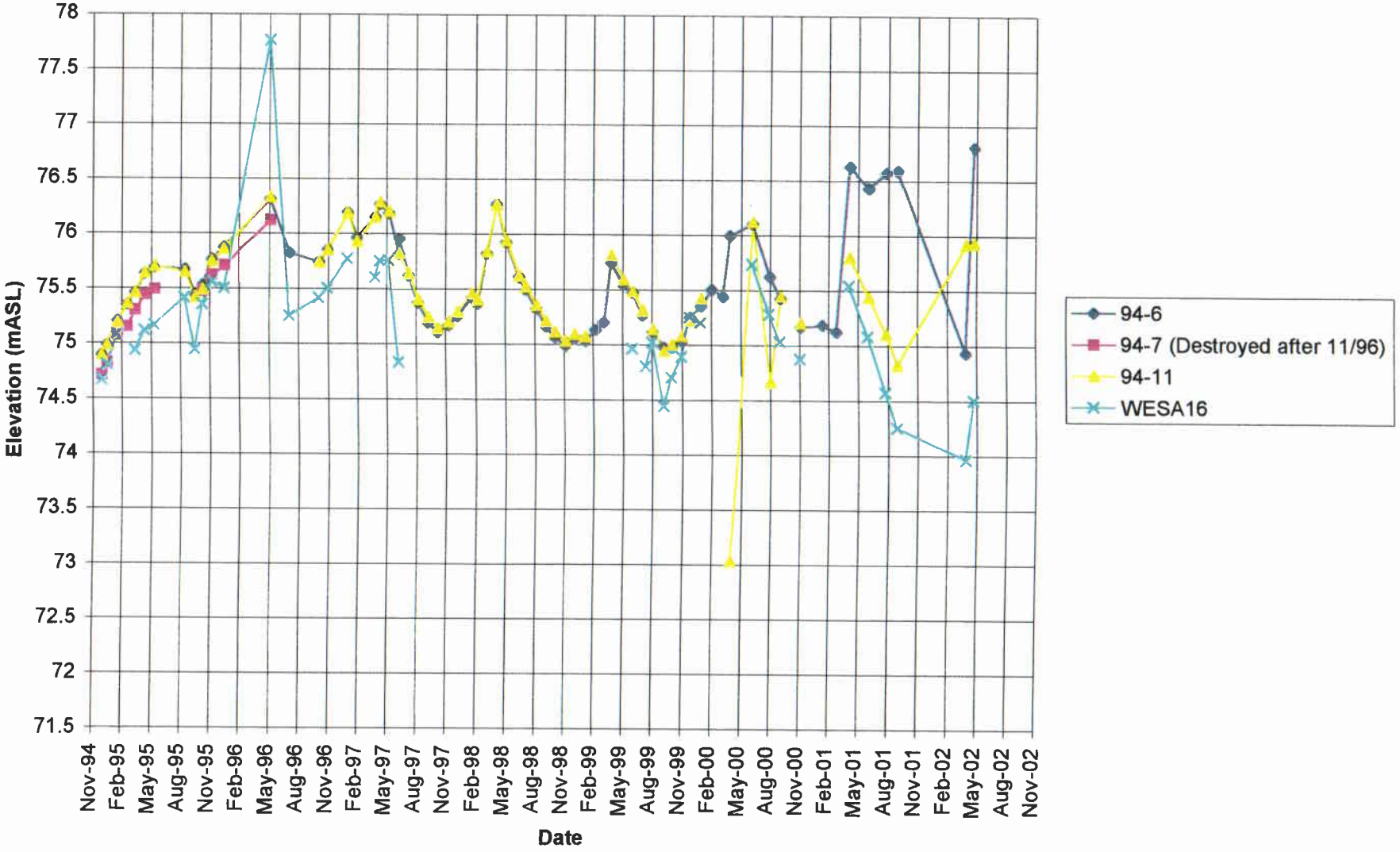


FIGURE 4

Groundwater Elevations in Morewood Esker



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WI_yr5.xls

FIGURE 5

Groundwater Elevations in Various Geological Formations

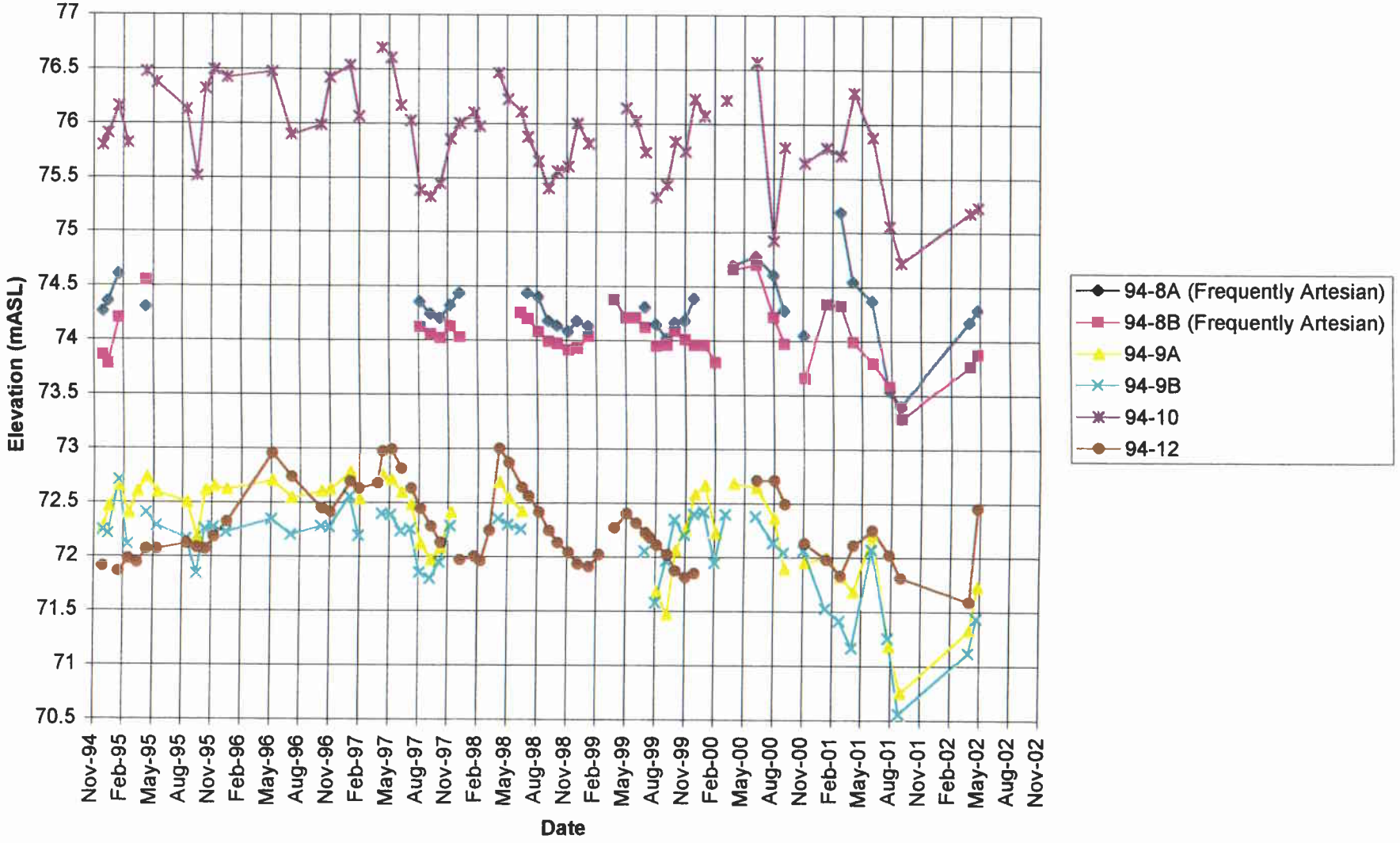
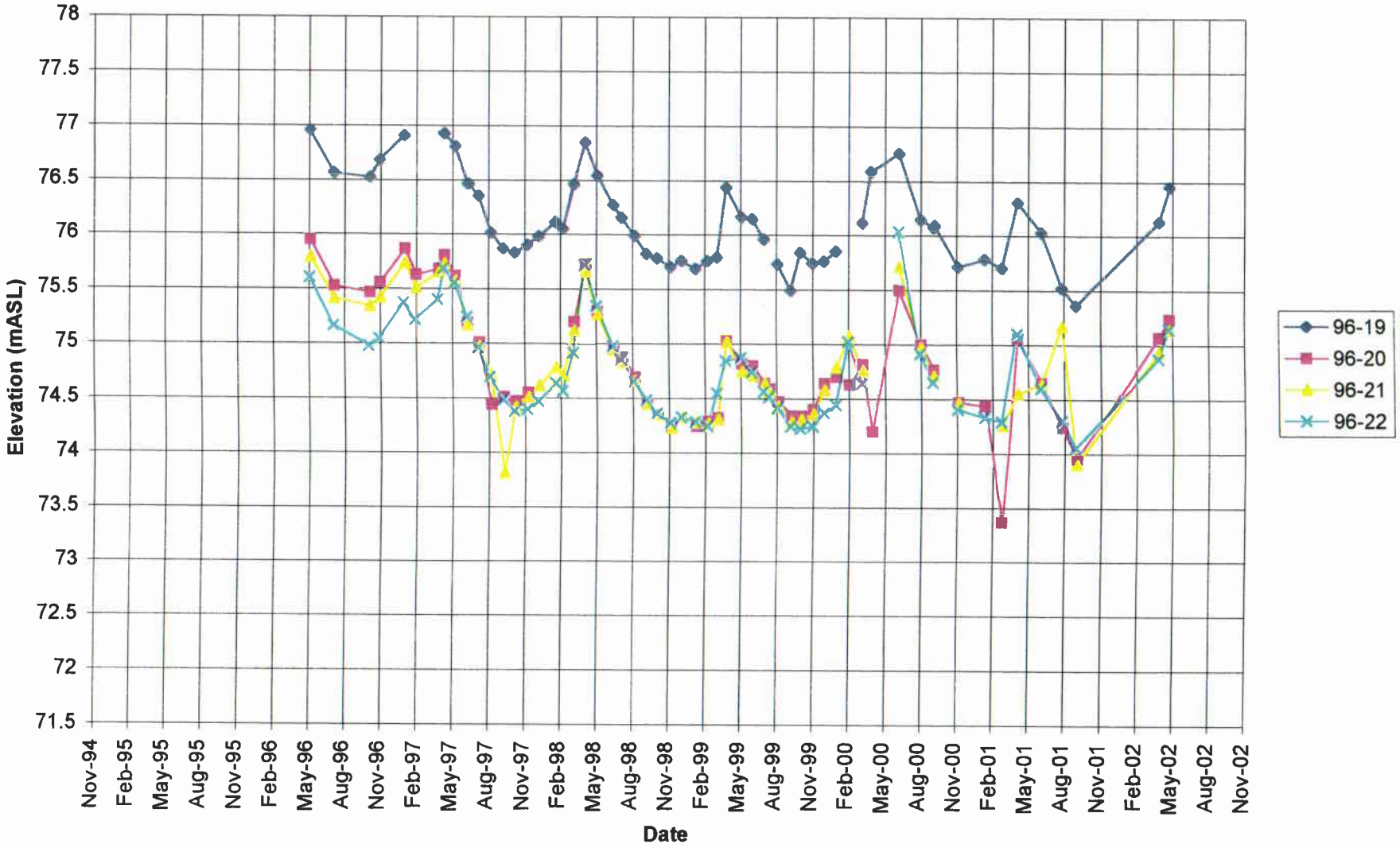


FIGURE 6

Groundwater Elevations in 96-Series Monitoring Wells



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APPENDIX A

REPORT OF MONITORING RESULTS

LIST OF ABBREVIATIONS

The abbreviations commonly employed on the "Chemical and Physical Analyses Data Sheets", on the figures, in the tables and in the text of the report as related to the water quality monitoring programs are as follows:

ODWS/O	Ontario Drinking Water Standard/Objective (Ministry of the Environment, 2001)
<	parameter not detected in concentration at or higher than the analytical laboratory's method detection limit (MDL). Specific MDL concentrations are indicated following "<" sign.
N	nitrogen
P	phosphorus
$CaCO_3$	calcium carbonate
C	degrees Celsius
microS/cm	microsiemens per centimetre
NTU	Nephelometric Turbidity Unit
TCU	True Colour Unit
mL	millilitre
mg/L	milligrams per litre
ppm	parts per million
COND.	conductivity
DIS. OXYGEN	dissolved oxygen
TKN	total kjeldahl nitrogen
BOD	biochemical oxygen demand
COD	chemical oxygen demand
DOC	dissolved organic carbon
EC	*Escherichia coli*
TOC	total organic carbon
TS	total solids
TSS	total suspended solids
TDS	total dissolved solids
TC	total coliform
FC	faecal coliform
FS	faecal streptococcus
BKGD	background

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WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **94-5** Sheet: 1

Date Sampled:		18-Oct-1994	26-Oct-1994	03-Nov-1994	15-May-1995	19-Sep-1995
Parameter	ODWS/O					
Atrazine	0.005					
Chloride	250				12.0	11.0
Conductivity (uS/cm)					350	405
Nitrate (as N)	10	<0.10	<0.10	<0.10	<0.10	<0.10
pH (pH units)	6.5-8.5				7.1	8.4
Phosphorus (total)						0.06
Potassium						2.0
Sodium	200				7.0	6.0
Temperature (C)	15				8.5	12.0
TPH-Diesel						
TPH-Gasoline						
TPH-Gasoline/Diesel						
TPH-Heavy Oils						
VOC's:						
Benzene	0.005				<0.0005	<0.0005
Ethylbenzene	0.0024				<0.0005	<0.0005
Toluene	0.024				<0.0005	<0.0005
Xylene-m/p						
Xylene-o						
Xylenes	0.3				<0.0010	<0.0010

All values (VOC's included) reported in mg/L unless otherwise noted.

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WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **94-5** Sheet: 2

Date Sampled:		09-May-1996	10-Oct-1996	18-Apr-1997	16-May-1997	16-Sep-1997
Parameter	ODWS/O					
Atrazine	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloride	250	9.0	9.0	9.0	10.0	8.0
Conductivity (uS/cm)		360	445	330	300	290
Nitrate (as N)	10	<0.10	<0.10	<0.10	<0.10	<0.10
pH (pH units)	6.5-8.5	7.9	7.7	6.3	7.2	7.0
Phosphorus (total)		4.54	0.02	<0.01	0.84	0.21
Potassium		2.0	2.0	2.0	2.0	2.0
Sodium	200	7.0	13.0	8.0	9.0	7.0
Temperature (C)	15	8.5	8.0	6.5	7.0	9.0
TPH-Diesel						
TPH-Gasoline						
TPH-Gasoline/Diesel						
TPH-Heavy Oils						
VOC's:						
Benzene	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ethylbenzene	0.0024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	0.024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene-m/p						
Xylene-o						
Xylenes	0.3	<0.0010	<0.0010	<0.0015	<0.0015	<0.0015

All values (VOC's included) reported in mg/L unless otherwise noted.

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WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **94-5** Sheet: 3

Date Sampled:		16-Mar-1998	25-Jun-1998	17-Sep-1998	16-Mar-1999	22-Jun-1999
Parameter	ODWS/O					
Atrazine	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloride	250	10.0	11.0	9.0	9.0	7.0
Conductivity (uS/cm)		360	420	420	400	470
Nitrate (as N)	10	<0.10	<0.10	<0.10	0.37	<0.10
pH (pH units)	6.5-8.5	7.0	6.1	7.4	7.8	7.6
Phosphorus (total)		0.05	<0.01	<0.01	0.24	0.67
Potassium		2.0	2.0	2.0	2.0	2.0
Sodium	200	7.0	7.0	6.0	7.0	6.0
Temperature (C)	15	2.0	11.0	12.0	10.0	11.0
TPH-Diesel						
TPH-Gasoline						
TPH-Gasoline/Diesel						
TPH-Heavy Oils						
VOC's:						
Benzene	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ethylbenzene	0.0024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	0.024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene-m/p						
Xylene-o						
Xylenes	0.3	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015

All values (VOC's included) reported in mg/L unless otherwise noted.

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WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **94-5** Sheet: 4

Date Sampled:		21-Sep-1999	22-Mar-2000	20-Sep-2000	15-Oct-2000	14-Mar-2001
Parameter	ODWS/O					
Atrazine	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloride	250	8.0	7.0	10.0	9.0	12.0
Conductivity (uS/cm)		506	400	503		330
Nitrate (as N)	10	<0.10	<0.10	<0.10	<0.10	<0.10
pH (pH units)	6.5-8.5	7.5	7.4	7.0		8.2
Phosphorus (total)		1.13	0.03	0.37	0.73	0.52
Potassium		2.0	2.0	2.0	2.0	2.0
Sodium	200	7.0	6.0	6.0	7.0	7.0
Temperature (C)	15	9.0	8.0	12.4		7.0
TPH-Diesel					<0.2	
TPH-Gasoline					<0.2	
TPH-Gasoline/Diesel					<0.2	
TPH-Heavy Oils					<1	
VOC's:						
Benzene	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ethylbenzene	0.0024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	0.024	<0.0005	<0.0005	0.0050	0.0013	<0.0005
Xylene-m/p				<0.0005	<0.0010	<0.0010
Xylene-o				<0.0005	<0.0005	<0.0005
Xylenes	0.3	<0.0015	<0.0015			

All values (VOC's included) reported in mg/L unless otherwise noted.

Golder Associates

WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **94-5**

Date Sampled:		18-Sep-2001	15-May-2002
Parameter	ODWS/O		
Atrazine	0.005	<0.005	<0.005
Chloride	250	12.0	13.0
Conductivity (uS/cm)		500	560
Nitrate (as N)	10	<0.10	<0.10
pH (pH units)	6.5-8.5	7.4	7.4
Phosphorus (total)		0.01	0.09
Potassium		2.0	2.0
Sodium	200	7.0	8.0
Temperature (C)	15	10.0	8.0
TPH-Diesel			
TPH-Gasoline			
TPH-Gasoline/Diesel			
TPH-Heavy Oils			
VOC's:			
Benzene	0.005	<0.0005	<0.0005
Ethylbenzene	0.0024	<0.0005	<0.0005
Toluene	0.024	<0.0005	<0.0005
Xylene-m/p		<0.0010	<0.0010
Xylene-o		<0.0005	<0.0005
Xylenes	0.3		

All values (VOC's included) reported in mg/L unless otherwise noted.

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WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **94-11** Sheet: 1

Date Sampled:		09-May-1996	10-Oct-1996	18-Apr-1997	16-May-1997	16-Sep-1997
Parameter	ODWS/O					
Atrazine	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloride	250	7.0	5.0	9.0	4.0	3.0
Conductivity (uS/cm)		360	447	330	320	260
Nitrate (as N)	10	<0.10	<0.10	<0.10	<0.10	0.29
pH (pH units)	6.5-8.5	8.0	7.6	7.7	7.0	7.1
Phosphorus (total)		8.59	0.02	2.28	1.08	0.56
Potassium		2.0	2.0	2.0	2.0	2.0
Sodium	200	3.0	8.0	4.0	4.0	4.0
Temperature (C)	15	9.4	7.0	6.0	7.0	10.0
VOC's:						
Benzene	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ethylbenzene	0.0024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	0.024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene-m/p						
Xylene-o						
Xylenes	0.3	<0.0010	<0.0010	<0.0015	<0.0015	<0.0015

All values (VOC's included) reported in mg/L unless otherwise noted.

Golder Associates

WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **94-11** Sheet: 2

Date Sampled:		16-Mar-1998	25-Jun-1998	17-Sep-1998	16-Mar-1999	22-Jun-1999
Parameter	ODWS/O					
Atrazine	0.005	<0.005	<0.005	<0.005		<0.005
Chloride	250	7.0	7.0	5.0	Under Ice	5.0
Conductivity (uS/cm)		340	420	410		520
Nitrate (as N)	10	0.44	0.11	0.20		<0.10
pH (pH units)	6.5-8.5	7.1	6.3	7.3		7.4
Phosphorus (total)		0.02	<0.01	0.01		1.67
Potassium		3.0	<1.0	2.0		2.0
Sodium	200	4.0	4.0	3.0		5.0
Temperature (C)	15	1.0	12.0	11.0		11.0
VOC's:						
Benzene	0.005	<0.0005	<0.0005	<0.0005		<0.0005
Ethylbenzene	0.0024	<0.0005	<0.0005	<0.0005		<0.0005
Toluene	0.024	<0.0005	<0.0005	<0.0005		<0.0005
Xylene-m/p						
Xylene-o						
Xylenes	0.3	<0.0015	<0.0015	<0.0015		<0.0015

All values (VOC's included) reported in mg/L unless otherwise noted.

Golder Associates

WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **94-11** Sheet: 3

Date Sampled:		21-Sep-1999	22-Mar-2000	20-Sep-2000	14-Mar-2001	18-Sep-2001
Parameter	ODWS/O					
Atrazine	0.005	<0.005	<0.005	<0.005		<0.005
Chloride	250	7.0	8.0	19.0	Under Ice	7.0
Conductivity (uS/cm)		551	500	584		1500
Nitrate (as N)	10	0.17	0.18	3.03		<0.10
pH (pH units)	6.5-8.5	7.3	7.5	7.2		7.4
Phosphorus (total)		4.45	0.11	0.05		1.91
Potassium		2.0	2.0	2.0		2.0
Sodium	200	6.0	6.0	5.0		5.0
Temperature (C)	15	8.2	8.0	12.3		10.0
VOC's:						
Benzene	0.005	<0.0005	<0.0005	<0.0005		<0.0005
Ethylbenzene	0.0024	<0.0005	<0.0005	<0.0005		<0.0005
Toluene	0.024	<0.0005	<0.0005	<0.0005		<0.0005
Xylene-m/p				<0.0005		<0.0010
Xylene-o				<0.0005		<0.0005
Xylenes	0.3	<0.0015	<0.0015			

All values (VOC's included) reported in mg/L unless otherwise noted.

Golder Associates

WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **94-11**

Date Sampled: 15-May-2002

Parameter	ODWS/O	
Atrazine	0.005	<0.005
Chloride	250	15.0
Conductivity (uS/cm)		550
Nitrate (as N)	10	0.25
pH (pH units)	6.5-8.5	7.1
Phosphorus (total)		0.05
Potassium		2.0
Sodium	200	7.0
Temperature (C)	15	8.0
VOC's:		
Benzene	0.005	<0.0005
Ethylbenzene	0.0024	<0.0005
Toluene	0.024	<0.0005
Xylene-m/p		<0.0010
Xylene-o		<0.0005
Xylenes	0.3	

All values (VOC's included) reported in mg/L unless otherwise noted.

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WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **96-19** Sheet: 1

Date Sampled:		09-May-1996	10-Oct-1996	18-Apr-1997	16-May-1997	16-Sep-1997
Parameter	ODWS/O					
Atrazine	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloride	250	8.0	8.0	7.0	7.0	6.0
Conductivity (uS/cm)		370	437	300	300	260
Nitrate (as N)	10	<0.10	<0.10	<0.10	<0.10	<0.10
pH (pH units)	6.5-8.5	7.8	7.7	6.9	7.7	7.2
Phosphorus (total)		1.47	0.02	0.19	2.42	0.23
Potassium		1.0	1.0	1.0	1.0	1.0
Sodium	200	3.0	8.0	3.0	3.0	3.0
Temperature (C)	15	8.3	9.0	6.0	7.0	9.0
VOC's:						
Benzene	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ethylbenzene	0.0024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	0.024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene-m/p						
Xylene-o						
Xylenes	0.3	<0.0010	<0.0010	<0.0015	<0.0015	<0.0015

All values (VOC's included) reported in mg/L unless otherwise noted.

Golder Associates

WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **96-19** Sheet: 2

Date Sampled:		16-Mar-1998	25-Jun-1998	17-Sep-1998	16-Mar-1999	22-Jun-1999
Parameter	ODWS/O					
Atrazine	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloride	250	7.0	8.0	8.0	11.0	11.0
Conductivity (uS/cm)		300	400	340	380	440
Nitrate (as N)	10	<0.10	<0.10	<0.10	3.16	<0.10
pH (pH units)	6.5-8.5	6.6	6.1	7.1	7.4	7.5
Phosphorus (total)		0.01	<0.01	<0.01	0.61	0.83
Potassium		2.0	2.0	<1.0	1.0	1.0
Sodium	200	3.0	3.0	2.0	10.0	3.0
Temperature (C)	15	2.0	11.0	12.0	8.0	12.0
VOC's:						
Benzene	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ethylbenzene	0.0024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	0.024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene-m/p						
Xylene-o						
Xylenes	0.3	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015

All values (VOC's included) reported in mg/L unless otherwise noted.

Golder Associates

WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **96-19** Sheet: 3

Date Sampled:		21-Sep-1999	22-Mar-2000	20-Sep-2000	14-Mar-2001	18-Sep-2001
Parameter	ODWS/O					
Atrazine	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloride	250	10.0	10.0	14.0	14.0	17.0
Conductivity (uS/cm)		441	470	461	330	460
Nitrate (as N)	10	<0.10	<0.10	<0.10	<0.10	<0.10
pH (pH units)	6.5-8.5	7.4	7.4	7.2	7.6	7.5
Phosphorus (total)		0.52	0.18	0.31	0.16	0.03
Potassium		1.0	1.0	1.0	1.0	1.0
Sodium	200	4.0	4.0	3.0	4.0	5.0
Temperature (C)	15	8.8	7.0	11.4	7.0	10.0
VOC's:						
Benzene	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ethylbenzene	0.0024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	0.024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene-m/p				<0.0005	<0.0010	<0.0010
Xylene-o				<0.0005	<0.0005	<0.0005
Xylenes	0.3	<0.0015	<0.0015			

All values (VOC's included) reported in mg/L unless otherwise noted.

Golder Associates

WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **96-19**

Date Sampled: 15-May-2002

Parameter	ODWS/O	
Atrazine	0.005	<0.005
Chloride	250	12.0
Conductivity (uS/cm)		480
Nitrate (as N)	10	<0.10
pH (pH units)	6.5-8.5	7.4
Phosphorus (total)		0.04
Potassium		1.0
Sodium	200	5.0
Temperature (C)	15	10.0
VOC's:		
Benzene	0.005	<0.0005
Ethylbenzene	0.0024	<0.0005
Toluene	0.024	<0.0005
Xylene-m/p		<0.0010
Xylene-o		<0.0005
Xylenes	0.3	

All values (VOC's included) reported in mg/L unless otherwise noted.

Golder Associates

WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **96-20** Sheet: 1

Date Sampled:		10-May-1996	10-Oct-1996	18-Apr-1997	16-May-1997	16-Sep-1997
Parameter	ODWS/O					
Atrazine	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloride	250	13.0	13.0	11.0	20.0	18.0
Conductivity (uS/cm)		410	465	380	380	310
Nitrate (as N)	10	1.65	0.41	2.38	3.11	2.54
pH (pH units)	6.5-8.5	7.9	7.7	6.6	6.9	7.0
Phosphorus (total)		0.86	0.01	1.45	2.00	0.35
Potassium		2.0	2.0	2.0	2.0	2.0
Sodium	200	2.0	6.0	1.0	2.0	2.0
Temperature (C)	15	8.3	6.5	6.0	7.0	9.0
VOC's:						
Benzene	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ethylbenzene	0.0024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	0.024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene-m/p						
Xylene-o						
Xylenes	0.3	<0.0010	<0.0010	<0.0015	<0.0015	<0.0015

All values (VOC's included) reported in mg/L unless otherwise noted.

Golder Associates

WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **96-20** Sheet: 2

Date Sampled:		16-Mar-1998	25-Jun-1998	17-Sep-1998	16-Mar-1999	22-Jun-1999
Parameter	ODWS/O					
Atrazine	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloride	250	18.0	25.0	21.0	26.0	22.0
Conductivity (uS/cm)		380	600	440	490	610
Nitrate (as N)	10	0.73	0.93	2.99	0.92	0.10
pH (pH units)	6.5-8.5	6.9	6.3	7.4	7.4	7.5
Phosphorus (total)		<0.01	<0.01	<0.01	1.49	0.71
Potassium		2.0	2.0	6.0	2.0	1.0
Sodium	200	2.0	3.0	2.0	4.0	5.0
Temperature (C)	15	2.0	10.0	12.0	9.0	10.0
VOC's:						
Benzene	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ethylbenzene	0.0024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	0.024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene-m/p						
Xylene-o						
Xylenes	0.3	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015

All values (VOC's included) reported in mg/L unless otherwise noted.

Golder Associates

WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **96-20** Sheet: 3

Date Sampled:		21-Sep-1999	22-Mar-2000	20-Sep-2000	14-Mar-2001	18-Sep-2001
Parameter	ODWS/O					
Atrazine	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloride	250	25.0	27.0	31.0	35.0	41.0
Conductivity (uS/cm)		665	580	567	350	1700
Nitrate (as N)	10	0.67	0.70	2.21	1.93	1.21
pH (pH units)	6.5-8.5	7.4	7.3	7.1	7.4	7.1
Phosphorus (total)		0.42	0.18	0.12	0.49	0.20
Potassium		2.0	1.0	2.0	2.0	2.0
Sodium	200	4.0	4.0	4.0	6.0	4.0
Temperature (C)	15	9.1	8.0	11.4	6.0	10.0
VOC's:						
Benzene	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ethylbenzene	0.0024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	0.024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene-m/p				<0.0005	<0.0010	<0.0010
Xylene-o				<0.0005	<0.0005	<0.0005
Xylenes	0.3	<0.0015	<0.0015			

All values (VOC's included) reported in mg/L unless otherwise noted.

Golder Associates

WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **96-20**

Date Sampled: 15-May-2002

Parameter	ODWS/O	
Atrazine	0.005	<0.005
Chloride	250	49.0
Conductivity (uS/cm)		580
Nitrate (as N)	10	0.10
pH (pH units)	6.5-8.5	7.4
Phosphorus (total)		0.05
Potassium		2.0
Sodium	200	6.0
Temperature (C)	15	10.0
VOC's:		
Benzene	0.005	<0.0005
Ethylbenzene	0.0024	<0.0005
Toluene	0.024	<0.0005
Xylene-m/p		<0.0010
Xylene-o		<0.0005
Xylenes	0.3	

All values (VOC's included) reported in mg/L unless otherwise noted.

Golder Associates

WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **96-21** Sheet: 1

Date Sampled:		10-May-1996	10-Oct-1996	18-Apr-1997	16-May-1997	16-Sep-1997
Parameter	ODWS/O					
Atrazine	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloride	250	10.0	10.0	9.0	9.0	9.0
Conductivity (uS/cm)		440	667	500	400	380
Nitrate (as N)	10	0.31	1.23	1.22	1.27	1.07
pH (pH units)	6.5-8.5	7.9	7.8	6.2	7.2	7.1
Phosphorus (total)		5.34	0.01	1.00	0.53	0.56
Potassium		4.0	4.0	4.0	4.0	4.0
Sodium	200	7.0	10.0	6.0	6.0	7.0
Temperature (C)	15	9.7	7.0	6.0	7.0	10.0
VOC's:						
Benzene	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ethylbenzene	0.0024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	0.024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene-m/p						
Xylene-o						
Xylenes	0.3	<0.0010	<0.0010	<0.0015	<0.0015	<0.0015

All values (VOC's included) reported in mg/L unless otherwise noted.

Golder Associates

WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **96-21** Sheet: 2

Date Sampled:		16-Mar-1998	25-Jun-1998	17-Sep-1998	16-Mar-1999	22-Jun-1999
Parameter	ODWS/O					
Atrazine	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloride	250	9.0	10.0	9.0	9.0	7.0
Conductivity (uS/cm)		450	640	520	500	540
Nitrate (as N)	10	1.20	1.30	1.20	0.80	0.81
pH (pH units)	6.5-8.5	7.0	6.3	7.1	7.6	7.4
Phosphorus (total)		<0.01	0.03	<0.01	1.57	1.27
Potassium		5.0	5.0	4.0	4.0	4.0
Sodium	200	6.0	6.0	6.0	7.0	7.0
Temperature (C)	15	1.0	10.0	12.0	9.0	10.0
VOC's:						
Benzene	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ethylbenzene	0.0024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	0.024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene-m/p						
Xylene-o						
Xylenes	0.3	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015

All values (VOC's included) reported in mg/L unless otherwise noted.

Golder Associates

WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **96-21** Sheet: 3

Date Sampled:		21-Sep-1999	22-Mar-2000	20-Sep-2000	14-Mar-2001	18-Sep-2001
Parameter	ODWS/O					
Atrazine	0.005	<0.005		<0.005	<0.005	<0.005
Chloride	250	8.0	NA	9.0	9.0	16.0
Conductivity (uS/cm)		615		573	330	1600
Nitrate (as N)	10	0.94		0.94	0.92	11.20
pH (pH units)	6.5-8.5	7.4		6.8	7.6	7.4
Phosphorus (total)		0.34		2.69	1.48	0.34
Potassium		4.0		4.0	4.0	4.0
Sodium	200	7.0		6.0	7.0	7.0
Temperature (C)	15	8.9		12.8	6.0	11.0
VOC's:						
Benzene	0.005	<0.0005		<0.0005	<0.0005	<0.0005
Ethylbenzene	0.0024	<0.0005		<0.0005	<0.0005	<0.0005
Toluene	0.024	<0.0005		<0.0005	<0.0005	<0.0005
Xylene-m/p				<0.0005	<0.0010	<0.0010
Xylene-o				<0.0005	<0.0005	<0.0005
Xylenes	0.3	<0.0015				

All values (VOC's included) reported in mg/L unless otherwise noted.

Golder Associates

WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **96-21**

Date Sampled: 15-May-2002

Parameter	ODWS/O	
Atrazine	0.005	<0.005
Chloride	250	11.0
Conductivity (uS/cm)		560
Nitrate (as N)	10	8.15
pH (pH units)	6.5-8.5	7.4
Phosphorus (total)		<0.01
Potassium		4.0
Sodium	200	9.0
Temperature (C)	15	10.0
VOC's:		
Benzene	0.005	<0.0005
Ethylbenzene	0.0024	<0.0005
Toluene	0.024	<0.0005
Xylene-m/p		<0.0010
Xylene-o		<0.0005
Xylenes	0.3	

All values (VOC's included) reported in mg/L unless otherwise noted.

Golder Associates

WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **96-22** Sheet: 1

Date Sampled:		10-May-1996	10-Oct-1996	18-Apr-1997	16-May-1997	16-Sep-1997
Parameter	ODWS/O					
Atrazine	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloride	250	6.0	5.0	3.0	3.0	2.0
Conductivity (uS/cm)		440	496	360	350	330
Nitrate (as N)	10	0.42	1.16	0.39	0.11	0.15
pH (pH units)	6.5-8.5	7.9	7.7	6.8	7.0	6.3
Phosphorus (total)		1.66	0.02	<0.01	0.47	0.86
Potassium		2.0	1.0	2.0	1.0	2.0
Sodium	200	4.0	7.0	3.0	3.0	4.0
Temperature (C)	15	9.4	7.5	6.0	7.0	8.0
VOC's:						
Benzene	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ethylbenzene	0.0024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	0.024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene-m/p						
Xylene-o						
Xylenes	0.3	<0.0010	<0.0010	<0.0015	<0.0015	<0.0015

All values (VOC's included) reported in mg/L unless otherwise noted.

Golder Associates

WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **96-22** Sheet: 2

Date Sampled:		16-Mar-1998	25-Jun-1998	17-Sep-1998	16-Mar-1999	22-Jun-1999
Parameter	ODWS/O					
Atrazine	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloride	250	2.0	2.0	3.0	2.0	2.0
Conductivity (uS/cm)		410	580	420	460	540
Nitrate (as N)	10	0.20	<0.10	<0.10	<0.10	0.10
pH (pH units)	6.5-8.5	6.5	6.1	7.1	7.4	7.5
Phosphorus (total)		<0.01	<0.01	<0.01	0.27	0.45
Potassium		2.0	1.0	3.0	1.0	1.0
Sodium	200	3.0	4.0	3.0	4.0	4.0
Temperature (C)	15	2.0	10.0	10.0	8.5	10.0
VOC's:						
Benzene	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ethylbenzene	0.0024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	0.024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene-m/p						
Xylene-o						
Xylenes	0.3	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015

All values (VOC's included) reported in mg/L unless otherwise noted.

Golder Associates

WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **96-22** Sheet: 3

Date Sampled:		21-Sep-1999	22-Mar-2000	20-Sep-2000	14-Mar-2001	18-Sep-2001
Parameter	ODWS/O					
Atrazine	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chloride	250	1.0	2.0	2.0	2.0	1.0
Conductivity (uS/cm)		566	480	500	330	480
Nitrate (as N)	10	0.10	<0.10	<0.10	<0.10	<0.10
pH (pH units)	6.5-8.5	7.4	7.2	6.9	7.3	6.5
Phosphorus (total)		0.83	0.30	0.86	0.35	0.08
Potassium		1.0	1.0	1.0	1.0	1.0
Sodium	200	4.0	4.0	3.0	4.0	4.0
Temperature (C)	15	8.7	8.0	10.9	6.0	11.0
VOC's:						
Benzene	0.005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Ethylbenzene	0.0024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	0.024	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylene-m/p				<0.0005	<0.0010	<0.0010
Xylene-o				<0.0005	<0.0005	<0.0005
Xylenes	0.3	<0.0015	<0.0015			

All values (VOC's included) reported in mg/L unless otherwise noted.

Golder Associates

WINCHESTER WATER PROJECT - REPORT OF MONITORING RESULTS **Project: 011-2886**

Sample Source: **96-22**

Date Sampled: 15-May-2002

Parameter	ODWS/O	
Atrazine	0.005	<0.005
Chloride	250	1.0
Conductivity (uS/cm)		490
Nitrate (as N)	10	<0.10
pH (pH units)	6.5-8.5	7.2
Phosphorus (total)		0.01
Potassium		1.0
Sodium	200	6.0
Temperature (C)	15	10.0
VOC's:		
Benzene	0.005	<0.0005
Ethylbenzene	0.0024	<0.0005
Toluene	0.024	<0.0005
Xylene-m/p		<0.0010
Xylene-o		<0.0005
Xylenes	0.3	

All values (VOC's included) reported in mg/L unless otherwise noted.

APPENDIX B

REPORT OF ANALYSIS SHEETS

APPENDIX B

REPORT OF ANALYSIS SHEETS

ACCUTEST LABORATORIES LTD.
REPORT NO. 2110650, 2206267

Report 2110650 Legend:

S1 = 96-22
S2 = 96-21
S3 = 96-20
S4 = 94-5
S5 = 96-19
S6 = 94-11

Report 2206267 Legend:

S1 = 94-11
S2 = 96-19
S3 = 94-5
S4 = 96-22
S5 = 96-21
S6 = 96-20

ACCUTEST LABORATORIES LTD.

REPORT OF ANALYSIS

Client: Golder Associates Ltd.

ATT: Mr. Andy Benson

Report Number: 2110650
Date: 2001-10-05
Date Submitted: 2001-09-18

Project: 9912857

P.O. Number:
Matrix: Groundwater

			LAB ID:	145351	145352	145353	145354	145355
			Sample Date:	2001-09-18	2001-09-18	2001-09-18	2001-09-18	2001-09-18
			Sample ID:	S1	S2	S3	S4	S5
PARAMETER	**UNITS**	**MDL**						
Atrazine	mg/L	0.005		<0.005	<0.005	<0.005	<0.005	<0.005
Cl	mg/L	1		1	16	41	12	17
N-NO3	mg/L	0.10		<0.10	11.2	1.21	<0.10	<0.10
K	mg/L	1		1	4	2	2	1
Na	mg/L	2		4	7	4	7	5
Total P	mg/L	0.01		0.08	0.34	0.20	0.01	0.03

MDL = Method Detection Limit INC = Incomplete
Comment:

APPROVAL: _____

146 Colonnade Road, Unit 8, Nepean, Ontario, K2E 7Y1 Tel:(613)727-5692 Fax:(613)727-5222

ACCUTEST LABORATORIES LTD.

REPORT OF ANALYSIS

Client: Golder Associates Ltd.

ATT: Mr. Andy Benson

Report Number: 2110650
Date: 2001-10-05
Date Submitted: 2001-09-18
Project: 9912857
P.O. Number:
Matrix: Groundwater

		LAB ID:	145386				
		Sample Date:	2001-09-18				
		Sample ID:	S6				
PARAMETER	**UNITS**	**MDL**					
Atrazine	mg/L	0.005	<0.005				
Cl	mg/L	1	7				
N-NO3	mg/L	0.10	<0.10				
K	mg/L	1	2				
Na	mg/L	2	5				
Total P	mg/L	0.01	1.91				

MDL = Method Detection Limit INC = Incomplete
Comment:

APPROVAL: _____

146 Colonnade Road, Unit 8, Nepean, Ontario, K2E 7Y1 Tel:(613)727-5692 Fax:(613)727-5222

ACCUTEST LABORATORIES LTD.

REPORT OF ANALYSIS

Client: Golder Associates Ltd.

ATT: Mr. Andy Benson

Report Number: 2110650
Date: 2001-09-26
Date Submitted: 2001-09-18
Date Collected: 2001-09-18
Project: 9912857

P.O. Number:
Matrix: Groundwater

PARAMETER	UNITS	MDL	145351 S1	145352 S2	145353 S3	145354 S4	145355 S5
BTEX / 624 / PURGEABLE HYDROCARBONS							
Benzene	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
m/p-xylene	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
o-xylene	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BTEX / 624 Surrogate Recoveries							
Toluene-d8	%		103	103	103	103	103
TRIAZINE HERBICIDES							
Atrazine	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005

MDL = Method Detection Limit INC = Incomplete
Comment:

APPROVAL: _____

146 Colonnade Road, Unit 8, Nepean, Ontario, K2E 7Y1 Tel:(613)727-5692 Fax:(613)727-5222

AC UTEST LABORATORIES LTD.

REPORT OF ANALYSIS

Client: Golder Associates Ltd.

ATT: Mr. Andy Benson

Report Number: 2110650
Date: 2001-09-26
Date Submitted: 2001-09-18
Date Collected: 2001-09-18
Project: 9912857

P.O. Number:
Matrix: Groundwater

PARAMETER	UNITS	MDL	145356 S6				
BTEX / 624 / PURGEABLE HYDROCARBONS							
Benzene	ug/L	0.5	<0.5				
Toluene	ug/L	0.5	<0.5				
Ethylbenzene	ug/L	0.5	<0.5				
m/p-xylene	ug/L	1.0	<1.0				
o-xylene	ug/L	0.5	<0.5				
BTEX / 624 Surrogate Recoveries							
Toluene-d8	%		102				
TRIAZINE HERBICIDES							
Atrazine	mg/L	0.005	<0.005				

MDL = Method Detection Limit INC = Incomplete
Comment:

APPROVAL:

146 Colonnade Road, Unit 8, Nepean, Ontario, K2E 7Y1 Tel:(613)727-5692 Fax:(613)727-5222

ACCUTEST LABORATORIES LTD.

REPORT OF ANALYSIS

Client: Golder Associates Ltd.

ATT: Mr. Andy Benson

Report Number: 2206267
Date: 2002-06-03
Date Submitted: 2002-05-15

Project: 991-2857

P.O. Number:
Matrix: Groundwater

	LAB ID:	182680	182681	182682	182683	182684
	Sample Date:	2002-05-15	2002-05-15	2002-05-15	2002-05-15	2002-05-15
	Sample ID:	S1	S2	S3	S4	S5
PARAMETER	**UNITS**	**MDL**				
Atrazine	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Cl	mg/L	1	15	12	13	1	11
N-NO3	mg/L	0.10	0.25	<0.10	<0.10	<0.10	8.15
K	mg/L	1	2	1	2	1	4
Na	mg/L	2	7	5	8	6	9
Total P	mg/L	0.01	0.05	0.04	0.09	0.01	<0.01

MDL = Method Detection Limit INC = Incomplete
Comment:

APPROVAL:

8-146 Colonnade Road, Ottawa, ON, K2E 7Y1 608 Norris Court, Kingston, ON, K7P 2R9

ACCUTEST LABORATORIES LTD.

REPORT OF ANALYSIS

Client: Golder Associates Ltd.

ATT: Mr. Andy Benson

Report Number: 2206267
Date: 2002-06-03
Date Submitted: 2002-05-15

Project: 991-2857

P.O. Number:
Matrix: Groundwater

		LAB ID:	182685				
		Sample Date:	2002-05-15				
		Sample ID:	S6				
PARAMETER	**UNITS**	**MDL**					
Atrazine	mg/L	0.005	<0.005				
Cl	mg/L	1	49				
N-NO3	mg/L	0.10	0.10				
K	mg/L	1	2				
Na	mg/L	2	6				
Total P	mg/L	0.01	0.05				

MDL = Method Detection Limit INC = Incomplete
Comment:

APPROVAL:

8-146 Colonnade Road, Ottawa, ON, K2E 7Y1 608 Norris Court, Kingston, ON, K7P 2R9

ACCUTEST LABORATORIES LTD.

REPORT OF ANALYSIS

Client: Golder Associates Ltd.

ATT: Mr. Andy Benson

Report Number: 2206267
Date: 2002-05-27
Date Submitted: 2002-05-15

Project: 991-2857

P.O. Number:
Matrix: Groundwater

	LAB ID:	182680	182681	182682	182683	182684
	Sample Date:	2002-05-15	2002-05-15	2002-05-15	2002-05-15	2002-05-15
	Sample ID:	S1	S2	S3	S4	S5
PARAMETER	**UNITS**	**MDL**				
BTEX / 624 / PURGEABLE HYDROCARBONS						
Benzene	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Toluene	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Ethylbenzene	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
m/p-xylene	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0
o-xylene	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
BTEX / 624 Surrogate Recoveries						
Toluene-d8	%		101	101	102	100	101
TRIAZINE HERBICIDES						
Atrazine	mg/L	0.005	<0.005	<0.005	<0.005	<0.005	<0.005

MDL = Method Detection Limit INC = Incomplete

Comment:

APPROVAL:

8-146 Colonnade Road, Ottawa, ON, K2E 7Y1

608 Norris Court, Kingston, ON, K7P 2R9

ACCUTEST LABORATORIES LTD.

REPORT OF ANALYSIS

Client: Golder Associates Ltd.

ATT: Mr. Andy Benson

Report Number: 2206267
Date: 2002-05-27
Date Submitted: 2002-05-15

Project: 991-2857

P.O. Number:
Matrix: Groundwater

		LAB ID:	182685				
		Sample Date:	2002-05-15				
		Sample ID:	S6				
PARAMETER	**UNITS**	**MDL**					
BTEX / 624 / PURGEABLE HYDROCARBONS							
Benzene	ug/L	0.5	<0.5				
Toluene	ug/L	0.5	<0.5				
Ethylbenzene	ug/L	0.5	<0.5				
m/p-xylene	ug/L	1.0	<1.0				
o-xylene	ug/L	0.5	<0.5				
BTEX / 624 Surrogate Recoveries							
Toluene-d8	%		101				
TRIAZINE HERBICIDES							
Atrazine	mg/L	0.005	<0.005				

MDL = Method Detection Limit INC = Incomplete
Comment:

APPROVAL:

8-146 Colonnade Road, Ottawa, ON, K2E 7Y1

608 Norris Court, Kingston, ON, K7P 2R9

APPENDIX C

ANNUAL RECORDS OF WATER TAKING
(2000 and 2001)

Ministry of the Environment / Ministere de l'Environnement

Annual Record of Water Taking

Ontario Clean Water Agency / Agence Ontarienne Des Eaux

Personal information contained on this form is collected under the authority of the Ontario Water Resources Act, Section 34. The purpose of the form is to record details and information about the taking of water annually. Questions should be directed to the Ministry of the Environment's Regional Office in your area.

See examples on the manually printed form for instructions on completing form.

Year	Permit No.
2000	96-P-4068

Source (Separate record to be kept for each source)

Well # 7A, 7B, 7C Ground Water

Name of Permittee

Village of Winchester
547 St. Lawrence Street, Winchester, Ontario K0C 2K0

Mailing Address

c/o Ontario Clean Water Agency
5 Industrial Drive, Chesterville, Ontario K0C 1H0

Location of Taking	Twp. or Municipality	Concession	Lot
Thompson Road	Winchester Twp.	Conc. 9	Pt. Lot 15

(1) Date of Taking	(2) Monthly Hours of Taking	(3) Rate of Taking (☐ Imp gpm ☐ U.S. gpm ☒ Litres/sec)	(4) Amount of Taking (☐ Day ☐ Week ☒ Month)	(5) Remarks
JAN. 2000	295.2	19.7	20,947 m3	
FEB. 2000	265.2	19.3	18,412 m3	
MAR. 2000	307.1	19.4	21,435 m3	
APR. 2000	305.9	19.7	21,840 m3	
MAY 2000	348.7	20	25,097 m3	
JUNE 2000	377.2	20.8	27,865 m3	
JULY 2000	375.6	20.6	27,937 m3	
AUG. 2000	377.3	19.9	27,066 m3	
SEPT. 2000	391	20.2	28,411 m3	
OCT. 2000	374.5	20.4	27,523 m3	
NOV. 2000	384	20.1	27,811 m3	
DEC. 2000	369.7	20.2	26,846 m3	

I certify that the above information is true, complete and accurate.

Blair Henderson, Acting Operations Manager

Signature: Blair Henderson

Date: Feb 08/2001

Ministry Of The Environment
Ministère de l'Environnement

Annual Record Of Ground Water Taking
Registre annuel de prélèvement d'eau souterraine

Personal information contained on this form is collected under the authority of the Ontario Water Resources Act, Section 20. The Purpose of the form is to record details and information about the taking of water annually. Questions should be directed to the Ministry of the Environment's Regional office in your area.

Les renseignements personnels qui figurent dans le présent formulaire sont recueillis en vertu de l'article 20 de la Loi sur les ressources en eau de l'Ontario. La présente sert à consigner aux dossiers les détails et les renseignements concernant la prise d'eau annuelle. Prière d'adresser toute Question au bureau régional du ministère de l'Environnement le Plus proche.

Year: 2001 *Année*

Permit No.: 96-P-4068 *N° de permis*

Source: Groundwater Wellfield #7a,b,c

Name of Permittee: VILLAGE OF WINCHESTER
Nom du titulaire du permis

Mailing Address: O.C.W.A. 5 INDUSTRIAL DRIVE CHESTERVILLE , ON K0C1H0
Adresse postale

Location Of Taking: 13224 THOMPSON RD.
Lieu de la prise d'eau

Twp. or Municipality: NORTH DUNDAS
Canton ou municipalité

Concession: CON. 9

Lot: PT. LOT 15

Date Of Taking *Date de la prise d'eau*	Hours Of Taking *Heure*	Rate Of Taking Litres/sec *Débit de prise d'eau*	Amount Of Taking m^3 *Volume des prises*	Maximum Rate of Taking m^3 /day *Taux de prélèvement maximum*	Remarks *Observations*
JAN	394.20	20.10	28,527	1,103	
FEB	371.80	19.72	26,339	1,045	
MAR	416.70	19.96	29,951	1,119	
APR	370.30	20.10	26,800	1,027	
MAY	461.00	20.15	33,437	1,277	
JUN	483.90	20.18	35,154	1,477	
JUL	498.00	20.17	36,164	1,386	
AUG	551.70	20.04	39,817	1,698	
SEP	471.50	20.03	35,986	1,304	
OCT	444.90	20.09	32,184	1,369	
NOV	390.00	20.09	28,188	1,038	
DEC	378.30	19.54	26,669	1,025	

I certify that the above information is true, complete and accurate. Signature Date
J'atteste que les renseignements ci-dessus sont vrais, complets et exacts.

Jan 28/02